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Message From Headquarters

Joe Norris, EAA Homebuilders Community Manager

It's renewal time! You will be receiving your renewal documents in the mail soon. I urge you to make sure you have reported all of your activities so that we can give you proper credit and process your renewals as smoothly as possible. Remember that you need to have current activity points in order to continue to be active in the Flight Advisor and/or Technical Counselor programs. Keep those cards and letters coming in!

The big news being talked about in the world of amateur-built aircraft is the release (finally!) of the FAA's new policy for certification of amateur-built aircraft. I think the new policy addresses the issues the FAA was concerned about without undue burden on builders who are careful to stay within the letter and the spirit of the regulations. The huge effort by EAA members and builders around the country who submitted thousands of comments to the FAA in response to their original proposal over a year ago had a favorable impact on the outcome of this revision. The entire amateur-built community should be proud of their efforts. You can find links to the actual policy documents in the EAA news story found at this web link:

http://www.eaa.org/news/2009/2009-10-08_arc.asp

In other news, the EAA Homebuilt Aircraft Council recently met at EAA headquarters to discuss several issues important to the homebuilt community. One major topic of discussion was homebuilt aircraft safety, and joining that discussion was Bruce Landsberg, president of the AOPA Air Safety Foundation. Bruce and the

HAC shared ideas on how EAA and AOPA can combine efforts to help promote safety and improve the accident record. I'm sure you'll see the fruits of this discussion as we go forward.

I want to take this opportunity to congratulate two outgoing members of the HAC, Doug Kelly and Jack Dueck. Doug, from Frederick, MD, has served on the council since its inception in 1999 and has served as chairman of the council for the past several years. Jack, from Calgary, AB, Canada, joined the HAC in 2001 and has helped the council understand the similarities and differences between US and Canadian amateur-built regulations. A big thank you to both of these fine gentlemen for their efforts on behalf of the entire homebuilt community.

With the departure of Doug and Jack, HAC welcomed a new member, Rick Weiss of Port Orange, FL. Rick has had a long relationship with EAA on many levels and he now brings his enthusiasm to HAC. He joins continuing HAC members Joe Gauthier of Cromwell, CT, and Wally Anderson, of Eugene, OR. EAA President Tom Poberezny will be naming other new HAC members soon to fill the vacancies left by the departures of Doug and Jack.

I'll close this month with my usual plea for newsletter submissions from the field. Please take time to share your experiences and knowledge with your fellow EAA Flight Advisors and Technical Counselors. Send your articles via "snail mail" to EAA Safety Programs, PO Box 3086, Oshkosh, WI 54903-3086. You may also submit articles via email to safetyprograms@eaa.org

AvGas History

Excerpted from an article by Hobie Tomlinson

Very early aircraft engines used fuels available at the time, typically 60 octane automobile gasoline. High compression aircraft engines (around 6 to 1 for supercharged engines and up to 9 to 1 for normally aspirated engines) began to be developed in the 1930s. The low octane fuels available at the time burned too quickly in these engines, causing preignition and detonation. To prevent these from occurring, special aviation gasolines were developed using tetra-ethyl lead (TEL) to control the combustion process.

By the end of World War II four grades of aviation gasoline existed: 80/87 octane (dyed red), 91/96 octane (blue), 100/130 octane (green) and 115/145 octane (purple). The lower number in each case represents the octane rating with a “lean” mixture while the higher number indicates the octane rating with a “rich” mixture. The 91/96 grade was the first to disappear, and when the airlines and US Air Force made the switch to jets the 115/145 grade disappeared as well. Low sales volumes finally led to the demise of the 80/87 grade, while pressure from the environmental community led to the development of a new 100 octane fuel called 100LL (Low Lead). Note that the octane scale actually doesn't go above 100, so numbers above that value

are actually “grade” or “performance” numbers rather than actual octane ratings.

Although 100LL (dyed light blue) is designated as “low lead” fuel and contains only half the lead content of the old 100/130 (green) AvGas, it still contains *four times* the lead content of the old 80/87 (red) AvGas. Switching to the 100LL fuel created problems with lead fouling in lower compression engines originally designed to operate with the 80/87 octane (or lower) AvGas. These problems led EAA and others to test the use of automobile gasoline (MoGas) in these low compression engines, resulting in several Supplemental Type Certificates (STCs) being issued. These STCs approved the use of MoGas in most aircraft originally certified for lower octane AvGas. Engine manufacturers have now eliminated much of the lead fouling problems associated with the use of 100LL in low compression engines by going to larger diameter valve stems and hardened valve seats.

(Editor's note; Recent changes to MoGas formulation, including widespread use of Ethanol as an additive, have caused problems for those using Auto Fuel STCs. We'll cover this in a future article.)

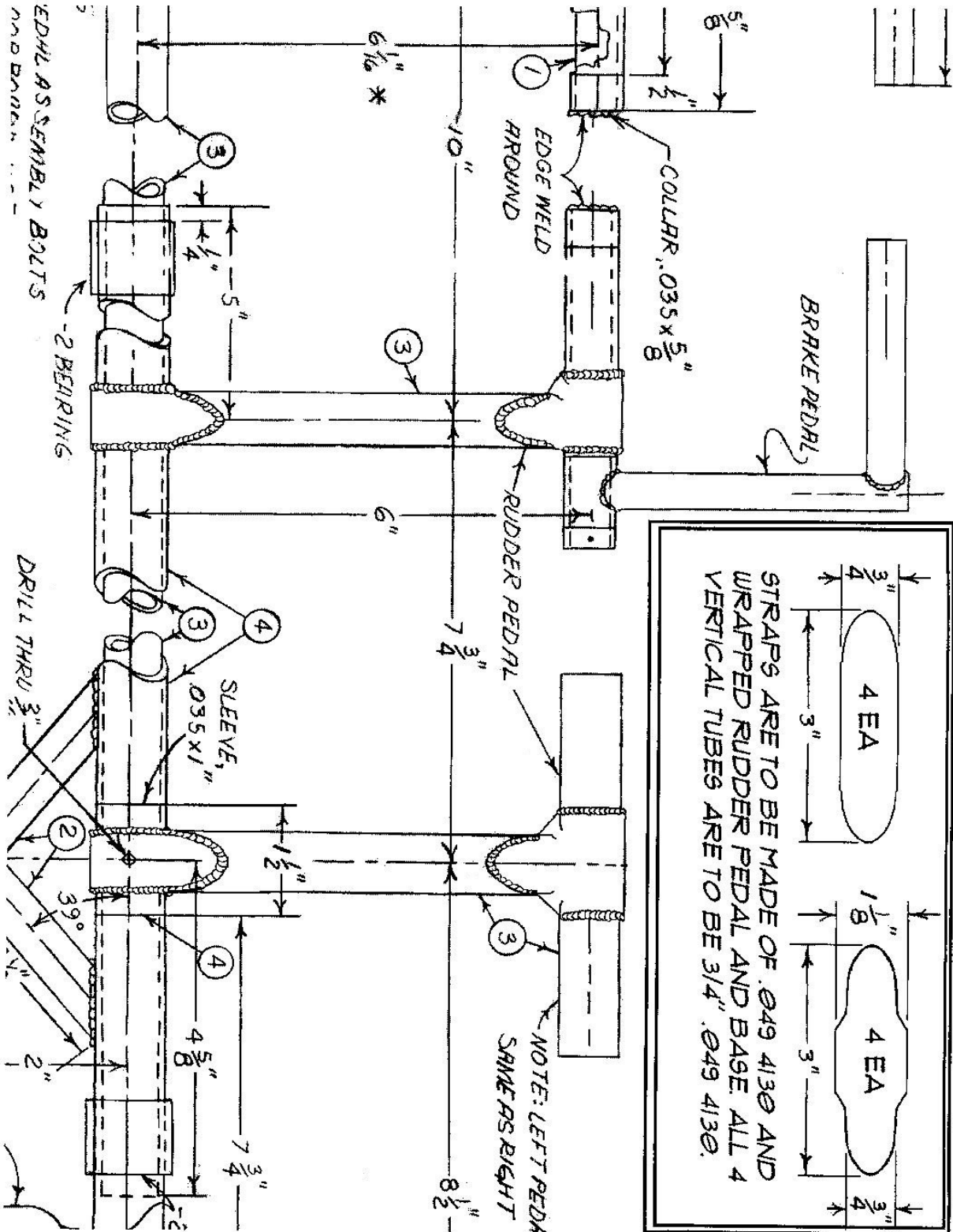
Rudder Pedal Reinforcement

Joe Norris, EAA Homebuilders Community Manager

EAA Founder Paul Poberezny visited my office recently to tell me about a problem a builder had recently experienced on a Pober Jr. Ace. The builder had been performing a takeoff in a strong crosswind when the top of the rudder pedal broke off at the weld, causing a loss of control and a ground loop resulting in substantial damage to the airplane. Paul expressed concern that many of our homebuilt aircraft have rudder pedals very similar to the Jr. Ace, with “T” joint welds at the top and bottom of the pedal. He mentioned that this area should not be overlooked at condition inspection time.

Paul dropped off a drawing of a modification that can be done on the rudder pedals to reinforce the top and bottom welds. The modification involves making a “finger patch” that wraps around the “T” joint after the initial weld is made. I have included the drawing in this newsletter (see page 3). While this particular drawing is an excerpt from the Jr. Ace plans, this type of reinforcement can be adapted to any homebuilt with this type of rudder pedal. When performing your technical counselor inspections you might want to pay particular attention to the welds in the primary control system so that we can avoid this type of accident occurring in the future.

Rudder Pedal Reinforcement Drawing



STRAPS ARE TO BE MADE OF .049 4130 AND WRAPPED RUDDER PEDAL AND BASE. ALL 4 VERTICAL TUBES ARE TO BE 3/4" .049 4130.

NOTE: LEFT PEDAL SAME AS RIGHT

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Who Records a TC Visit?

Joe Norris, EAA Homebuilders Community Manager

We've been receiving calls here at EAA HQ regarding a comment made in the "Technical Counselor" column in the October issue of EAA *Sport Aviation* magazine. The last paragraph on page 99 states;

The FAA is also requiring that the airframe logbook, which records commercial help, also contain signatures/sign-offs of any individuals who inspect the aircraft during construction.

This statement is incorrect. As directed by your Technical Counselor Handbook (you have read the handbook, haven't you??) the EAA Technical Counselor does not sign any construction records or logbooks. You are only asked to fill out the visit report form, a copy of which you leave with the builder. The Technical Counselor doesn't even sign the visit report form! Only the builder signs the form, and it is the builder's responsibility to record the TC visit in the aircraft construction records.

Another point regarding the statement in the magazine is that the format for construction records is not defined by the FAA. While an airframe logbook might be used it is not the common way to document construction. Typically an airframe log will only be used to record inspections and maintenance from the time the airworthiness certificate is issued going forward. Construction records can take any form, and there are a wide variety of options. Many builders are using electronic records now, and many still use the good old three ring binder or spiral notebook for construction records. How to keep the records is the builder's choice, so long as the records are substantial enough to verify that the major portion of the fabrication and assembly was performed by amateur builders.

Please fill out the visit report form, or use the online form, to let us know when you visit a project. It's important that you record your activity, but do not sign anyone's logbook or construction records!