EAA® Technical Counselor News

APRIL/MAY '88

Technical Counselor Gerald LaFrance of Escondido, California, reports on John Evans' Kitfox that is coming along well and ready for cover with a Rotax 64 engine. John hails from Vista, California.

This overall view shows N106DH, a very nice Sonerai IIL built by Doug Hagerman, on weighing day, July 12, 1987.

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Fuel and Fuel Systems

Arrow indicates where the trouble was, only on the other side of the aircraft.

FUEL TANK NOTICE
From Doug Hagerman, Secretary of EAA Chapter No. 427, Chico, California

I purchased a fuel tank from John Monnett's operation a few years back that was supposed to have been pressure tested, etc. after welding. While waiting for the tower to clear me for high speed taxi, I smelled gas and promptly shut down to return to the hangar. I had trouble finding the leak until I pulled off the cowling, and there I discovered a 6 inch length of welded seam right along the longeron was leaking rather badly. It appeared to be along the very edge of the weld. I drained the tank, pulled it out and on close inspection, found the welds to be cracked down the middle and also found evidence of leaching at the front and bottom of the tank. None of the outlet bosses leaked. Prior to this day, it had only kept about 4 or 5 gallons of gas in it, and this day I had filled it up expecting to fly in case of necessity, but was only planning a high speed taxi or short lift off. I wanted a full tank in case I went around. I can't help but feel that this could have been a real disaster had that seam opened very much more. I would heartily recommend all Soneral owners with the tanks purchasd from Monnett to inspect the seams along the longeron and also the front and rear bottom seals, as well.

MONI ACCIDENT REPORT
From Gene Darst, Technical Counselor No. 290, Beaumont, Texas

Regarding an accident to a Moni that happened recently . . . this particular aircraft had a fuel shut off, which was comprised of a needle valve that took 6 turns to shut it off. It had a button with an approximate diameter of 5/8th inch to shut it off. After the engine failure, the pilot realized that he was going to have a forced landing, and he wanted to shut the fuel off. He may have taken his hands off the control stick to turn this screw six turns to shut off the fuel. This, of course, is contrary to usual aircraft practice that requires a 45 degree turn (on most fuel selectors) to shut it off. This particular type of fuel shut off is that same type used on minibike and others, and it is not an aircraft quality item. In addition, it had a very fine filter screen about 1/4 inch diameter and 1 inch long. This was approximately 3/4 clogged with a black substance. This filter was flushed clean after the mishap. It is suspected as the cause of the fuel starvation to the engine.

After the engine quit, the nose went up and the aircraft stalled, spun and hit the trees 20 feet up. The unfortunate fact was that there was an open field very close to these trees that the owner could have landed in.

This particular engine is a KFM two cylinder and two stroke using oil mixed in the automotive gasoline as lubricant. There were 115 hours on the aircraft.

FUEL PUMP NOTE
From Dick Kurzenberger, Technical Counselor No. 937, Horseheads, New York

Dick has a replica Stuka in 7/10th scale. He reports he has a 13-1/2 hours on it as of October 1987. This particular installation uses a Holley 12 volt electric fuel pump. He says on his installation, this pump puts out 65 gallons per hour after going through all the elbow strainers and engine driven pump, etc. He is very well satisfied with it and the price is right. Hopefully, this will save some of our builders some money. B&F Aircraft Supply of Oaklawn, Illinois, says that the correct part number is No. 12-802 Holley pump with regulator. This pump has 110 gallons per hour rating and puts out 15 PSI at the pump outlet. Both the pump and regulator has 3/8th inch F.P.T. fittings, so they are easily adaptable to any size lines and fittings. This pump has a suggested retail price of $119.99, and B&F offers them at a net price of $92.78. If members are interested in these pumps, B&F will put in a stock of them. Order from John Wiley of B&F Aircraft, (312) 422-3220. It is a little cheaper than an aircraft electric auxiliary pump, and it works just as well, according to Dick.

Technical Counselor Morry Hummel of Bryan, Ohio, breezes along in his Hummelbird - empty weight is 268 lbs., 900 cc 1/2 VW engine.

Operations

FIRST FLIGHT IN A SONERAI II

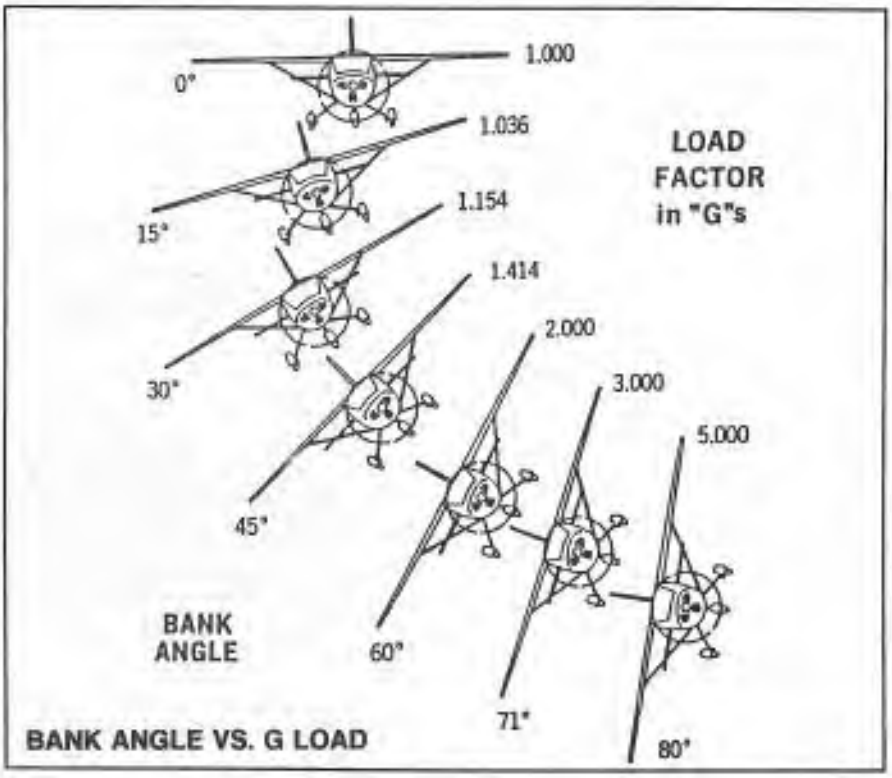
From the Sonerai Newsletter, Ed Sterba, Editor

So what do you do when the new Sonerai is finished and signed off for flight? Well, I guess you fly it — if you feel you are the proper person to do that. If you have a tail dragging Sonerai and don't have any tailwheel time, then there could be problems. I personally know of about 6 planes that have been damaged because the pilot wasn't up to that first flight. It was surprising to me the majority of these "incidents" have occured on the first takeoff (or attempt). The Sonerais with the larger engines seem more susceptible to this problem. The airplane frequently ends up on its back. While you may not want a crowd of onlookers around for that first flight, it is important to have someone there.

How can this happen? Well, you have a light, nimble airplane with quite a bit of power for its weight. You also have reverse propeller rotation, and in some people's opinion, a rather small rudder. With my small 1850 cc engine, I can force the tail up as soon as possible with full forward stick to save that little tailwheel, but friends with the 2180 cc engine recommend holding full aft stick to maintain tailwheel steering until about 40 MPH when the rudder becomes more effective. It will be only a few seconds until you see 60 MPH, at which time, a little aft stick will cause liftoff. It seems difficult to get a smooth initial climb, as my airplane seems to want to leap into the air instead of gradually levitating. We have a 3,000 foot runway at Lake in the Hills Airport, and a standard day solo takeoff usually is 800 to 1,000 feet. This is with a rather slow, smooth application of power. Popping the throttle on takeoff would probably help, but full throttle while standing still seems to cavitate the prop — people nearby can hear it "wow" with certain props. Seems like wasted energy to me.

John Monnett has always advised against full power, high speed taxiing and I agree. With the tail up in the air, the end of the runway getting closer and 50 MPH on the airspeed, you will feel obliged to chop the throttle. (Remember those Azusa brakes.) When was the last time you practiced aborted takeoffs? I never did, and that is where the trouble begins. (It ends about 500 feet further down the runway in a cloud of dust!) So what you do if you really, really want to do tail up practice runs? Don't use so much power. You need about 10 HP to move a Sonerai at 50 MPH, so why use 60? Apply power and as soon as you have reasonable speed, begin retarding throttle so you don't end up with a sudden combination of not enough runway, no power and a real tap dance on the rudders. I feel it is that sudden reduction with all the changes at one time that ensue that causes most of the problems.

By contrast, most people have one of their best landings that first time. Sort of like your first solo. A commonly asked question has to do with approach speeds, landing speeds, etc. And all of these have to do with your airplane. Is the airspeed accurate? How are the ailerons rigged? What about your weight and balance? The Monink and Randy Novak's Notes have recommended the ailerons be dropped about 1/4 inch so the counterweights are up the same amount. This allows a more positive, crisper response also. As a rule, most Sonerais that fly with the horizontal stabilizer adjusted all the way "up" are quite nose heavy. Be prepared if you rig this way, it can be quite pronounced! On my first flight, it felt like N78ES would have done outside loops all the way to ground level had the control stick been released. It is now down 12 washers and I have 4 lbs. of lead in the tail. So, depending on a few factors, most of us use 80 MPH on final approach with 70 MPH over the fence and 60 MPH as you flare. Changing the aileron rig, or the angle of incidence of both wings, can have a noticeable effect on the landing feel.



BANK ANGLE VS. G LOAD

PLANE TIPS

Want to keep your plane from being stolen? Simply leave a note on the yoke to yourself from your "A&P", that reads:

"John, do not fly this aircraft! See me immediately! Suggested reasons for grounding include LH Main Axle Cracked, #2 Cyl. "O" Compression, Fuel Leaking on Muffler, Aileron Linkage Reversed, Crankshaft Bent due to Grd Strike, Lower LH Eng. Mount Removed (No part), etc....." Pick needed repair most suited for your bird!

You've been in the garage too long when you know what song the all-night DJ is going to play next because you have memorized the play list.

You've been in the garage too long when you hear the newspaper hit the front porch.

Engines

SELF-LOCKING NUTS ON BOLTS SUBJECT TO ROTATION

There is an Advisory Circular AC No. 23.607-1 that states that CAR Section 3.294 and FAR Section 23.607 require that no self-locking nut be used on any bolt subject to rotation and operation, unless a non-friction locking device is used in addition to the self-locking device. Plastic stop nuts are also known to have a limited useful life, i.e. you can only take them off and put them back on about 2 times before the stop nut function is considerably reduced. EAA Information Services would be happy to send a copy of this Advisory Circular on to anyone interested. It is included here just as a reminder. I also note that propeller builder, Ed Sterba, of McHenry, Illinois, recommends that elastic stop nuts be used on the back plate of a wooden propeller flange in spite of the usual recommendation that these be safety wired or cotter keyed. The reason for this being that wooden propellers require frequent tightening of the bolts. As much as four to six times per year, Ed says, is not unusual. If you put the nuts on the back side of the rear prop plate, these can easily be checked by hand during the pre-flight.

SPINNERS AND BULKHEADS

From the Soneral Newsletter; Ed Sterba, Editor

The spinner on our rather high RPM engines can be a real maintenance item on an otherwise low maintenance airplane (?). The standard procedure is to use pan head type screws to attach it to the bulkheads, although a number of people have used countersunk screws and washers. I recommend using screws in the forward bulkhead, since it seems to me that the higher RPM will expand the spinner off the bulkhead and perhaps wobble. The forward bulkhead is also reinforced with 26 gauge, galvanized steel and epoxy, by cutting a disk to fit inside the cone of the bulkhead. The 1/4 inch crush plate is outside of the steel disk. The forward bulkhead and the steel can be riveted to each other with 8 to 10 pops on the outside edge, where they won't hit the prop blades or hub. It should stop a .50 caliber bullet when done like this. If and when the forward bulkhead ever fails, it can be a rather messy affair with pieces all over. This is why a lot of us keep a cable tying the engine to the airframe should the prop also be damaged. My spinner cracked at the blade cutouts early in its life and then lasted 7 years with a patch on each side. The forward bulkheads have a much shorter lifespan with the people I know. The blade cut out is carefully smoothed and radiused, and then a 1 inch wide reinforcing strip of 26 gauge galvanized steel is not only riveted, but also epoxied with aluminum filled epoxy. So the blade cut out should not give any trouble. Please don't let any of this metal touch your wood prop or it will break through the finish quickly. People seem to think that you need a very close fit between the prop and spinner, but I have found no change in speed or engine cooling when running without any spinner at all.

KEEP ONE AS A SPARE

From the Soneral Newsletter; Ed Sterba, Editor

(The names on this one are going to be withheld to avoid acute embarrassment!) The VW had been bumped up to a brand new 2180 and installed in the nose of a Soneral II, so while there were more cc's, the compression ratio was lower, making it difficult to decide if the old propeller was going to need adustment. Starting was a bit difficult, as it can be with a new engine, and the initial idle seemed a bit rougher than usual, but it was all new parts and at least it was running. After a while, the power was advancing to get out of the rich idle range of the Posa and things seemed to smooth out quite a bit. After a few run-ups like this, checking for oil leaks and the like, full power was brought in and registered a rather disappointing 2,700 RPM. Well, that wasn't as good as before and the talk centered on the lowered compression ratio and the need to readjust the Posa for the larger cc engine.

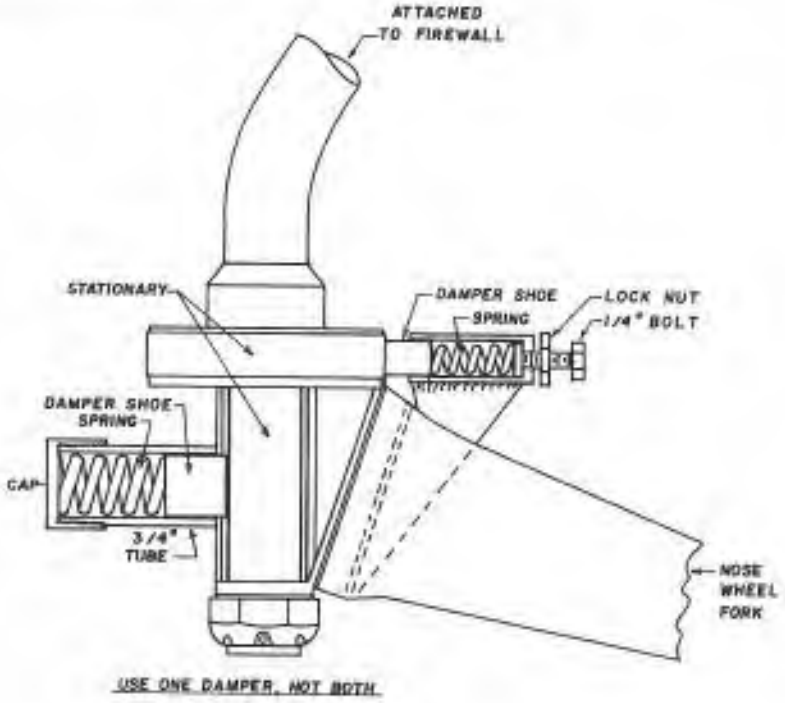
With no great improvement in RPM forthcoming, the decision of whether or not to fly came up. We usually like to see 2,900 to 3,000 static, but then it wasn't that far off . . .? So let's check the mag timing and the plugs first and do the Posa last. The timing came out alright, and the first couple of spark plugs showed the typical thin layer of black soot that is formed by the idling Posa carb. But the last plug was clean — real clean — way too clean — like never fired too clean! When a light was shown in the spark plug hole, it just shined right back out — it was clean in there, too! The darn thing had never been fired!

The problem was quickly traced to a kinked spark plug lead that was confirmed at the FBO with a high tension lead tester. Run up now was back where it belonged at the 3,000 RPM range. The bigger engine with the lower compression ratio was apparently as strong as before, according to the propeller. But we all had to ask ourselves a few tough questions. Was the engine so smooth on 3 cylinders that we couldn't tell? Were we ready to head out on a test flight with only 3 cylinders working? A decision was made to designate the fourth cylinder as a "spare" cylinder in case one of the others quit working. I mean, we had heard that some airplanes even had two magnetos in case the other one quit working. (Honest, it didn't feel that rough.)

Technical Counselor, George Shanks of Oregon, Ohio, reports on Carlton Fraker's Mustang II project with 150 HP Buick 215 power. Carlton is from Toledo, Ohio. George's comments are that "This bird is perfection! Machinists make great airplane builders!"

George Shanks also visited Ivan G. Harvey's Mustang II. Ivan is also from Toledo, and his aircraft is powered by an O-320 of 150 HP. The bird should be ready to fly in spring of 1988. Great workmanship!

Design



HOW TO ELIMINATE NOSE WHEEL SHIMMYING

Nose wheel shimmying can be eliminated by several methods: FRICTION DAMPING, HYDRAULIC DAMPING, A HEAVY SELF CENTERING ACTION, TWIN TIRES OR THE MARSTRAND TWIN CONTACT TIRE. This from the book by Pittman Publishers, entitled "Component Design Handbook No. 2" by the Royal Aeronautical Society.

It might be of interest to note that there is an excellent book entitled "Landing Gear Design, Volume 1", by Ladislao Pazmany, available from him through Pazmany Aircraft Corporation, P.O. Box 80051, San Diego, CA 92138. It is the most up to date and complete volume on landing gear design since the previous benchmark by Conway. Write to Paz for further information. A drawing is shown of a damper designed by Roy Clemens of Kelowna, British Columbia, Canada, on his solution to his problem on his Cavalier nosewheel.

Safety

SAFETY NOTES FROM STARDUSTER CORPORATION

The following is exerpted from a letter from Bill Clouse, President of Stolp Starduster Corporation to Ben Owen at EAA Headquarters.

The 9 year old Biplane that had the rudder cable failure while taxiing out for flight, one week after an annual inspection, by an IA buyer was the third owner. The IA called me and made the following statements:

1. The aircraft was built very closely to plans as reference to fairlead positions and rudder cable routing. The big difference, that we both feel was a major factor in cable failure, was a pair of approximately 50 lbs. springs were used to keep pedals upright and cables under tension. That, to our estimation, was about 40 lbs. too much. We both prefer continuous loop instead. Now Ben, we both know how fortunate it is that this incident happened on the ground — it brings out some serious things to think about.

Here is a short story: A new Starduster owner had just purchased a used "Starduster Too", with a fresh annual and wanted us to bid on a cosmetic paint repair job. We requested he fly his airplane to "Flabob International Airport" for inspection and bid on paint repair. (The horror story begins.) The first thing he noticed was the lower left aileron at an odd angle. Secondly, elevator interferrence with horizontal stabilizer. Overall general appearance of dis-repair (disrespect). On further inspection, the aileron had a bushing missing from the hinge. There were two inches slop in aileron movement of control stick. Aileron bellcrank was worn out. One inch play in pitch control. The seat back was removed and the rod end bearing in the elevator push pull tube had one bolt missing; the other suffered excessive wear with elongated holes.

The customer returned from a coffee break to receive some bad news — paint was beyond touch up repair and I had grounded his aircraft. His comment was that his aircraft had just passed annual by a reliable "FBO" and that I did not have the authority to ground his airplane. My reply was that legally, maybe not, but the FAA would be advised of the information we had provided him for his safety and public welfare. He then agreed to temporarily do the necessary repairs to make the aircraft airworthy to return to home base. He subsequently sold the airplane because of the expense. The new owner took our advice (we did not do restoration) and invested $16,000 on top of the purchase price. All concerned are pleased with the end results.

Ben, the major point I am trying to make is that even the builders do not always use the manuals and directives available to them while building their airplanes. But what about the A&P's and IA's we are supposed to trust to inspect and annual our birds?

Starduster Corporation is available to inspect and make recommendations to prospective buyers of our products.

THE AGING AMATEUR BUILT

From David C. Baxter of Lake Grove, Oregon, author of Starduster History.

Dave has an interesting point in that some of the amateur built aircraft are aging, many of them 20 years of age and older, that may have been sold, damaged or rebuilt several times since they were first built. During the building process, many builders neglected to drill holes undersize and ream them to the proper dimension, which results in loose fitting bolts. Operating a control system with loose fitting bolts, elongated or worn holes, and misaligning control push-pull tubes and control reverses results in a sawing or abnormal wear pattern. Thus, after many hours of use, they could fail. His recommendation is that when an airplane is first built, that all control system hole dimensions be drilled undersize and reamed to the proper bolt size. He further recommends that all aircraft in service be inspected to ensure that bolts and control systems are in good condition and show no wear, and that bolts in the chain of stick to stick to control push pull tube to reverser be immediately removed and checked for any signs of wear.

A new EAA member, Steve Pate, says that both GM Truck and Coach make reamers, and they are available from the Hayden Twist Drill Co., 22822 Globe, Warren, MI 48089-2580; telephone (800) 521-1780. They make reamers of 2.47 inches, and 2.48 inches, and others, that fit the diameter of a 1/4 inch bolt. He believes the price to be about $35.00.

ANATOMY OF A THROTTLE FAILURE

From info submitted to the FAA by Keith E. Embree, Cambridge, Ohio

Amateur builders use the same type of throttle cable used on lawnmowers, motorcycles, automobiles and aircraft.

There are many good quality products used in all of these machines. There are some not so good. Two points to look for are:

SOLID BRASS BODY - Some cheap units are made of light tubing. Worst of these is a rolled tube. When the conduit is crimped into the body of a tube, it may easily come loose with time, use and vibration. If this happens, the conduit will move and the cable will remain stationary - resulting in throttle failure.

STAINLESS WIRE OR CABLE - This is important because stainless resists corrosion. Corroded cable = throttle failure.

The aircraft I was flying incorporated a body made with a rolled tube. The conduit was crimped into the tube. This was of little use, because the seams in the rolled tube opened up with use, releasing the conduit.

PROPOSED PIPER AIRWORTHINESS DIRECTIVE

Many of us might be aware of a Proposed Airworthiness Directive on the Piper PA-28 and PA-32 aircraft. The AD was suspended as a result of ongoing studies. The AD was issued following an inflight wing separation in a PA-28 on March 30, 1987 near Marlon, Texas. The airplane was flying low-level pipeline control at the time of the accident. The left wing separated from the airplane at the lower spar wing root attachment to the fuselage. The lower cap on the main spar had sustained a fatigue failure. The lower cap had a fatigue crack across the forward base of the lower cap, just outboard of the outboard attachment hole. The AD called for removal and reinstallment of close tolerance, critical wing spar attachment bolts, which, if not done carefully, could result in significant damage leading to future wing failure. So, the AD itself posed some degree of risk. In the four months that the AD was in effect, approximately 450 airplane inspections were performed with two other reports of spar cracks found in PA-32-300 aircraft. Both aircraft were operated in Alaska, and a review of their maintenance records indicated extensive repairs. It was concluded that the spar damage was associated with the damage history, and it was the result of a severe operating evnironment. Data obtained from NASA confirmed that the frequency and severity of gust loads encountered a pipeline patrol to be approximately 20 times what would be encountered in normal service. Some of the aircraft inspected under the AD have more than 19,000 hours in the air, and displayed no evidence of spar cracking. The FAA ultimately concluded that the cracked spar of the PA-28 and PA-32 aircraft were isolated occurrences and that those failures were not likely to exist or have developed in other model PA-28 and PA-32 aircraft flown in less severe operational environments. There was no basis to continue the AD, and the FAA issued a General Aviation Airworthiness Alert to take its place.

WOOD WING ROT

Taken from EAA Chapter 26, WIND IN THE WIRES, January 1985

Where the right wing of a Bellanca 17-31 separated in flight, extensive wood decay was found on the inboard lower portion of the right, front spar. The wing strut fittings, normally bolted to the spar in this area, remained with the aircraft. The attached bolts were also corroded. Previously, a similar accident prompted issuance of AD 76-04-08 by requiring compliance with Bellanca Service Letter No. 87A, Wing Inspection. The wing structure of this aircraft had been inspected in accordance with this AD only weeks before the accident. Also, a wing inspection had been performed on this aircraft during each previous annual at the 100 hour inspection period. The decay apparently developed over a relatively long period of time, perhaps two to three years. Its development remained undetected throughout all those required inspections. The decay was obscured by the wing straps in the spars forward face plate. Since the wing strap to fuselage attaching bolt is located in this area, a probe inspection with a spar at the lower root end is very difficult to perform. (Older Bellanca airplanes, including models 14-9 and 14-13, are subject to a similar wing inspection in accordance with AD 76-20-07.

Wood decay, or rot, is caused by a fungus, a form of plant life which feeds on and destroys the cellulose content and structure of the wood fibers. The seed of the fungus plant is a microscopic airborne spore, present in almost all common environments. These spores will endure in dormant stage for years, and spring into growth when the wood becomes damp. The germinating spore sends out minute hairline strings, which seek out the cellulose of the wood and absorb it. These fillaments break down the cell walls of the wood with a resultant loss of strength. As the fungus develops, the wood darkens because the microscopic hairs become numerous and form visible masses. In advanced stages, the fungus can even produce bore holes, when highly localized areas of fungus penetrate the walls of adjoining wood cells.

Incidentally, the term, "dry rot" is a misnomer. There is no such thing as dry rot. Moisture must be present for rot to develop in wood. The term "dry rot" seems to have originated far back in nautical history when sailors discovered powder in places of wood, dry because the rotting process was complete, and they called it "dry rot".

Composite Corner

THE EFFECT OF COLOR ON SOLAR ENERGY ABSORPTION

From the Glasair News, Issue No. 27

Dupont Aircraft Refinish Products publishes a pamphlet with 90 color chips to choose from. On the back of the pamphlet is a color curve chart which plots the peak surface temperature change against ambient air temperature change. It gives an idea of the heat energy a particular color will absorb when exposed to the sun. If interested, contact your nearest Dupont dealer and ask for publication #-76083.

AEROBATICS IN THE GLASAIR III

From the Glasair News, Issue No. 26

In regard to aerobatics in the Glasair III, the 300 HP Lycoming engine **wasn't designed** with negative aerobatic maneuvers in mind. We had to pull the oil sump off, modify it, and when that didn't guarantee steady oil pressure when inverted, we installed an oil accumulator behind the seat. The oil accumulator keeps the oil pressure from falling behind a minimum of 20-30 PSI.

If you are building a Glasair III and have serious aerobatics in mind, you might want to consider the 260 HP engine — at least consult with someone who knows the in's and out's of aerobatic suitability for these engines. In any event, call our builder support people for further details.

WELCOME ABOARD PROJECT SCHOOLFLIGHT

From the Glasair News, Issue No. 26

(This is a letter to the students of Centennial High School, Greenfield Park, Quebec, Canada, from their Principal.)

Recognizing the changing needs of hi-tech society, Centennial has taken a bold step in pioneering a unique project. If successful, the PROJECT SCHOOLFLIGHT should open a new vista of educational opportunities and experience for high school students, particularly for Centennial students. In this context, the project is unique and one of its kind in Canada.

The SCHOOLFLIGHT project involves the assembly of a kit plane - a GLASAIR RG. The assembly process is intricate and complex. It requires tremendous patience, team-work and certain skill. There is no room for error.

The aviation history is a chronical of extraordinary challenges met by extraordinary people. Your participation in this unique and ambitious project should assure you of a place among those "extraordinary people".

With a true spirit of cooperation, teamwork and determination, we will ensure successful completion and airworthiness of our aircraft - GLASAIR RG.

Together, we can do it! Good luck!
S. Empraim, Principal
[EDITOR'S COMMENTS: What a great opportunity for high school students!]

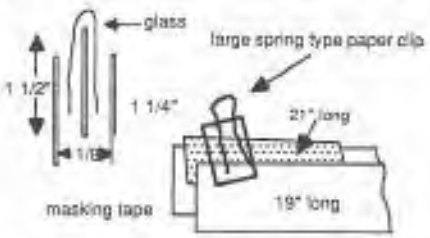
TIPS FROM JIM FRANKARD OF MINNESOTA

From the Glasair News, Issue No. 26

1. Use a paper funnel for applying a bead of Q cell or cabosil (doesn't work with mill fiber). The funnels can be obtained at a bakery and are made of parchment paper. Squeezing out a bead of Q cell is fast and precise.

2. When assembling the horizontal stabilizer, jig it on a table which can be lifted and rotated 90 degrees, so that when it is necessary to have the stabilizer in a vertical position, it will not be necessary to take it out of the jig and then rejig it. I set the stabilizer and the table it was jigged on up on my fiber glass cutting table when I wanted to have it in a vertical position.

3. On page D-114 of the Glasair plans, it tells how to bond 16 strips of fiberglass 3 inches by 18 inches (I had to use 3" x 20") into the aft fuselage between the inside tail cone and the horizontal stabilizer. I found an easy way of placing these strips by using a couple pieces of picture framing board material (it is almost 1/8 inch thick). Clamp the fiberglass between the strips of hard paper board as shown in the diagram.



Using this method, the man at the back hands it forward to the man inside, each man takes off the large spring type paper clip and then presses the fiberglass against the apex of the joint and then removes the outer and inner pieces of paper board and the fiberglass in place and sticking to the resin and can easily be patted down or up, ready to be coated with more resin.

GLASAIR III ENGINE NOTICE

The Lycoming IO-540 engines have machined "ears" or aluminum mounts bolted to the rear side of the case which serve as the mounting points for bolting the engine to the engine mount via the shock mounts.

Preston Welch, building a III, has reported to us that Glasair III builders should be aware that many of the early A, B and C series 540 engines prior to the K series have small ears. Our engine mount is designed to use big ears, therefore, if one of these earlier engines is to be used, the bigger ears will have to be purchasd and mounted to the engine for the Glasair installation.

GLASAIR FACTORY NOTE

From the Glasair News, Issue No. 26

All ground wires used to tie in the Loran pre-amp, antenna groundwire and control linkages to the ground plane should be copper braidwire commonly called bonding or grounding straps. The tin-coated strapping is available from most A/C supply houses, but is expensive at nearly $1.00 per foot. An alternative is to purchase coax cable and strip the rubber or plastic insulation off. The copper grounding strap inside the coax cable may then be pulled out and used. It lacks the protective tin coating and therefore may be more prone to corrosion, but may be OK as long as it is in an inspectable area of the plane.

FACTORY HINT: CARBURETOR PROBLEMS?

From the Glasair News, Issue No. 26

This is a reminder that if you buy an engine, or currently have an engine, with a carburetor which has a part number ending with -32, it will not work well with our Glasair induction system. We fought this problem until we were blue in the face years ago, and reported the problem and our findings back in Newsletters No 17, 18 and 19.

Recently, a few builders have gone through this very same problem (one of them flight testing here at Arlington) and a lot of expense until we remembered the solution and could point them toward another carburetor.

Please call out builder support people for more details. We did receive a report from one builder who installed a completely different induction system with a NACA duct and directional vanes mounted to the -32 carburetor and he had good luck.

Technical Counselor Gil Hausler of Phoenix, Arizona reports on Mike Cornett's Wag Aero Sport Trainer. Mike is using the drawings and not using kits. He contacts Wag Aero to solve problems and is reportedly doing a very good job.

Technical Counselor K. M. Christian of Moberly, Missouri, reports he has completed his Smith Miniplane as of May 15, 1987 as a rebuild project. It was originally certificated on May 15, 1962 and bought disassembled. It uses a Lycoming O-235.

EAA® TECHNICAL COUNSELOR NEWS

WITTMAN AIRFIELD *OSHKOSH, WISCONSIN 54903-3086*

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