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CIRRUS BUILDERS ASSOCIATION

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CBA

Winter 96

WHAT'S INSIDE

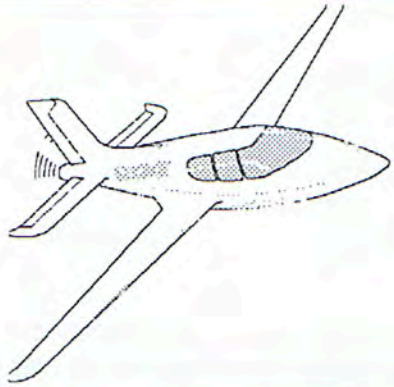
By .....Dave Doucette..

Report from Cy and Jim Mehling

In this issue we once again have the pleasure of hearing from Cy and Jim. Despite being hampered by winter weather, they continue to provide us with valuable information about the flying phase of this project. We also learned that they're replacing their flexdyne and aluminum drive shaft with the new elastomeric/ graphite drive shaft.

Kenny Rogers Lives

I was sitting in a Kenny Rogers Roasters restaurant last week and heard the song *The Gambler.* One of the lines "You got to know when to hold them, know when to fold them" was of course talking about a poker



hand. Well, it's time to fold them, the flexdyne that is. This newsletter brings news that Al Corey has joined Cy and Jim Mehling as well as Glenn Elliott in switching to an alternative to the original drive system. Without editorializing too much I think it should come as no surprise that second and third generation engineering attempts would lead to improvements to the original drive system. The flexdyne system has served well in both prototypes and perhaps even in some customer built applications. But what we are seeing with the alternative drive system is collaboration, cooperation, and increased comradery amongst builders which is the true purpose of this newsletter. We can all be proud and confident that this simple communication vehicle has and will be a vital tool for all of us.

Builders Survey

This issue contains several builders surveys. There are still many of you out there who have yet to return this survey. We felt it would be useful to take a snapshot of where all of us are in our project.

BOB LONG, You're on the Spot

We've never received an article from you, Bob Long. So the plan is to feature your project in the next newsletter. It's too late to say no. Everyone now knows you'll be submitting an article along with lots of photos. We can't wait. (This was Rick's idea!!) Who will be put "On the Spot" in the next issue?

Newsletter Contributions

Rick and I thank all of you who have contributed to the newsletter. There is always a need for written contributions. You don't have to be a journalist to contribute. And you don't have to be very far in your project to make meaningful comments. Tell us how you did something. How did you differ from the manual. Any article, long or short, is important. Keep those articles coming.

New CBA member!

Please Welcome Angelo Dounoucos to the Cirrus Builders Association. Angelo lives in Schenectady N.Y.

Mr. Dave Doucette
457 Rolling Timber Trail
Kettering, Ohio 45429

Dear Dave,

Hope you are having a happy holiday season and I'm glad I found you (E-mail).

The second generation parts sound interesting. Look forward to hearing more about that. In answer to your question about where I am, right now I am at home, that is...

Doug Taylor
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Apt 406
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E-Mail CompuServe 103164,1044

I don't actually spend much time here, we do a lot of long trips with the company.
I was originally under the impression that the company knew they were going somewhere and that most of the time we would go for a week or so and then be home for a similar period of time.
It turns out that we go for a month with a couple of days in-between. Its really not quite that bad, but we spent 3 1/2 months in Europe and Egypt since July and going overseas soon.

I think I spent about a month in my apt since I got it. I am not complaining, except about paying rent, anyway, glad to here you are all doing well.

All the best to you Dave, Diane and the kids.

Doug.

Cutting Avionics

Is proud to announce our new options for you the Kit/Homebuilder.

Tech Line:

When you have an electrical or avionics question or problem our tech is available to answer your questions or to help you troubleshoot.
This is a fee based consultation service.
There are two ways to access this service, one is to fax us or to call us between the hours of 6:00 PM and 10:00 PM central standard time.

Wiring kits:

We include in theses kits:

Detailed Schematics
Hot Stamp Marked wires
Terminal ends

These kits are for the builder who wants to do everything himself and have the advantages of marked wires and good schematics. If you are not sure why you mark your wires ask a builder who didn't mark his wires what kinds of problems he had and if he wished he had marked his wires. After you hear his answer call Cutting Avionics at 1-218-624-8100

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If you want quality custom built wire harnesses that include:

Detailed Schematics
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Quality Connectors
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These Harnesses are built for your aircraft, to enable you to lay the bundle in place, tie it down and connect the connectors to your components. With these bundles, you the builder do not have to be an avionics tech, or hire one to have your equipment work correctly.

Panel Customizing:

The difference between a bad looking panel and a good looking panel often, depends upon who cuts the holes and makes any bends. This service allows the builder to dictate where and what goes into his panel, and we do the panel work.

Complete Panel Building

Most avionics shops do not want to do your complete panel unless they sell you the radios, instruments, etc. We would rather you find and purchase your own equipment and we will assemble your panel for you. However if you prefer we will also gather the equipment for you and deliver to you a completed panel.

Rich Cutting is the avionics tech for Cirrus Design

WE accept Visa/ Discover/ Master Card

CALL OR FAX US AT; 1-218-624-8100

Mr. Dave Doucette
457 Rolling Timber Trail
Kettering, Ohio 45429

3/17/96

Dear Dave,

Nice to hear from you. Sorry I haven't been in touch for a while. I got your message in Amsterdam on the way home from the Maldives. It's an island group about 300 miles SW of India. We've been flying a lot and going to some cool places lately. We should be going on around the world or at least start hopping around the Pacific in the next few months. If only the rest of this job was as good as the flying part!

I saw Tim Tamscin (former Cirrus director of marketing-ed note) just before we left on this last trip. We had one or two many beers and got caught up on everything. In case you didn't know, he and another guy from Cirrus (Dan Madden) have a little company manufacturing composite parts. I think Tim is getting a little tired of the business. It's been tough getting things going but they have a lot of good prospects, but they haven't gotten too many firm deals, but it sounds like things are looking up. I talk to Dan quite a bit more than I talk to Tim, because Tim isn't around the shop as much - either on sales calls or on the phone, so it was good to see him last month.

Hope the Cirrus building is going well. Heard some rumors that people are getting more upset about waiting for wings. Hope everything goes ok with them. Definitely feel free to give out my E-mail address to any Cirrus builders, and if you have anyone else, please pass it on to me.

Hi to Diane and the kids too.

Doug.

Letter to CBA

March 17, 1996

Gentlemen,

Let me introduce myself. I am President / CEO of a relatively small manufacturing company in the water pollution control business, nearing retirement, and not likely to slow down much.

In the past I have built a 15 meter metal and fiberglass sail plane, and have approximately 450 hours in racing class sail planes. Also have 250 hr's in power with and IFR rating nearing flight test.

Three years ago I became involved on the BD-10 program, and have big bucks at stake. The project is under great doubt due to the loss of two great test pilots in the ships. But strangely enough I'm in the experimental airplane business again. A month ago after dozens of conversations with CBA members and a visit to Cirrus Design, I took the plunge again and bought Frank Leinbach's project of repairing N303VK. 303VK was built by Gerry Greth, and flew about 70 hours before a gear collapse incident totaled the wing. Frank bought the damaged ship and brought it east to Maryland.

Frank spent nearly two years building a new wing and was ready to install it when Cirrus announced the wing problem. For business reasons Frank was unable to wait, and sold the project to me.

Gerry flew the ship with a Chevy V-8 conversion which flew well, but I chose to go with a certified engine. Frank was good enough to sell the ship without the engine, and will be offering the engine with mount, drive shaft and other accessories to other Cirrus builders.

Due to lack of time and a desire to fly reasonably soon, the repairs, engine installation & paint will be done at New Composite Designs at Somerset PA. NCD is an experienced builder assist shop specializing in Lancair and Glasair. So far the ship is up on jigs, the wing has been cut up to send the parts back to Cirrus. We're looking at late fall completion if all goes will. Frank had wing number 4 due to his readiness to install the wing.

The immediate decision concerns the engine selection. If we could depend on Toyota / Lexus to have an engine in six months or so it would be my first choice, especially since 303VK was set up for liquid cooling. But Toyota insists that it has no planes for production even though it is proceeding to production certification.

Possible other choices are:

Continental TSIO 550- air or liquid cooled. The air cooled application has been well worked out, but the Voyager liquid cooled version is tempting because of the set up in 303VK. Does anyone know if the Voyager engine is achieving good life?

Lycoming 720. This an eight cylinder engine slightly higher horsepower than the Continentals, and should run smoother with its eight cylinders. But I would have to start from scratch with engine mounts, fans, etc. Comments anyone?

WE all know that the drive train is the key remaining system. Glenn Elliott has broken new ground with the elastomeric couplings on the TSIO-550. This is another reason to favor the Continentals. It seems that we have to design very carefully for higher torque engines, as Glenn's work indicates that the next step up in torque means much larger and heavier couplings. This is a subject that I'm intensely interested, as I will have to be making the tough decisions in the next two months or so.

Enough about me. One of the main reasons I got into this project is the high quality of the people involved in CBA based on my reading all the back issues. I look forward to meeting all of you as we move along, and being part of a new section at Oshkosh!

Angelo Dounoucos.

Cy and Jim Mehling

12 FEB '96

Dear Dave and Rick-

Glen Elliot's article in the last NL was absolutely outstanding. What a blessing to have a guy like that in our group.

Jim and I have done little flying over the winter in N94CM due to the inclement wx conditions, huge piles of snow next to our taxiway after the Blizzard of '96 (30") and the fact our flaps will not operate below 25°F (we have the original flap transmissions). We did not learn that newer models were being used until after we had installed and closed up the wing. I knew when we installed the flap system that those transmissions were never going to be removed except with a chain saw, due to poor design of the installation, but so be it.

We did find a couple warm days near 40°F when we were able to get our landing practice and found the airplane to be in good shape. With 140 hrs on the ship since new we replaced the right brake pads. I figured this was outstanding since it included the original test flights when we really abused the brakes. We use the Stainless Steel brake discs offered by Flight Life Inc.

Since I begged Cirrus to come up with jack pads and have had no response, I mfgr'd my own using an 8" long 2x6, along with a 2x4 with a socket cut into it for the jack stem and in between I put a sheet of .125 Alum. to help spread the load, then I glued a piece of rubber foam where it rests under the main wing spar. At the same time I ordered two wing hyd jacks which are about 25" high from the Jack House in Trade a Plane for $142 ea. I also built two stands or boxes to use with the jacks. They were built of 2x4's and 2x6's and are 21" square and 13" high. I used uprights on the corners as well as the center and believe they are strong enough to jack a DC-3. I assembled them with drywall screws which are easy to drive with an elec. screwdriver if you drill pilot holes.

When I jack our airplane, it more or less teeters on the main jacks under the spars with 75# of ballast on the pilot floor near the rudder petals. Then I use a sawhorse under the nose and a stepladder under the tail. After the airplane is off the floor properly, I use sawhorses under the wing also which makes it very stable for going into and out of the cockpit to operate the gear etc.

Having heard of major failures of the only other two VK-30's in the world that are flying with the original drive train, we decided that we are not going to wait for ours to fail and ordered parts to change the clutch and flex pacs and aluminum drive shaft to Elastomeric couplings and carbon fiber

drive shaft. We have a 4 month wait for the fwd coupling, but in the mean time we can have some of the machine work done and order the remaining parts. It would appear from the mfgr's manual on the clutch that it is far underated for the use we put it to in the VK-30. The flex pacs also have a safety factor which is unacceptable to us.

Al Corey has had numerous problems tuning his clutch, perhaps due to some poor advice he received from me. I had told him that I took Cirrus advice and inserted 7# of shot for the initial run. Then when I further checked it, I had removed about 8oz. and have operated it in that condition since. He had carefully weighed his shot before inserting it. On the contrary, I had simply read the label on the container that said it contained 10lb, with marks showing the level of ea. two ounces. He had ordered a new bottle of shot and went to the trouble of weighing it and found the bottle contained 11½ lb instead of ten lb. Using his method, I find I must have installed 8½ lb initially. Due to slippage, he trashed his clutch twice and had to rebuild it ea. time.

We are still living with the fuel leaks at our MLG trunnions. We lose about 10 gallons a month just sitting in the hangar. I asked Cirrus for help on this item until we get the new wing, but they declined. I also asked them for wing and tail tie down brackets and have received no word that they are working on them. I have decided to install them myself. I have a flat piece of steel with a nut welded to ea. The brackets are about 2" square and will be secured to the inside of the tail near the spinner and inside the wings just inbd of the aileron counterweights on the bottom of the main wing spar. I will secure them with countersunk screws and merely insert some hdwe store screw eyes when tieing down the airplane. I purchased a large hasp as used with a padlock and cut it up for materials. Total cost for the hasp and eyes was about $7.

We have secured the use of Jim's condo in Winterhaven, FL about 45 minutes east of Lakeland by car for use at Sun 'N Fun. We have a rent a car ready and hope to see you early in the week there.

What's this rumor that Cirrus will soon have a new zip code in ND?

Best Regards,

Jim and Cy Mehling

Al Corey

Dear Builders,

I want to take a minute to share with you a few VK-30 experiences. Several weeks ago after take-off I experienced an unusual problem.

Before take-off I set trim for slight nose up. After take-off the normal procedure is to adjust nose down trim until you reach cruise altitude.

When I reached cruise altitude my trim system would not respond. I had too much nose down trim. It took alot of back pressure to keep the aircraft level. I immediately returned to the airport.

I found that the trim motor circuit breaker had popped. The original trim system used a 2 amp circuit breaker. There was an updated electrical drawing that called for a 4 amp breaker.
I replaced the 2 amp with a 4 amp and it seems to work fine now. I also replaced the grease in the trim motor gear box with low temperature grease.

Several days later I discovered another more critical problem.
While flying at cruise the dry fluid clutch started to slip!.

I reduced power immediately and limped back to the airport. I dismantled the clutch and found the seal inside the clutch had failed.

The broken seal allowed shot to escape into the rear chamber of the clutch. The shot didn't escape outside the unit.

When I tore it all apart I found pieces of the seal throughout the clutch.
Enough shot had leaked out to allow the clutch to slip.

At that point I decided it was time to replace the entire drive line.
I ordered the new graphite drive shaft and elastomeric couplings.

I hope to have all the new parts installed in time for Sun N' Fun.

I'm looking forward to flying with the new graphite/elastomeric system. The original drive had 75 hrs. total time.

I'm sure the new drive will be much more reliable.

More later,

Al Corey

Glenn Elliott

Jan 9, 1996

Report from Glenn Elliott

Total time on N60GE is now 137 hours; 55 on the new drive train. Everything seems to be working fine.

We've made a number of cross country trips. The flying weather here in the Southwest this fall, and so far this winter, has been exceptionally nice; so our self-imposed flight restrictions because of the wing have not interfered at all. We've been as far east as Springfield, MO, and as far west as Monterey, CA, and have had no problems away from home.

I want to give a word of encouragement to all the other builders. I know that the problem with the wing makes the project difficult; and the lack of good information on progress on the new wing is especially vexing. But this is a great airplane and the end result will be something worth waiting for. New wings will eventually be available. Hang in there!

Glenn Elliott

Roger Carter

Jan 8, 1996

Fellow Cirrus Builders,

The other day I was glancing through the April issue of our fine newsletter.

On page #9 Glenn Elliott has provided us with a picture of a failing flex coupling from his aircraft (thank you Glenn, this is what makes this newsletter great). After studying the photo, I noticed that most of the couplings were cracking not at the attach points, but around the radius of the fitting with at least one end of each crack breaking the outside perimeter of the plate. In many cases both ends of the crack are at the outside edge. I would presume from this that these cracks are originating from the perimeter of the plate (not at the bolt holes).

Upon examination of my own individual flex plates I noticed that they are manufactured by first being stamped out from sheet stock and then having the attach holes drilled in a separate operation. The stamping process leaves machine marks or scratches (fine cracks if you will) at 90 degrees to the intended applied torque. This may be no big deal in a low stress application, but I'm sure we can all agree that is not the case when installed in the VK-30.

These machine marks provide an opportunity for cracks to develop at a lower stress level than would be the case if this surface were smooth and free of defects. It is for this reason we are taught to file out nicks in our propellers, stop drill cracks and de-burr sheet metal before bending it.

If one is to install this coupling in their aircraft, I believe they could improve the reliability by sanding (better yet polishing) out these manufactured stress points. All sanding or polishing should be parallel to the edge of the plate so not to add to the problem.

I am not suggesting that this procedure will prevent these couplings from failing, or even that there is a problem with these couplings, Many factors are involved in the reliability and service life of a component or apparatus, including but not limited to it's design, manufacture, installation, maintenance, method of operation, operating environment etc.... I just wished to point out a possible way to improve the performance and life of these couplings.

This same dressing technique can be applied to the edges of your plexiglass windows after trimming them for a proper fit. They will endure a much higher stress level (bending and flexing) if there is no convenient place for the crack to start. I learned that one the hard was (more than once).

Good luck to all of you in your project.

Thank you Rick and Dave for providing us with this forum for communication.

Sincerely

Roger Carter

Builders Survey

Dear Fellow Builders,

Alan Shaw.

I have had my Cirrus kit since Jan. 1993. I am currently **not working on my Cirrus**. The reason is, waiting to see if we get a wing. At this point in time I have pretty much decided to use the **BlackJack - Hamilton Std.** as an engine for my project. The main reason I have decided to use the engine I have chosen is Liquid cooling, quiet, modern technology. I plan to obtain my engine from Hamilton-Standard. I plan to use a MT, propeller.

I read Glenn Elliott's article (Nov.95 Newsletter) about his new elastromeric / graphite drive line.
I am very interested in the new drive.

As far as my instrument panel is concerned, I plan to utilize the following:
Radios:

Com1		ADF	None
Com2	Becker-Northstar	DME	
NAV1		GPS	Northstar
NAV2		TRANSPONDER	

Auto Pilot S-Tec-60 Primary Flight instruments will be Glass Cockpit type
Weather Avoidance: Strike finder
Intercom: PS engineering Panel

Waiting on Nav-Com's to see what King comes up with for next year.

I have not completed my cowl flaps.
I plan to install an Oxygen system in my Cirrus.
I received my ***wing*** kit on Feb 93. I had completed approximately 5% of the wing prior to the recall of the wings and initiation of the replacement program. If I were to have a completed, installed wing right now I could be flying in 12 months.

My most positive comment about the wing replacement program is The new wing should be better, lighter, stronger

My biggest disappointment about the wing replacement program is it took a lot of time and persuasion to get Cirrus to "do the right thing".

I am 30% confident that I will have a wing within 18 months. The absolute earliest I need my wing is Aug 96 in order to avoid any delay in building my Cirrus. If my Cirrus were completed today I expect that it would be used mostly as follows: 40% Business 60% Pleasure

I have made the following modifications to my Cirrus: Lightning protection.

Total flight time: 300 hours. Instrument rated: yes.
Airport you utilize most: N88 (Doylestown PA.)

Aircraft you've flown: C 150- 152 172 182 PA-28R-200 (mostly) BE-A36

Occupation: Molecular Biologist, Design children's vaccines.

Family Stuff: Married (same woman for 28 years) Two boys, 8 and 5 years old.

Builders Survey

Dear Fellow Builders,

Roger Carter.

I have had my Cirrus kit since Fall 1990. I am currently working on my Cirrus. I spend about 50 hours per week. At this point in time I have pretty much decided to use the Intercooled TSIO 520 Cont. as an engine for my project. The main reason I have decided to use the engine I have chosen is it is very proven fits well in the Cirrus with little modification, use's exhaust heat riser for cabin heat, Cessna 206, 207, 210 type.
I obtained my engine from a Cessna 210 with exhaust and accessories.
I plan to use a MT propeller.

I read Glenn Elliott's article (Nov.95 Newsletter) about his new elastromeric / graphite drive line.
I am (very interested in the new drive),

As far as my instrument panel is concerned, I plan to utilize the following:
Radios:

Com1	Narco ADF	
Com2	DME	
NAV1	GPS	Arnav 2 each
NAV2	TRANSPONDER	Narco 2 each

Auto Pilot: S TEC Engine Monitoring: Standard

Panel to be simple (less is more)
Primary Flight Conventional

I have the following comments about construction of the:

Horizontal:	If I were doing it over I would modify Elevators to include Horizontal tips
Rudder:	If using single tail Nav lt- should be installed at top of rudder to meet FAA min requirements of coverage
Hydraulics	If an A/C manufacture utilized a hydraulic system like that of the VK-30 it would insure the prosperity of their legal dept.
Primary flight controls	See comment on hydraulics.
Tail housing	I added 1 extra bulkhead to tail and more ridged attach points for horz.
Engine fireproofing	I am looking into fireproof top coats now + will comment on such later.
Windows	Still looking for best way to install, anyone got any ideas?

I found the construction manual to be general overview on most items. Seems to be very little updating & improvement in manual beyond proto type stage, could be vastly improved & updated.

I have completed my cowl flaps. It will be my plan to have the cowl flap in the lower right hand side.
I plan to install an oxygen system in my Cirrus. I will use a system manufactured by Cessna (C-210) because it fits well in most section and came with my engine.

I received my wing kit Fall 1990. I had completed 100% of the wing prior to the recall of the wings and initiation of the replacement program. I have a completed, installed wing right now. I am working to finish the rest of the plane -eng, systems etc.

My most positive comment about the wing replacement program is the apparent quality of the new wing? Cirrus Design's promise to build wing to __% of completion that builder was at, up to and including installed & finished?

My biggest disappointment about the wing replacement program is we all may be old and have lost our medical by the time we get our wing.

I am 0 % confident that I will have a wing within 18 months. If my Cirrus were completed today I expect that it would be used mostly as follows: 100 % pleasure.

I have made the following modifications to my Cirrus: Wing tie downs, Pulley-cable flight controls, improved hyd-sys, improved eng cooling- cowl flap-sys, drive shaft retainer, numerous changes to fittings, brackets, attachments, access panels ect... to facilitate maintenance & service + provide cleaner mechanical installation

Please tell us about yourself. Use the following outline if you wish:

Total flight time: 7000+ hours. Instrument rated: yes, ATP, A+P- IA
Airport you utilize most: Merrill fld Anch, Ak.
Aircraft you've flown: To many to list- current is Riley turbo stream (700 HP Cessna 320) All time favorite is Piper Super Cub.

Occupation: Aerial mapping- surveying. Previously operated A/C maint/rebuild shop (too much liability)
Family stuff: How anyone could build a Cirrus and still say married is totally beyond me.

Finally, please tell us how we can improve the newsletter. (hats off to Rick & Dave you guys do a great job).

Good luck,

Roger

Dear Fellow Builders,

Mike Barrett

I have had my Cirrus kit since Aug 1990. I am currently not working on my Cirrus. If not working, the reason is I'm waiting for rest of the Kit to arrive.
At this point in time I have pretty much decided to use the Lycoming TIO-540 AF1A as an engine for my project. The main reason I have decided to use the engine I have chosen is proven reliability in the Piper Navajo series, and availability of parts.
I plan to obtain my engine from TradaPlane
I plan to use a MT, propeller.

I read Glenn Elliott's article (Nov.95 Newsletter) about his new elastromeric / graphite drive line.
I am very interested in the new drive.

As far as my instrument panel is concerned, I plan to utilize the following:
Radios:

Com1	x	ADF	
Com2		DME	
NAV1		GPS	x Garmin
NAV2		TRANSPONDER	

Auto Pilot x Engine Monitoring Shadin

Primary Flight Conventional

I have the following comments about construction of the:

Bulk Heads: A most helpful comment on vertical shear web

Primary Flight Controls: Installation: turn A/C over!

I have not completed my cowl flaps. It is or will be my plan to have the cowl flap in the following location upper.

I (circle one) plan do not plan to install an Oxygen system in my Cirrus. I will probably use a system manufactured by Aerox because duration.

Let's turn our attention to the wing. You've gotten lots of letters from Cirrus, maybe you've visited Cirrus, and you may have received the recent video newsletter.

Please comment on the following;

I received my ***wing*** kit on Aug 1990. I had completed approximately 0 % of the wing

prior to the recall of the wings and initiation of the replacement program. If I were to have a completed, installed wing right now I could be flying in ? months.

My most positive comment about the wing replacement program is: I'm totally excited about Cirrus's commitment to improve and build new wings for us builder's. I'm looking forward to a better sense of security in flight and easier maintenance on the ground. I highly recommend wing jack points tie downs and extra venting.

I am 100 % confident that I will have a wing within 18 months. The absolute earliest I need my wing is Aug

96 in order to avoid any delay in building my Cirrus. If my Cirrus were completed today I expect that it would be used mostly as 50% business 50 % pleasure.

I have made the following modifications to my Cirrus: Extra reinforcements on vertical and fuselage bulkhead extra large engine access doors extra nose access door, taildragger (not really!)

Please tell us about yourself. Use the following outline if you wish:

Total flight time 120 hours. Instrument rated: NO

Airport you utilize most: Kalispell City Airport, Kalispell, MT S-27

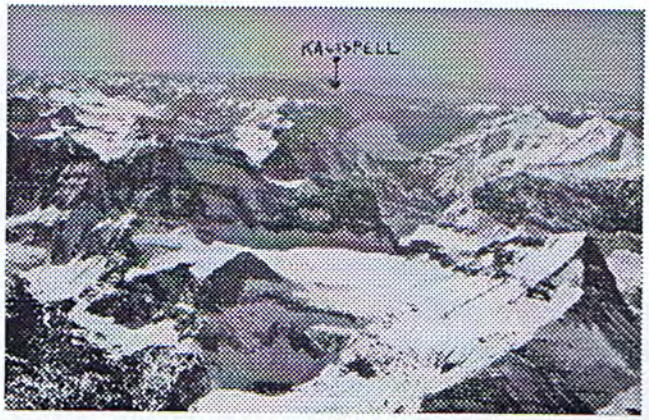
Aircraft you've flown: Maule- MX-7 235, C-120, C-140, C-172, C-182, C-210 PA -18-180 PA-20, PA-22, PA-23, PA-24, PA-38 Be 58P I love taildraggers!+ grass runways.

Occupation: In Feb 91 I started Sky Corral Aircraft Services using my IA / A&P license. I have performed many annuals on various types, specializing in problem aircraft. During the last 3 years I have restored a Maule MX-7 235, recently sold to David LaForge of Boca Raton, Fla. We have lots of fun flying to Schafer Meadows in the Bob Marshall Wilderness and rafting the Middle fork of the Flathead River, Montana's wildest river.

I'm married now over 10 years to Barbi and we have a 5 year old son Sean. I'm looking forward to working on the Cirrus again.

I love our newsletter!!!

Thanks, *Mike*



View loking south from US/Canada border

Top left....
Hanger at Kalispell City airport, Montana with maule MX-7 235 Normal winter weather!

Me at WURZ airport north fork of the Flathead

Builders Survey

Dear Fellow Builders,

Steven D'Incognito

I have had my Cirrus kit since 11 / 1 / 94 I am currently not working on my Cirrus.
At this point in time I have pretty much decided to use the Alison Turbine as an engine for my project. The main reason I have decided to use the engine I have chosen is size, weight, dependability, and no need for fluid clutch.

My most positive comment about the wing replacement program is: I'm glad Cirrus is standing behind their product.

Please elaborate on these on the back of this page. We would also ask you to elaborate on two or three construction techniques that you found particularly helpful. This might involve techniques, tools, or something you found out by trial and error that might help someone else. *See back page.*

Please tell us about yourself. Use the following outline if you wish:

Total flight time: 250 hours. Instrument rated: yes

Airport you utilize most: C81 Cambell Airport / Grayslake IL.

Aircraft you've flown: Piper Turbo.Arrow- Currently

Occupation (when you're not Cirrus building): Owner / Cabinetmaker- Finer Woodworking Inc.

Family Stuff: Myself: age 37, married to my beautiful wife Frances for over 18 yrs. Children- daughter Carmella: 17 yrs top of high school senior class, registered at UI also checking out Air National Guard - Son :Steven Jr. 15 yr. Honor roll student, working on private certificate as well as drivers licence.

Thank you, Steven D'Incognito

I have wanted to write to the newsletter for quite sometime now but obviously it hasn't been a top priority. I purchased my Cirrus at about the same time I put a foundation in the ground for our new home (a project that was waiting over eight years). We finally had earned and saved enough money to get the house underway when I heard the news Cirrus had stopped making the VK-30 kit plane. Immediately I phoned Cirrus to confirm the reports and investigated as to whom might want to sell a kit. No sooner had I hung up the phone I was calling the referrals. I bought my kit from a gentleman out east who had not worked on it since his at the factory training time. I considered myself very fortunate!. Ever since I saw the VK-30 at Oshkosh I dreamed of owning no other plane.
It's now a year later. We'vd moved into the house, (although all the fancy stuff isn't done yet!), business is slow and money is scarce (I know nobody can identify with that), However, we are looking forward to the months ahead for the "Ceremony of opening the box". I greatly appreciate all the work Rick and Dave and others, have put into the newsletter. I'm always encouraged by it and can hardly wait to start contributing.

Thanks

Dear Fellow Builders,

Tom Westenberger

I have had my Cirrus kit since Oct. 92. I am currently working . I spend about 30 or so hours per week. If not working, the reason is too busy with work and travel.
At this point in time I have pretty much decided to use the Continental IO-550-G as an engine for my project. The main reason I have decided to use the engine I have chosen is reliability, industry recognition and good fuel economy.

I plan to obtain my engine from I purchased it from Cirrus Design in December of 1993

I plan to use a MTV-9-B/LD 193-46 propeller.

I read Glenn Elliott's article (Nov.95 Newsletter) about his new elastromeric / graphite drive line.

(circle one) I am (very interested in the new drive).

As far as my instrument panel is concerned, I plan to utilize the following:
Radios:

Com1	King KY 196A	ADF	King KR 87
Com2	King KX135	DME	King KNS 80
NAV1	King KNS 80	GPS	Tribble TNL 3000 A
NAV2	King KX 155	TRANSPONDER	King KT 76A

Auto Pilot S-TEC Model 55 Engine Monitoring Vision Microsystem VM-1000

Arnav MFD 5100 Color moving map ACK ELT model # E-01

Weather Avoidance: WX-900 Lightening strikefinder

Intercom: Telex PC-4 4 place

Other major components: Standby vacuum system, Phoenis halon system, Sony #7805 am-fm, c/d player, dual tachometers, 4 bucket seat seating arrangement, backup alternator

Please use another sheet to elaborate on any further instrument panel comments you may have.

We used automotive style vents for inst. panel fresh air as well as for cabin heat and windshield defrost system. We made a side bar control box to adjust hot cold air mix as well as floor/defrost desperation of air flow. Marine style vent fans will be used in both fresh air and heating/defrost systems.

I have the following comments about construction of the:

Horizontal: Be sure to box off the tips in the counterweight openings.

Builders Survey

Horizontal Installation:	Check and recheck all measurements as well as driveshaft clearance
Rudder:	We added a trim flap approx. 4" x 8" similar to cruise flap design. Be sure to jig the rudder skins securely, check for skin symmetry.
Hydraulics/ Brake Lines:	Attached both sets of lines to sides of longerons, we moved the free fall valve form under the seat to lower inst. panel.
Bulk Heads:	All were made from pre-cure sheet u/peel ply. Make up cardboard templates first to minimize error
Primary Flight Controls:	Am considering replacing all push pull cables with stranded aircraft cable similar to elevator system to reduce drag & improve feel.
Tail Housing	Just completed last week! Use stiff paper or thin cardboard to make templates for precure and Bi & Unidirectional cloth. Superglue pre-cure.
Engine Fireproofing:	Completed this last fall. Used pre-cured sheets w/peel ply. Made one piece template for side and front panels. Thank God I'm done. Good luck!
Windows:	Haven't started this yet.

I found the construction manual sections entitled Most all chapters as a reference guide only,
were the most helpful while the sections entitled cabin heat and ventilation
were the least helpful.

It is or will be my plan to have the cowl flap in the following location: 2, on the underside directly behind the two cooling fans.

Let's turn our attention to the wing. You've gotten lots of letters from Cirrus, maybe you've visited Cirrus, and you may have received the recent video newsletter.

Please comment on the following;

I received my ***wing*** kit on Oct. 92 I had completed approximately 95 % of the wing prior to the recall of the wings and initiation of the replacement program. If I were to have a completed, installed wing right now I could be flying in 12 months.

Builders Survey

My most positive comment about the wing replacement program is I think that if everyone's patience holds out, we will all benefit from this by receiving a better built, stronger/lighter wing for our VK-30's.

My biggest disappointment about the wing replacement program is time delay and an absence of communication on a somewhat regular basis.

I am 70 % confident that I will have a wing within 18 months. The absolute earliest I need my wing is 10-96 in order to avoid any delay in building my Cirrus. If my Cirrus were completed today I expect that it would be used mostly as follows: 40 % Business 60 % Pleasure.

I have made the following modifications to my Cirrus: Dual electric engine cooling fans, heating & ventilation mod., contoured instrument panel (taken from Cirrus's proto 4), rudder trim flap.

Please elaborate on these on the back of this page. We would also ask you to elaborate on two or three construction techniques that you found particularly helpful. This might involve techniques, tools, or something you found out by trial and error that might help someone else.

Please tell us about yourself. Use the following outline if you wish:

Total flight time: 250 + hours.

Airport you utilize most: Crites Field, Waukesha Cty., UES

Aircraft you've flown: Cessna 152, 172 Skyhawk, 172 Cutlass, Commander 114, Bell 206BIII

Occupation (when you're not Cirrus building): Self-Employed Bowl-Rite Resurfacing & Supply Inc.
Bowling lane Maintenance, service and supply.

Family Stuff: Currently single, age 39, besides business, I enjoy and look forward to spending as much time as possible working on the airplane. When I'm not, I enjoy motorcycling, snowmobiling, Indycar racing, watersports and my two dogs Phred and Elfie.

Builders Survey

Dear Fellow Builders,

Urs Villiger

I have had my Cirrus kit since Feb 91. I am currently working on my Cirrus. I spend about 15 hours per week.

At this point in time I have pretty much decided to use the Alison Turbine as an engine

for my project. The main reason I have decided to use the engine I have chosen is weight.

I plan to use a MT propeller.

I read Glenn Elliott's article (Nov.95 Newsletter) about his new elastromeric / graphite drive line.

I am (very interested in the new drive)

As far as my instrument panel is concerned, I plan to utilize the following:
Radios:

Com1		ADF	KR 87
Com2	2x KX 155	DME	KN 62 A
NAV1		GPS	
NAV2		TRANSPONDER	KT 79

Auto Pilot S-Tec 55 Engine Monitoring Insco Instrument's

Intercom: Telex
Other major components: Moving Map

Please use another sheet to elaborate on any further instrument panel comments you may have.

I have the following comments about construction of the:

Horizontal: Too heavy

Horizontal Installation: OK

Rudder: Too heavy

Hydraulics/ Brake Lines: OK

Bulk Heads: OK

Primary Flight Controls: I use cable for the rudder

Tail Housing OK

Engine Fireproofing: Was done by a specialized company

Windows: Not installed yet

I have not completed my cowl flaps. It is or will be my plan to have the cowl flap in the following location: I'm not installing cowl flaps

I plan to install an Oxygen system in my Cirrus. I will probably use a system manufactured by (I'm interested in a good idea.)

Let's turn our attention to the wing. You've gotten lots of letters from Cirrus, maybe you've visited Cirrus, and you may have received the recent video newsletter.

Please comment on the following;

I received my ***wing*** kit on Feb 91 . I had completed approximately 90 % of the wing prior to the recall of the wings and initiation of the replacement program. If I were to have a completed, installed wing right now I could be flying in 12 months.

My most positive comment about the wing replacement program is everything looks good too me.

I am 100 % confident that I will have a wing within 18 months. The absolute earliest I need my wing is March in order to avoid any delay in building my Cirrus. If my Cirrus were completed today I expect that it would be used mostly as follows: 40 % Business 60 % Pleasure.

I have made the following modifications to my Cirrus: Cable for the Rudder, Firefroofing.

Please elaborate on these on the back of this page. We would also ask you to elaborate on two or three construction techniques that you found particularly helpful. This might involve techniques, tools, or something you found out by trial and error that might help someone else.

Please tell us about yourself. Use the following outline if you wish:

Total flight time: 1200 hours. Instrument rated: no

Aircraft you've flown: Gliders, Helicopter, Cessna 185/206

Occupation (when you're not Cirrus building): Real Estate

Family Stuff: Elizabeth, 47 / Simone 18/ Stefan 16 Patik 14/ Daniela 8/ one cat 15

Builders Survey

Dear Fellow Builders,

Robert Last

I have had my Cirrus kit since 3/93 . I am currently working on my Cirrus. If currently working, I spend about 8 hours per week.
At this point in time I have pretty much decided to use the IO-550 as an engine for my project. The main reason I have decided to use the engine I have chosen is easier installation.

I plan to obtain my engine from TBD
I plan to use a MT, propeller.

I read Glenn Elliott's article (Nov.95 Newsletter) about his new elastromeric / graphite drive line.
I am (very interested in the new drive).

As far as my instrument panel is concerned, I plan to utilize the following:
Radios:

Com1	TBD	ADF	TBD
Com2		DME	
NAV1		GPS	
NAV2		TRANSPONDER	

Primary Flight) Conventional

I would like to see more photos to augment the instructions.
I have not completed my cowl flaps. It is or will be my plan to have the cowl flap in the following location: Top left per plans.

I do not plan to install an Oxygen system in my Cirrus.
Let's turn our attention to the wing. You've gotten lots of letters from Cirrus, maybe you've visited Cirrus, and you may have received the recent video newsletter.

Please comment on the following;

I received my ***wing*** kit on 3/93 . I had completed approximately 20 % of the wing prior to the recall of the wings and initiation of the replacement program. If I were to have a completed, installed wing right now I could be flying in 18 months.

Builders Survey

My most positive comment about the wing replacement program is that Cirrus made the decision to replace the wing and is following up on that decision.

My biggest disappointment about the wing replacement program is the length of time it is taking.

I am 70 % confident that I will have a wing within 18 months. The absolute earliest I need my wing is 12 months in order to avoid any delay in building my Cirrus. If my Cirrus were completed today I expect that it would be used mostly as follows: 20 % Business 80 % Pleasure.

Please elaborate on these on the back of this page. We would also ask you to elaborate on two or three construction techniques that you found particularly helpful. This might involve techniques, tools, or something you found out by trial and error that might help someone else.

Please tell us about yourself. Use the following outline if you wish:

Total flight time: 1200 hours. Instrument rated: yes

Airport you utilize most: Manassas VA.
Aircraft you've flown: Cherokee 140, Arrow, C152, C 172, C 182, Quickie- Q 200

Occupation (when you're not Cirrus building): Computer specialist- Federal government

Family Stuff: Married, Wife is Phyllis, 2 girls, Regan (7) + Ryann (2)

Finally, do you have any suggestions to improve the newsletter.

The newsletter is great and the videos are excellent. Is the INTERNET in our future?.

Builders Survey

Dear Fellow Builders,

Ramon Pabalan

I have had my Cirrus kit since 3/93. I am currently working on my Cirrus. If currently working, I spend about 0-25 hours per week.
At this point in time I have pretty much decided to use the EngineAir V8 as an engine for my project. The main reason I have decided to use the engine I have chosen is it is very efficient, affordable, relative state of the art, easy to maintain

I plan to obtain my engine from EngineAir Daytona Beach, FL.
I plan to use a (MT, 5 - blade) propeller.

I read Glenn Elliott's article (Nov.95 Newsletter) about his new elastromeric / graphite drive line.
(circle one) I am (very interested in the new drive).

As far as my instrument panel is concerned, I plan to utilize the following:
Radios:

Com1	Terra	ADF	
Com2	GPS comm	DME	KNS 81
NAV1	KNS 81	GPS	Trimble TNL
NAV2	GPS	TRANSPONDER	?

Auto Pilot S-Tec 55- or 60 Engine Monitoring Archangel

Primary Flight Glass Cockpit type

Manufacturer/models Archangel ? ARNAV??
Weather Avoidance: Strike finder- digital weather uplink-Nexrad

Intercom: DRE symphony

Please use another sheet to elaborate on any further instrument panel comments you may have.

I have the following comments about construction of the:

Horizontal: I wish I knew about the spar beef up mod

Horizontal Installation: Using the Doucette / Mills bushings but still difficult

Rudder: Not yet done

Hydraulics/ Brake Lines: To be done

Bulk Heads: All are vacuum bagged

Primary Flight Controls: To be done

Tail Housing to be done

Engine Fireproofing: to be done

Windows: to be done

Builders Survey

I found the construction manual sections entitled nose gear access doors were the most helpful while the sections entitled nose gear bulkheads were the least helpful.

I have not completed my cowl flaps. It is or will be my plan to have the cowl flap in the following location:under the belly bulkhead 6.

I plan to install an Oxygen system in my Cirrus. I will probably use a system manufactured by Ramon Pabalan because of flexibility improvement..

Let's turn our attention to the wing. You've gotten lots of letters from Cirrus, maybe you've visited Cirrus, and you may have received the recent video newsletter.

Please comment on the following;

Received my ***wing*** kit on April 94 . I had completed approximately 0 % of the wing prior to the recall of the wings and initiation of the replacement program. If I were to have a completed, installed wing right now I could be flying in ? months.

My most positive comment about the wing replacement program is I'm glad Cirrus has the integrity & dedication to the builders to correct the problem at their expense. Many improvements are being done.

My biggest disappointment about the wing replacement program is it is behind schedule. There will be less fuel availble in the wing.

I am 80 % confident that I will have a wing within 18 months. The absolute earliest I need my wing is 10/ 96 in order to avoid any delay in building my Cirrus. If my Cirrus were completed today I expect that it would be used mostly as follows: 90 % Business 10 % Pleasure.

I have made the following modifications to my Cirrus: Horizontal attach plates, extra nose gear access door. Will relocate cowl flap. Small access doors for elevator- rudder hinge bearings. Dual electric system, no vacuum instruments.

Please elaborate on these on the back of this page. We would also ask you to elaborate on two or three construction techniques that you found particularly helpful. This might involve techniques, tools, or something you found out by trial and error that might help someone else.

Please tell us about yourself. Use the following outline if you wish:

Total flight time:1450 hours. Instrument rated: yes

Airport you utilize most: Sarosota FL.

Aircraft you've flown: Piper Arrow III

Occupation (when you're not Cirrus building): Emergency Physician

Family Stuff: It sure helps to have the plane building done in the garage next to the house. Ditto for your spouse supporting your project or maybe even helping you build it.

Finally, do you have any suggestions to improve the newsletter. Encourage everyone to contribute articles & suggestion. More detail pictures, drawings & specifications.

Buy and use a 5 HP air compressor. Use as many air tools as you can afford e.g. hi speed right angle die grinder. 2" disc with a variety of sanding discs 24 - 80 grit. scuffers, etc.
Measure 3 times, cut once preferably with a diamond saw blade to minimize finish sanding.

Use peel ply wherever possible to:

1. absorb extra resin
2. eliminate need to sand between layup layers
3. improve looks

Lay up glass on plastic sheets; use rollers to remove bubbles. Use corner rollers for same reason. Post cure layups to improve strength & heat tolerance. For multi layers, start with cold resin to increase gel time. Once layers are in place, decrease gel time with a hair dryer.
Use lots of ventilation. Styrene fumes are not good for the liver and brain.

Builders Survey

Dear Fellow Builders,

Tom Hastings

I have had my Cirrus kit since 1990. I am currently working on my Cirrus. If currently working, I spend about 25 hours per week.

At this point in time I have pretty much decided to use the Cont. IO 550-G as an engine for my project. The main reason I have decided to use the engine I have chosen is Reliability, fuel economy, proven design, Cirrus installation support.
I obtained my engine from Cirrus.
I plan to use a MT, propeller.

I read Glenn Elliott's article (Nov.95 Newsletter) about his new elastromeric / graphite drive line.
I am (very interested in the new drive).

As far as my instrument panel is concerned, I plan to utilize the following:
Radios:

Com1	Terra	ADF	Terra
Com2	Terra	DME	None
NAV1	Terra	GPS	????
NAV2	Terra	TRANSPONDER	Terra

Auto Pilot S-Tec- 50 · Engine Monitoring EDM - 700
Primary Flight (circle one) Conventional

Weather Avoidance: Strikefinder

Intercom: PSM - 2000

Other major components: Horizon Electronic Tach, Century HSI, EDI oil, volt/amp & pule flow/ totalizer
Please use another sheet to elaborate on any further instrument panel comments you may have.

I have the following comments about construction of the:

Horizontal: Straight forward, follow direction, be sure jig is flat.

Horizontal Installation: No problem, Take time to do the alignments carefully

Rudder: Be careful not to bond the skins on a flat surface.

Hydraulics/ Brake Lines: Large bend radii, be careful of cracks in the flares

Bulk Heads: Don't spend a lot of time making a perfect fit, just rough in & fill the gaps with "Q" cell, just as strong.

Primary Flight Controls: Route careful, do not allow elevator/aileron cables to touch anything

Tail Housing Prepare surfaces for support structure carefully, good bonding is critical here.

Engine Fireproofing: Long messy job, took me apx. 10 months, make as many precurred pieces before hand.

Windows: Not done this yet.

I found the construction manual sections entitled Horiz tail & most of the structural related were the most helpful while the sections entitled Heating/ vent, elect, fireproofing were the least helpful.

Builders Survey

I have completed my cowl flaps. It is or will be my plan to have the cowl flap in the following location: lower right side of fuselage, opening inward.

I plan to install an Oxygen system in my Cirrus.

Let's turn our attention to the wing. You've gotten lots of letters from Cirrus, maybe you've visited Cirrus, and you may have received the recent video newsletter.

Please comment on the following;

I received my ***wing*** kit on 1991. I had completed approximately 90 % of the wing prior to the recall of the wings and initiation of the replacement program. If I were to have a completed, installed wing right now I could be flying in 6 months.

My most positive comment about the wing replacement program is we eventually will get a lighter, stronger, more accurate, better quality wing, without fuel leaks/contamination or flight restrictions.

My biggest disappointment about the wing replacement program is 1 taking so long! 2. loss of apx 20 gal fuel capacity, concerns about roll trim system mounted inside aileron (flutter, weight, control wheel deflection ect.)

I am 90 % confident that I will have a wing within 18 months. The absolute earliest I need my wing is 6 months in order to avoid any delay in building my Cirrus. If my Cirrus were completed today I expect that it would be used mostly as follows: 5 % Business 95 % Pleasure.

I have made the following modifications to my Cirrus: Hinged engine access doors, moved rudder pedals toward pilot 3". Hinged rear seat.

Please elaborate on these on the back of this page. We would also ask you to elaborate on two or three construction techniques that you found particularly helpful. This might involve techniques, tools, or something you found out by trial and error that might help someone else.

Please tell us about yourself. Use the following outline if you wish:

Total flight time: 600 hours. Instrument rated: yes

Airport you utilize most: Van Nuys, CA.
Aircraft you've flown: Cessna 150 -182 RG. Grummen Tiger, Piper Tommahak, Cherokee, Bonanza "V" tail Money 601, Variezy.

Occupation (when you're not Cirrus building): Mech Engineer, HAAS Automation

Family Stuff: Wife Joyce, Married 9 1/2 years, Son Jake 8 1/2, daughter Amber 5 1/2. years. 2 (Cats)

Finally, do you have any suggestions to improve the newsletter.

More builders "helpful Hints", more stories on flying the Cirrus. Performance, landing characteristics, useful load, range, ect.

Builders Survey

Dear Fellow Builders,

Ben Smithers

I have had my Cirrus kit since May 92. I am currently working on my Cirrus. I spend about 30 hours per week. At this point in time I have pretty much decided to use the Big block Chevy 604 Cu. in. Donovan as an engine for my project. The main reason I have decided to use the engine I have chosen is reliable power, auto gas, cheap overhauls, overlapping moments of force, sound!

I obtained my engine from Racing parts House (I am building it myself.
I plan to use a MT propeller.

I read Glenn Elliott's article (Nov.95 Newsletter) about his new elastromeric / graphite drive line.
I am (very interested in the new drive).

Engine Monitoring Auto-Avionics gauges

Primary Flight (circle one) Conventional

Intercom: Oregon Avionics
Other major components: Twin air research T04B wastegated dynamically balanced turbochargers, intercooler, turbo normalized.

Please use another sheet to elaborate on any further instrument panel comments you may have.

I have the following comments about construction of the:

Horizontal Installation: No big deal

Rudder: No big deal

Hydraulics/ Brake Lines: No big deal

Bulk Heads: No big deal

Primary Flight Controls: Kind of sticky, inherent friction

Tail Housing Bath tub fittings from hell (128 layups)

Windows: How do you lay fiberglass flanges over lexan make it flush & finish smooth without sanding the lexan.

I have not completed my cowl flaps. It is or will be my plan to have the cowl flap in the following location: none necessary, engine heat will escape through the two oversize ventral holes for exhaust.

I plan to install an Oxygen system in my Cirrus. I will probably use a system manufactured by Avox because I got a used system inexpensive.

Builders Survey

Let's turn our attention to the wing. You've gotten lots of letters from Cirrus, maybe you've visited Cirrus, and you may have received the recent video newsletter.

Please comment on the following;

I received my ***wing*** kit on May 92. I had completed approximately 40 % of the wing prior to the recall of the wings and initiation of the replacement program. If I were to have a completed, installed wing right now I could be flying in 9 months.

My most positive comment about the wing replacement program is Cirrus is biting the bullet (financially) and in giving us new wings, we will be getting a SAFER, lighter easier to build wing with all the old problems (leaks) fixed. Hopefully!

My biggest disappointment about the wing replacement program is how long it is taking.

I am 75 % confident that I will have a wing within 18 months. The absolute earliest I need my wing is April in order to avoid any delay in building my Cirrus. If my Cirrus were completed today I expect that it would be used mostly as follows: 0 % Business 100 % Pleasure.

I have made the following modifications to my Cirrus: Ventral and dorsal air scoops to cool the radiators, oil cooler, intercooler. Seats front & back are racing bucket seats which are light weight and very strong.

Please tell us about yourself. Use the following outline if you wish:

Total flight time: 500 hours. Instrument rated: no

Airport you utilize most: Austin Mueller

Aircraft you've flown: Bellanca Super Viking

Occupation (when you're not Cirrus building): Dentist

Family Stuff: Single, never married, no dependents, except two women who want to move in.

Finally, do you have any suggestions to improve the newsletter. EXCELLENT NEWSLETTER.

Please elaborate on these on the back of this page. We would also ask you to elaborate on two or three construction techniques that you found particularly helpful. This might involve techniques, tools, or something you found out by trial and error that might help someone else.

TOOLS: Pneumatic small (2") disc sander, Big vacuum, band saw, drill press a must. I also have a 4" industrial dust collector in the ceiling attic along with my air compressor. Lathe is necessary for metal work as is access to a TIG machine (welding).
Neat things:
Monser Electronics sell these little 25 pin connectors that are male & female with different combinations. My favorite is the connector with 20 signal pins and 3 larger pins you can make either large current (30 amps) or larger voltage or a coaxial connector (radios). All wires leading from aft to the panel or forward to the panel can travel through these shelled connectors mounted on bulkhead #1. enabling us to remove the entire panel without having to disconnect a billion wires. The larger pins are gold plated & should be reliable.

Technique

When sanding fiberglass, run the vacuum next to your work as you sand, I wear a 1 piece overall with latex gloves duct taped to my sleeves. Fiberglass is almost as nasty as grinding stainless steel.

ENGINE

My original engine was a dual computer GM LT-1 350 V-8 with a 3" Hi-Vo chain PSRU I designed & built bolted on the back. I will use it in my FEW TF-51 (70% scale P-51 2 seat) instead. The reason for my decision to change were (1) I would need a small block for the P-51 anyway (2) I wanted increased reliability & less complexity in a 4 passenger IFR platform. (lightning strike will fry an engine computer whether is on line or not). The engine I am building is an aluminum 604 cu.in. big block Chevy with Lunate balanced ???? assembly, mechanical fuel injection, Bordix alum. heads, roller cam, roller rockers. INVERTED direct drive. If 400 HP at 2700 RPM what we are after (and the 3 blade MT as well as the fuselage are only designed to handle this) a direct drive big block can do this with a fraction of the mechanical & thermal stresses a small block would need to endure without the weight, expense ($10,000 or less) & reliability question of an aftermarket P.S.R.U. The protype F.E.W. P-51D made an off field emergency landing 6 months ago not because their GM $3000 out of the crate 350 V-8 failed but because the $7500 aftermarket gear box P.S.R.U. drive shaft sheared off due to a stress riser induced machining notch! By not needing an 85 lb. P.S.R.U bolted on the back and going with an aluminum block (the LT-1 is iron) this big block will weigh less than the small block and reliability increases 3 ways:

1. No P.S.R.U. that can fail.
2. Compared to a small block, the strength of the parts in big block are inherently far greater just because they are bigger. Its a different animal.
3. RPM range of this engine because it is direct drive are about 1/2 of a small block, the mechanical stresses on the rods, rod bolts, main bearings etc. are a fraction of what this engine was designed to endure. PSI forces on the rods increase with RPM cubed, not squared according to Sunset Engineering in Beaverton, OR.

With this in mind, why don't we see more aftermarket V-8s direct drive big blocks? Simply because most kitplanes that would use them are tractors instead of pushers. And being tractors we realize:

1. They simply don't have the space for a big block. its too wide to fit in their cowl space.
2. Some people are scared of turning a V-8 upside down thinking of oil supply, scavenging, cooling problems which I will address shortly. A normally positioned V8 will have the crankshaft too low (prop strike) so they need to offset the prop 5 to 10" above that which is one of the things a P.S.R.U does.
3. Since most tractors don't have room for a big block the only way to get the desired power out of a small block is a P.S.R.U.
4. V8 cranks are not designed to handle thrust loads, thrust bearing (tapered rollers) in a P.S.R.U take care of this
5. Oil supply to a constant speed would be impossible if we bolted the prop to a V8 crankshaft. A P.S.R.U. with a hollow prop shaft above the crankshaft could do this easily.

These are the primary reasons why aftermarket V8 are small block and reduced.
In addition to my already mentioned reasons's why I chose a big block, think about the above points as it relates to the VK-30.

1. We have tons of room in our engine compartment more than enough for a big block, radiator, intercooler oil cooler, turbos, I have fitted all the above already.
2. We don't need to concern ourselves with prop oil supply through the prop flange. The oil is delivered to the thrust bearing. A P.S.R.U is not needed for this.
3. No thrust loads on the engine- the thrust bearing takes care of this. Again a P.S.R.U is not needed.

Regarding peoples concerns of inverting a V-8, these are areas that need addressing.

1. Carbs don't work upside down, neither do auto body fuel injectors, You must use multi-port F.I.
2. Water coolant is a closed pressurized system and will present no problems. It does not know right up from upside down & doesn't care. My aluminum radiator is mounted in the top forward part of the engine compartment so there are no air voids in the engine where steam pockets could form.
3. Oil supply- this is the biggie. The main bearing are pressure feed so no problem in inversion here. From there, oil is slung around to lubricate the rod bearings, wrist pins, cam lobes, cylinder walls just like before.

As soon as oil collects in any appreciable amount at the bottom of the pistons, there up & down movement will sling the oil back into the crankcase where it will eventually drain in the reverse direction it normally takes- to the tall aftermarket valve covers which are mow our two sumps!. Install drain fittings fore and aft of the valve covers to handle angle of attack variations, connect these fittings to one hose 3" below the valve covers and lead this hose up to the high volume oil pump mounted on the rear main bearing by going through the oil pan which is now just a crankshaft cover. Skip Jones did this with a GM 502 cu.in. inverted and has had no problems- however I will inspect all my bearing surfaces after extensive ground running to make sure everything is OK.

Ignition system is a single distributor with dual pilot selectable magnetic pickups, dual ignition modules, dual coils, automatic coil selector and back up motorcycle battery. I don't think dual plugs are necessary. This MSD system I believe addresses the least reliable components in the ignition system with a back up and I feel comfortable with it. Its all aftermarket, billet aluminum, high quality stuff that is reasonably priced and downright cheap compared to Bendix dinosaur components. (have you seen the latest A.D.'s on Bendix?)

I think Glenn Elliott's solution to the flexpack dilemma is excellent. His expertise in torsional resonance problems is impressive. I think Cirrus has had to address this concern because of 2 reasons.

1. Most aircraft engines already have huge flywheels bolted directly on their crankshaft flanges called propellers. They aren't seven feet away connected by a twist tube. Since these flywheels called propellers are usually bolted directly to the crankshaft they can by rotating mass inertia absorb, the deliver force generated by the power stroke of an otto 4 cycle 6 cylinder internal combustion engine without having to deal with the resonance frequency, tensile, compressive qualities of our driveshaft trying to screw things up.
2. Compared to V8's of the same displacement, flat sixes have less overlapping moments of force and its explosions are more forceful. These two qualities exacerbate the problem above and made the dry fluid clutch necessary.

My planned solution to this problem is two fold. Cirrus recommended and appropriate JURID elastomeric coupling to bolt must aft of the engine that essentially does what Glenn is doing. The other is to mount a 30 lb. flywheel to the crankshaft and smooth out these impulses as close to the source as possible. I know, I know. The thought of hanging 30lbs. of iron on the back of an aluminum block bothered me at first but I think it is the easiest, most reliable way to attack the problem. And when I found out the dry fluid clutch it obsolesces weighs over twice as much as the flywheel, I didn't feel so bad. The elastomer coupling and flywheel will hopefully take card of resonance problem but we shall see.

I hope to fire up the engine by late Feb. and plan on sending in a video of what I have done so far. However I wish to say now that after building 2 V-8's for the Cirrus over the past 3 years, it is not as easy as I thought. You must love V-8's period. You must be willing and able to put up with figuring out things like accessory pads, heat exchanger location, M.E.P's, turbo compressor maps calculating compressor wheel RPM increases due to altitude induced air density decreases, and then going back and redoing it because, for whatever reason, what you thought would work- won't.
You are the engineer. You are the designer. You are it. Commercial Aluminum V-8's available for AC are few and so expensive I have to ask why bother. I will have $ 17,000 in this twin turbo big block by the time I'm finished, and it's all billet or forged. You don't need to shell out $ 45,000 for a auto power plant. For that money, buy a TSIO-550 B!.
Sorry I don't have a computer Rick but if you want to type it into the next newsletter, its OK with me.

P.S. The other builders competence in fabrication, finish and ingenuity are very impressive.

Later *Ben.*

Dear Fellow Builders,

Dave Doucette

I have had my Cirrus kit since January 1991 Split kit. I am currently working. If currently working, I spend about 12 - 15 hours per week. When I'm not working on it I'm delivering babies and visiting Rick in his shop trying to learn some machining while I only slow him down a little bit.

At this point in time I have pretty much decided to use the Continental TSIO-550 as an engine for my project. The main reason I have decided to use the engine I have chosen is no proven V-8 in an aircraft yet. By proven I mean more than several hundred hours in an airplane with some analysis of its performance and reliability. I also am concerned about minimizing my engineering of things like cooling, engine mounts, and other parts required for non certified engine.

I plan to obtain my engine from Cirrus Design should supply the engine and mounting kit.
I plan to use a MT Propeller unless someone in America can produce an equivalent.

I read Glenn Elliott's article (Nov.95 Newsletter) about his new elastomeric / graphite drive line.

As far as my instrument panel is concerned, I plan to utilize the following:
Radios:

Com1	King KX 155	ADF	None
Com2	King Ky 155	DME	KN62 or GPS
NAV1		GPS	ARNAV Star 5000
NAV2		TRANSPONDER	Kt 71

Auto Pilot STEC 55 Engine Monitoring ARNAV integrated Cockpit Display ICDS100 or equivalent

Weather Avoidance: Stormscope
Intercom: Undecided
Other major components: Copilot conventional instruments

I have the following comments about construction of the:

Horizontal: Too heavy. Poor leading edge design-hard to get a true leading edge given where the seam is Kevlar is hard to work with and I'm not sure what its advantages are in this part. I don't really like the two bearing pivot point. Should have had a more substantial bearing surface with different type of bearings.

Horizontal Installation: I used shoulder bearings to avoid oval holes in the aluminum attach brackets. Pivot point is hard to find in the fuselage.

Rudder: Too heavy (may be my fault). Instructions are hard to follow. Hard to get trailing edge straight unless you build it on the airplane. Ribs should have templates. Make counterweight by mixing lead shot with mill fiber and pouring it into rudder much easier than under water pouring of molten lead.

Hydraulics/ Brake Lines: I put them where the instructions said to but if I did it over I would move emergency gear valve to the lower panel. I used right angle fiberglass with alodine clips to hold the lines instead of just tie wraps and rubber tubing. It looks more professional and seems more reliable and aircraft like. How do you get to those lines when they ever fail??? I added a parking brake valve to the brake lines.

Bulk Heads: Templates would have been kinder and gentler. At the very least make cardboard ones first then cut foam or precure to match. I made bulkhead #1 removable with tabs and clecos. When I'm done with all of the nose gear and stuff in the front I'll glass it in permanently.

Primary Flight Controls: I left these mostly as called for in the manual from the aileron transfer box back. I am thinking very seriously about a side stick for the ailerons and elevators, though. No schematics or plans available for this.

Tail Housing I've never seen one in real life.

Landing Gear: I plan to use a Rick Mills modified nose gear to avoid chrome tube bending problems experienced by some builders. I also plan to beef up the main gear. OK, so it just might be my Navy background and aircraft carrier capable aircraft experience. Hint-look at the difference between a Navy F-4 gear and an Air Force F-4 gear. I have no plans for a tailhook of any kind!.

Most helpful manual sections were the introduction, hydraulics, brake lines, and access doors.

Least helpful were the rudder, elevator, nose gear doors, and nose gear sequencing, In general the whole manual lacks revisions by people who have actually built the aircraft. It would get better if there were hundred of kits being sold- really nobody's fault. If you disagree, try rewriting one of the sections yourself. How do we spell T-E-D-I-O-U-S.
I have not completed my cowl flaps. Plan to put in behind bulkhead six on the lower fuselage on the pilots side.
I plan to install an Oxygen system in my Cirrus. I will probably use a system manufactured by AEROX because of high duration system.

I received my ***wing*** kit on Have not received wing kit yet. I had completed approximately 0 % of the wing

prior to the recall of the wings and initiation of the replacement program. If I were to have a completed, installed

wing right now I could be flying in 18 months.

My most positive comment about the wing replacement program is Much better quality, strength, simplicity, lower weight. Level of completion at factory. No two ways about it - the new wing is a superior product.

My biggest disappointment about the wing replacement program is Length of time to complete rewing program. Uncertainty is always a concern when I don't get consistent progress reports from the factory.

I am 80 % confident that I will have a wing within 18 months. The absolute earliest I need my wing is

12/96 in order to avoid any delay in building my Cirrus. If my Cirrus were completed today I expect

that it would be used mostly as follows: 30 % Business 70 % Pleasure.

I have made the following modifications to my Cirrus: Rick Mills' trunions, nose gear improvements, and RA Mills Corp. seat design. Improved main gear. Stainless steel exposed hydraulic lines. Improved horizontal attach brackets. Boxed out the central channel under the cabin floor. Improved antennas, Possible side stick control modification.

Total flight time:1100 hours. Instrument rated: yes

Aircraft you've flown: Cessna 150, 152, 172, 177 Cardinal, 182, 210 T210
Piper PA-28, PA-32, PA-18
Beech T-34A, T-34b, T-34C, C-12, D50-c
McDonnell Douglas A-4 Skywawk, F/A-18 Hornet
Grumman TA-7C
Lockeed P-3 Orion
Helos: UH-1N, TH-57

Occupation Obstetrician/Gynecologist

Family Stuff: Married: Diane
Children: three; Rebecca (14), Kristen (12), Allison (10)

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Sep. 95	$ 82.35
Nov. 95	$ 143.36
Jan.96	$ 140.00(est)

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$ 557.76

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It is important to state that the Association is not a technical reference for Cirrus kit parts, or construction or aircraft operation manuals supplied by Cirrus. ***Cirrus Design is the sole and final authority on these items.***

Cirrus Builders Association

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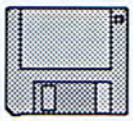
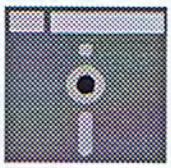
Submitting Articles:

Hand written or typed articles are fine. If you have a computer available please include a hard copy with your disk. Any IBM compatible word processor program will work. Microsoft Word, WordPerfect, etc.

3 1/2 disc. 5 1/4 disc.





Photos!

Please include color or black & white photos with your article. Please let me know if you would like the photos returned.

Please include a photo of yourself with your article.

Newsletter Publication Dates

Fall

Oct. Issue
Mailed Sept.15
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Spring

April. Issue
Mailed Mar.15
Deadline Mar.1

Winter

Jan. Issue
Mailed Dec.15
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Summer

July. Issue
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