EAA CHAPTER 32 NEWS

Jim Bower, Editor

October, 2005

"WHAT???", you say... "no picture on the front page of my favorite newsletter?"

Sorry gang, but There just ain't one to be had. Seems like our amateur photographers took the day off during the last meeting. Maybe President Laura will get back into taking pix after her term is over! At any rate, take our word for it that we had a meeting, it was great, and we had a good time.

Come to the next meeting on October 23rd for the very last barbecue until spring. We're going to cook the last of the meat in the freezer, so be sure to bring some side dishes (hint ... potato chips are NOT a side dish!) to supplement the brats and burgers.

Lunch will be ready around 1:00 and the meeting starts at 2:00...as usual.

See you all there!

EAA Chapter 32 Meeting Minutes
September 25, 2005

The meeting started at 2:00 pm with the Pledge of Allegiance.

Along with the signup sheet, a sympathy card was passed around for the family of Anna Doherty, who recently passed away.

Tracy Smith, the airport director, spoke at length about his quest to get runway 36/18 lengthened to 4,400 feet. His reasoning is that the additional length will attract larger aircraft and businesses to service them (in other words, growth for the airport). Some doubt was expressed by the membership, but the fact remains that St. Charles will spend the money SOMEWHERE, why not at Smartt? Naturally, there are groups of folks opposed to the extension. Vince Morris had copies of newspaper articles outlining the dire consequences of a longer runway (more bird strikes). A lot of people have the NIMBY syndrome going into high gear around airports, and Smartt is no exception. The fact that we are in a flood plain actually makes Smartt more attractive to expansion because it is doubtful the land around the field will be used for much more than farming. Tracy asked for our PHYSICAL support at an upcoming council meeting (date/time to be announced) to demonstrate there are people in favor of improving Smartt.

Laura announced that there was a good turnout for the Fair and Airshow and that we raised $1,200.00 in soda and water sales; more was raised with raffles, etc. She thanked all the volunteers who gave their time for this effort.

Vince Morris, the one-man nominating committee, announced this year's slate of chapter officers. President: Karsten Kessler; vice president, Dave Deweese; treasurer, Jim Hann; secretary, Jim Bower. No further nominations were forthcoming, but they may be made prior to next month's election (provided the nominee is willing and aware of being nominated).

Discussion was held regarding a series of ceiling fans to help circulate air. Gary Kasten (an electrician) said that the fans we "inherited" from MODOT were no good for the purpose because they are not designed to hang down from the ceiling, plus they are rather old. The expenditure to purchase suitable fans (with remote switches) was proposed and approved.

This year's Christmas party will be held on December 3 (first Saturday in December). Laurie at Kilroy's restaurant will be contacted to cater the event. As usual, social hour begins at 6:00 with dinner at 7:00. No ticket prices, programs, or other details were available at press time.

K.Z. Zigaitis is selling off some of his shop equipment and has given the chapter and its members first crack. For details, call K.Z.

A proposal to lower dues was made, but voted down. This issue will probably be revisited as ARC expenses stabilize.

The meeting was adjourned at 3:00 for a presentation by Billy Fife (aka mr. bill).

Respectfully submitted, Jim Bower

From the President's Desk

October brings cooler weather (finally) and of course, Chapter elections. I would personally like to thank Karsten Kessler, Dave Deweese, Jim Haan and Jim Bower for running for President, Vice President, Treasurer and Secretary (respectively). (thankyouthankyouthankyou). I'm very happy to see that 3 of the offices are being sought by members that have been with our chapter for only a little over a year or so. New blood will bring in new ideas and a new energy that our Chapter will need to grow and prosper.

But the year is not over yet. The October meeting will bring the Officer's Election and the November meeting will be a preparation for the Holiday Party. The Holiday Party will be on December 3rd so we have a lot to do before then. For the past few years, we have cleaned and decorated the ARC the Saturday after Thanksgiving for the Holiday Party the following week. That will be Saturday November 26th. The following day is our November meeting on Sunday November 27th. Please mark both days on your calendar since we need help cleaning and decorating.

Recap for the preparations for the Holiday Party. Mr. Bill offered to contact Lori of Kilroy's for the catering. He also has some leads on a speaker. Gale will handle the reservation tickets (price TBD). Amanda and I will handle the decorations. As usual, we will have door prizes, so please bring a small gift or two that you would like to donate for the door prizes. Last year we had a very successful Silent Auction. If you would like to donate a ride in your airplane, 'chute or any other service, please let me know. If you have anything you wish to donate for this auction, let me know that too. I have applied to have another leather jacket from the Vision of Eagles program, like the one last year, so get your checkbooks ready. If anyone can donate items that might be of interest to the ladies, please let me know so everyone has something to bid on.

Laura Million

Dues are Due (almost!)

The chapter voted at the September meeting to hold the yearly dues at $60 for 2006. Don't wait until the Holiday Party to pay your dues. Pay now before the holiday season hits your wallet. Bring your $60s to the October meeting and beat the rush.

Calendar of Events

Saturday, November 26th Annual ARC Clean up at the ARC – **9am, we will meet to spruce up the ARC and decorate for the Holiday Party.**

Sunday, November 27th - General Meeting – **1pm Pot-luck, 2pm General Meeting. Presentation: TBA**

December

Saturday, December 3rd – Christmas Party **– doors open 6pm, dinner at 7pm. More details to follow.**

More events and details to follow. Check www.eaa32.org or call the hotline at 314-286-9932 for details.

Before You Try Your Hand with Fiberglass

From Sport Aviation - 2/96

By Tony Bingelis

It is a rare homebuilt that doesn't have a few fiberglass parts and components installed somewhere.

Typically, these components might include the cowling, wheel pants, tail and wing fairings, landing gear fairings, cuffs, and other less conspicuous parts installed to hide various openings and drag producing intersections.

Such a rather extensive use of fiberglass is deemed to be a good way to enhance the overall appearance of the aircraft and, at the same time(hopefully), to reduce drag.

Anyone building a kit plane can, therefore, expect to receive many of the aforementioned pre-molded fiberglass components, along with the basic structural materials and parts normally included in such kits.

The kit manufacturers, in many instances, furnish the molded fiberglass components with the assumption that you would know how to prepare and install them so they look good and fit good. They provide very little information explaining how to finish the parts or, if necessary, how to modify them to fit your particular project. Am I implying that, sometimes, the parts you receive may not fit your project? That's right, amigo.

Every homebuilt built is different and, certainly, none of them are exact copies of the original prototype. Even the FAA realizes this because it officially considers each homebuilt to be uniquely different - even though hundreds of a particular type may have been built using the same kits and plans.

Each airplane will differ slightly, in spite of the most conscientious efforts expended by the average builder to duplicate the exact design dimensions, contours, and tolerances. Furthermore, additional differences crop up with the engine and equipment selections.

Nevertheless, one would naturally assume that the stock fiberglass parts provided will fit properly. Unfortunately, this is not always so. Consider these possibilities:

1. The fiberglass parts you receive may have been improperly supported during storage or shipment and may have become warped.

2. The fiberglass components may be so fresh that they were not given time to cure properly before shipment.

3. Your engine selection will not fit the design cowling.

At any rate, builders do get warped and poorly fitting fiberglass components on occasion. What to do? Fix them, usually. Sometimes the application of heat (heat lamp, hair dryer or heat gun) can be used to "unwarp" and restore the component. Otherwise, you as the builder will have to correct the deficiency surgically. That is, cut, rework and modify the parts you receive if you are dissatisfied with their fit or appearance.

Tail fairings are unique in this regard as the fiberglass fairing must fit around both the vertical stabilizer and the horizontal stabilizer. Naturally any change in the angle of incidence of the stabilizer or in the offset of the fin will definitely alter the fit of a molded tail fairing. When that happens a drastic rework of the part may be necessary.

All this points up the need for you to become familiar with some basic information for working with fiberglass.

I feel extra compassion for the builder who has to redesign or rebuild his cowling to accommodate that special, somewhat bulkier, auto engine conversion. He, too, certainly should know and understand what is involved when working with fiberglass.

What You Should Know About Fiberglass

Fiberglass, in my estimation, is a hostile material (medium?). The term "fiberglass" is a rather ambiguous one. Because of popular usage the term "fiberglass" is equally applicable to the fiberglass cloth alone, as it is to a completed fiberglass cloth/resin impregnated part.

For example, fiberglass (cloth or mat) to be useful must be saturated with a polyester, polyvinyl ester, or epoxy resin. When the resin saturated fiberglass cloth cures, it solidifies into a rigid glass-like shell that will permanently retain the shape of the form or mold used in the layup. In this state it is technically referred to as FRP (fiberglass reinforced plastic).

Incidentally, increasing the number of glass cloth layers increases the rigidity and strength of a layup more so than increasing the number of coats of resin applied.

A completed fiberglass part is a strong, long lasting, hard, shiny-surfaced product. It is absolutely waterproof, rot-proof, inset-proof, and immune from the effects of most solvents and fuels. Best of all, it is fairly easy to keep clean and to maintain.

Your Choice of Resins

These choices might include the polyester resins, the vinylesters and the epoxies. All are excellent when properly used. However, due to space limitations I will concentrate primarily on use of the less expensive polyesters.

1. Polyester bonding or laminating resin (PRB).This resin is chemically formulated to remain tacky (sticky?) after it has hardened. This characteristic allows you to later add other layers of glass without the necessity of sanding the original layup to ensure a good bond. However, a sticky final surface finish is not what you want or need, is it?

2. Surfacing or sanding (finishing) resin (PRS).This polyester resin contains wax which rises to the surface and cures to a hard tack free finish. You can readily sand this surface without gumming up the sandpaper.It does have a drawback. If you later want to add additional layers of resin and fiberglass (after the initial finishing resin layup has completely cured), you must first sand the surface until all traces of surface glaze are removed. If you don't do this, any additional resin or fiberglass layers you may add will not adhere very well and could separate.

3. Vinylesters provide good adhesion, impact resistance, and have mechanical properties which fall between those of polyester and epoxy. These resins are not as commonly available as are the polyesters or, for that matter, the epoxies which are commonly used in boating and automotive applications.

4. Epoxy resins are available in a variety of special formulations.

What is the difference between epoxy resins and polyester resins? Actually, there are many differences.

Epoxies do not use MEK peroxide for a catalyst. They have their own special hardeners. These are mixed in various ratios depending on the particular resin formulation.

The epoxies that have a 1:1 mix are the easiest to measure and use. Epoxies are super strong adhesives and are excellent for all woods, metals, glass and many plastics.

Epoxies require little or no clamping pressure to achieve super strong joints. They can be applied to StyrofoamTM or any other kind of foam without destroying it.

Epoxies adhere well when applied over polyester surfaces, however, do not attempt to use polyester resin over an epoxy surface. Another important characteristic is that they do not shrink as they harden.

In addition to the extra cost of epoxies, most builders feel it has another drawback. It is that epoxies take much longer to harden, often as long as 24 hours.

In contrast, polyester resins mixed with their MEK peroxide catalysts cure (harden) quickly - often within 30 minutes when the temperature is above 70 degrees F.

Amazingly little MEK catalyst is needed to activate the resin - about 14 drops of MEK peroxide per ounce of resin, depending on the grand you are using.

Too much MEK and/or higher temperatures will kick off the cure quickly . . . sometimes too quickly. When that happens, the resin gets hot in the can and starts to gell before you can finish using it.

It's too bad but polyester resin will dissolve StyrofoamTM and some plastic containers. Therefore, avoid making your molds of StyrofoamTM and mix your resin in small tin (soup) cans . . . or coffee cans.

Polyester resin is bad to use on PlexiglasTM-so don't make the mistake of using polyester layups next to PlexiglasTM.

When mixing the resin, try to work in a well ventilated area because both polyester and epoxy fumes must be considered to be toxic.

Mix only small amounts of polyester resin. Check the clock, and don't piddle. Work fast but carefully. Polyester resin will kick off (start to gell) as quickly as 20 minutes at 70 degrees F. Much sooner if temperatures are higher in your work area.

Don't try working in the sun; the stuff will set up before you can do much.

Don't become upset if that new polyester fiberglass layup doesn't set up hard as soon as you think it should. Sometimes it may take half an hour, sometimes a day, and sometimes several days. It all depends on the temperature and the humidity (especially humidity) during and immediately after making the layup. Don't worry, polyester will continue to harden and gets tougher with time.

When working with fiberglass resins, you will learn that they seem to have a way of getting all over your tools, shoes, clothing and practically everything else in the area. Acetone will do a good job of cleaning up the stuff before it cures and hardens - however, cleaning your hands with the solvent is not recommended . . . use gloves and obviate that need to do so.

Sanding Fiberglass Surfaces

The fiberglass dust kicked up by a disc sander - and there will be a lot of sanding you will have to do - can irritate your skin and nostrils. Naturally you should

wear a dust mask during all sanding operations.

Adding to the sanding problem - fiberglass sanding dust can be likened to shredded razor-sharp glass particles - so, if any of that sanding dust gets on your unprotected hands and arms, it will penetrate the pores in your skin. You will then experience an irresistible urge to rub and scratch your hands and arms relentlessly to relieve the itch. Much of this itching misery can be avoided by wearing a long sleeved shirt and using a protective cream (like Invisible Gloves #1211) on your hands. Long rubber gloves also work well.

What You Should Know About Gel Coat

Factory made fiberglass components are laid up in female molds which are prepared by spraying the inside surface with a gel coat layer (usually white) before laying in the resin soaked cloth and mat. This gel coat ensures a uniform smoothness and a hard glossy surface finish to the completed fiberglass component after it has been removed from the mold. Unfortunately, gel coat is also quite heavy and increases the weight of the completed fiberglass part.

Before you can paint a cowl or any other fiberglass part that has a gel coat surface, you should dull the surface by sanding it with #180 and #320 grit wet/dry sandpaper. All of the gloss must be removed, otherwise the paint will not adhere reliably. Ordinarily, no primer is needed if the surface is in good condition.

Here is an interesting phenomenon that bothers some builders.

If not immediately, then weeks or months after he has completed a very nice glass-like finish on his airplane, one day he just happens to notice that he can faintly detect the weave of the fiberglass cloth under that beautiful paint finish. This bothers some builders and they manage to become quite upset when they first notice "IT." The problem, if you want to call it that, is not really the builder's doing. It is characteristic of polyester resins.

Most kit furnished molded fiberglass components are made not with the more expensive epoxy resins but with the more economical polyester resins. Unfortunately, polyester resins will continue to shrink slightly after they have cured initially.

This shrinking process may continue for months. As the cured resin shrinks, the fiberglass fibers become more prominent because the glass fibers in the layup do not and cannot shrink. The result . . . a somewhat noticeable presence of the fabric's weave in the surface finish - you really have to be looking for it to see it.

What can you do about it? At this stage, nothing much short of undertaking a major refinishing job.

If you are a builder who is going to take several years to complete your project, the "shrinking" will probably have ceased long before you will get around to finishing and installing your molded fiberglass parts . . . and you may never experience that "problem."

Obviously, fast builders are more likely to be faced with that cosmetic problem as they will be installing and completing their fiberglass components soon after they receive them. The chances are good that the parts they receive will have been recently molded . . . just before shipping.

As previously stated, fiberglass components made with epoxy resins do not shrink in curing, therefore, are not as likely to suffer from that characteristic common to polyester resin layups.

Nevertheless, in spite of it all, most builders prefer working with polyester resin which sets up in a matter of minutes rather than put up with the overnight cure normally required for epoxies.

A Final Cautionary Note . . .

The catalyst (fluid) used with polyester resin is a strong irritant and is corrosive to your eyes so always use protective glasses while mixing a batch of polyester resin. That MEK peroxide (catalyst) may cause blindness if any splashes into your eyes.

Flush immediately with lots of water for 15 minutes and call your physician. It also is harmful or may be fatal if swallowed. Don't let this precautionary note scare you out of working with fiberglass materials and resins . . . just be careful. After all, the experience you acquire can be as rewarding as it is educational.

For doing small fiberglass jobs:

- Fiberglass cloth, 6 ounce O.K., and/or 3" glass tape.
- Polyester (finishing) resin with MEK peroxide catalyst.
- Large scissors.
- Razor blades (single edge).
- Masking tape and/or duct tape or aluminum tape or electrical tape.
- Brush, inexpensive, bare handle, 2" wide.
- Acetone, 1 gallon for tools cleanup.
- Mixing sticks.
- Floor wax or similar paste wax.
- Clean empty soup cans or unwaxed paper cups.
- Scale for weighing resin in ounces.
- Half round file, 10" -12", bastard cut.
- Disc sander with foam back-up pad/#80 grit sanding discs.
- Sanding Block, hard rubber
- Sandpaper, Black floor paper #80 grit and #320 wet/dry.
- Hacksaw blade, 18T and 32T, use as handheld scraper.
- Modeling clay/solid foam/plaster for making simple molds

The Major Overhaul

by Rick Galati

Few items matter as much to a potential aircraft buyer as the condition of the engine. Generally speaking, the lower the total engine hours, the more value the buyer (and seller) can reasonably expect. My trusty 1966 C-150 has served well for over 17 years but the time has come to finally part with it. The engine, while still running okay with acceptable oil consumption and good compression readings faced the cold hard reality of nearing 200 hours OVER the suggested 1800 hour TBO. I quickly found out that people tend to buy Cessna 150s to build flight time… not as a tired fixer upper project. The most inexpensive "0" time engine I could find came in at $8500 with core trade-in and this did not include any labor. Suddenly, the prospect of having all the work done by a qualified shop seemed a bit too expensive and not really offering a reasonable return on investment for an aircraft I intend to sell.

I could sell the aircraft "as is" but then expect a far lower selling price than what I think the airplane is worth. Given the relatively low airframe time for my exceptionally clean 1966 vintage 150 with no damage history, and if I could do the major for something south of $7000 or less, I could reasonably expect a return on investment and maybe a bit more. If I tackle the engine major overhaul and do the labor myself, I could sell the airplane heralding the desirable "0" time since MOH. Note this does not mean the engine can be represented or sold as a "zero time" engine. That is a different animal altogether.

That said, such an undertaking would not be legally possible without the encouragement and endorsement of working under the guidance of a qualified A&I whom among other things, has extensive experience overhauling the ubiquitious 100 H.P. Continental O-200 engine. Fortunately, I know such a man and he is retired McDonnell-Douglas flight test engineer Tom Lansden holder of the coveted Charles Taylor award and among his other credentials and accomplishments possesses over a dozen STC's he has developed over the years. Few A&P's have the depth of background and experience and are as qualified and knowledgeable about airframes and powerplants as Tom is. With his unqualified blessing, I made the decision to go ahead and tackle the MOH. I mean to document the process for its educational value and share what I learn about the process with others.

I cannot predict what the final cost will be. Will this learning experience end up producing a real value for my efforts or a dismal money pit that I wish I never started digging? There is no way to know until all the parts are removed and inspected for serviceability. But I am willing to take that chance and dive into this project for its own sake.

The first task accomplished was (and has always been for me) the easiest ….taking things apart. The process started by removing the propeller and spinner assembly. Next came the disconnection and removal of the battery, hoses, cables, baffling and exhaust system. The magnetoes, starter, vacuum pump and wiring harness followed. Then all four cylinders were removed . At this point, the engine weight became so manageable that two of us easily removed the case from the engine mount without aid of a hoist and simply carried it to the work table for further disassembly. Total time expended so far….4.5 hours. Next month I will discuss what we found.

Learning As We Go

mr.bill

MY SUMMER VACATION AT OSHKOSH part II

Rolling into the Oshkosh- AirVenture, which is an event (Oshkosh is the city) gates on Sunday at 10:30 AM one could feel the excitement. The weather was perfect and the crowds were light but all the vendors were in place and ready to go. The reasons for going to this event are numerous. The big one is the fellowship with thousands of other aviation nuts there to see the latest greatest thing. Like ***Spaceship One*** **Flying in on Monday and having Burt Rutan and the boys pack out "Theater in the Woods" that evening telling us the rest of the story and showing us the behind the scenes video, as if we were some special people. At the end of the evening's presentation you could not help but feel special and inspired.**

Here were ordinary people who ten or so years ago said they would build an EXPERMIMENTAL airplane and send it into space. These were the same people who twenty years ago said, that they would build an EXPERMENTAIL aircraft that would fly around the world non refueled (Voyager.) Again these were the same people who thirty years ago said they would revolutionize the way to make EXPERIMENTAL AIRCRAFT WITH MOLDLESS CONSTRUCTION. So when they said this evening that 10 to 12 year old children in the crowd would be flying the flights into space… Ya' got to believe they are going to make it happen.

Oshkosh AirVenture is catching up on the old and new things in aviation and in the people's lives who attend. Located at Sunset and 12th street, Schoeller Campground has been the place where the Southside of Chicago Gang has camped for years. They are not only friends they are NOW FAMILY. Having "family" there also aids in the search of knowledge at Oshkosh, because there are more "eyes" to scope out all the happenings on the 140,000 acre spread that is the Oshkosh Air Show.

How cool is Oshkosh? While sitting at a picnic table at the upscale food court who comes in sits down to take a rest. Just some guy named Robert "Bob" Hoover.

"How are you today Mr. Hoover?'', I say.

"Feeling pretty good, Sir."

"It would be great to see you fly again Mr. Hoover!"

"Yes, it would, but that is not going to happen."

I extended my hand to shake his and we parted ways. The guy at the other end of the table looks and says "Who was that?" Just the best pilot in the world to me!

The week is but a blur, so many things to see and do and so little time. The Van's RV gang has their own section which is great because you can get so many ideas on how to do your RV. It is mind boggling.

The Final Air Show was about seven miles southeast of Oshkosh on the Lake they call Winnebago. Watching the seaplanes slowly and quietly move across the water is awesome. It is a whole different environment. The area has expanded over the past 5 years to twice the size in the camping and parking. The seaplane area is very shady and peaceful place. It is a great break from the fast pace that Air Venture can be sometimes.

Editor's Corner

Well, I must say I'm gratified that some folks stepped up to the plate and are running for chapter office. As was mentioned elsewhere in this issue, all three of the top offices are being sought by relative newcomers to our chapter. Way to go, guys, and THANKS!

Airport Director Tracy Smith took time to visit our last meeting and ask for our support. He feels that extending the north-south runway will make Smartt Field more attractive as a stopping place to those with large airplanes. This fact may or may not result in the increased presence of FBO activity on the field, but it's for certain that NOT extending the runway will keep the airport as is. Not that there's anything wrong with the status quo...all change isn't necessarily for the better.

The best thing we have going for us at Smartt is that the land around the airport is suitable for little else than farming, since it's all floodplain. This could change at any time however, because the last time I looked St. Charles Muni is on a floodplain too, and look at the encroaching developoment over there!

The runway extension is opposed by the usual gang of suspects. Good old boys who shoot at ducks are trying to spoil the fun of us wealthy playboys with flying machines. (Has anybody asked Mr. Busch how many airplanes HE owns?) Joining them are their willing accomplices in the media who love to write bad things about general aviation. We're noisy...we're dangerous...what if somebody hits a bird?

I don't know the last time somebody from Smartt Field had a serious accident, especially one involving houses and innocent bystanders. Bird strikes? Yeah, it happens, but it would happen anywhere no matter the length of the runway, and have you considered the irony of a bunch of duck hunters being concerned for bird strikes? Ok, it's not the birds they care about, it's the tender airplane that would doubtless fall straight down into a day care center after an avian encounter.

Noise? Come on. Is anything on the planet louder than a pack of Harleys going down the road? Or a kid with a subwoofer system in his car? I don't see any media campaigns against them.

Please keep an eye on the Yahoo bulletin board, because Tracy needs our PHYSICAL support at a council meeting to prove that real voting, tax-paying people use the airport and would benefit from its improvement.

The end of the year is nearly upon us, bringing with it the annual CHRISTMAS PARTY. I hope to see all of you there this year. It's really a good time, and it's a chance to get duded up and come out to the hangar for some good food, adult beverages (BYOB), and interesting programs.

INFORMATION HOTLINE
314-286-9932
CALL THIS NUMBER FOR INFORMATION ABOUT UPCOMING EVENTS

Check out our fantastic Web Pages at
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Laura Million, Web Designer
While you're there, take time to join the Yahoo Groups to help you stay abreast of Chapter happenings!

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