



DESIGNEE NEWSLETTER

THE PUBLICATION OF THE EAA DESIGNEE PROGRAM



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The *DESIGNEE NEWSLETTER* is a forum for the exchange of information and ideas of interest to aircraft and ultralight builders, restorers, and flyers. The sources of the materials published are EAA Designees, readers, Chapter newsletters, and other publications. Readers are encouraged to submit manuscripts, drawings, and black/white photos for consideration. Every effort is made to select accurate materials of interest to a majority of readers. Opinions expressed and responsibility for accuracy rests entirely with the contributor. All materials submitted become the property of EAA - no remuneration will be made. Materials should be sent to Chuck Larsen, EAA Designee Director.

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51% RULE COMMENTS NEEDED

We still receive an occasional complaint or remark from an applicant for an amateur built experimental certificate regarding the "major portion of 51% rule", especially when the FAA finds that the applicant has not met this requirement. These remarks come from designers and manufacturers of kits as well as from individual homebuilders.

We all know the "major portion of 51% rule" has considerable room for interpretation, and this is not all bad as it provides flexibility both for the amateur builder and for the FAA Inspector who is called upon to issue the experimental certificate for the aircraft.

Recently, FAA developed an innovative concept whereby it could be determined whether or not a project would qualify as "Amateur Built" before it was started. Further, a designer or kit supplier could determine that the product would fit this criteria. This has been extremely helpful in specific cases where the new concept was applied, but many people do not know it exists and, therefore, cannot put it to use. The concept is in a trial status and receives its life in a document entitled FAA Notice N8130.39, issued 7/25/83. The information contained in this notice is available at your MIDO, GADO or PSDO.

The concept consists of breaking down the construction and assembly process into its various components and then giving weighted credit for having done the work and having used specific tools in this endeavor.

A check list was developed for two categories of aircraft - one of over 350 lbs. maximum empty weight and the other for aircraft up to 350 lbs. maximum empty weight. (The latter covered the introduction of ultralights into the amateur built category.)

After completing the check list, if the resultant number is over 60 the project qualifies. If 50 or less it is not within the basic requirement and hence will not be eligible for an experimental certificate in the amateur built category.

It is not mandatory for the FAA to use the check list if the inspector is satisfied that the 51% requirement has been met, but it is helpful in the event of a dispute.

Inasmuch as this trial period is scheduled to close 7/1/84, we would appreciate any comments you may have regarding its use, both pro and con, by June 10. Where possible please support your remarks with specifics so we can provide FAA with a constructive recommendation by the middle of June. Address your comments to: Charles Schuck, EAA Washington Representative, 708 MacArthur Ave., NE, Vienna, VA 22180.

DESIGNEES AND SUBSCRIBERS:

EAA AIR ACADEMY '84 invites you to participate as an instructor for a two or three day period between July 15th and 27th. Enjoy the satisfaction of knowing you have made this preparation for the future of aviation a success by passing your aircraft knowledge and skills on to the 15 to 17 year olds participating in the Academy. Contact Chuck Larsen at the EAA Aviation Center for further information.

OSHKOSH '84, EAA's annual showcase of sport aviation, looms ever closer on the horizon. Soon thousands will come to Wittman Field in Oshkosh, Wisconsin to celebrate "THE FREEDOM OF FLIGHT" at our annual convention. Demonstrations, workshops, forums and fly-bys, rows and rows of homebuilts, antiques, classics, warbirds and ultralights will shine on the grassy Wisconsin field. Experienced builders and Designees are asked to offer their unique skills and talents to support the Designee Program at this years program. Please contact John Gregg, Area Code 216-232-5790 to volunteer your assistance in the Airshow Aircraft Review or Fred Goldstone, Area Code 701-352-2508 to support the Designee Information Program at the convention. We want you to attend and participate in the Designee activities at OSHKOSH '84.

Chuck Larsen, Designee Director

ANNUAL AIRCRAFT MANUFACTURING WORKSHOP: The Annual Aircraft Manufacturing Workshop will take place July 2, 1984 through July 20, 1984, at the University of New Mexico, Albuquerque, New Mexico (U.S.A.).

The Workshop is designed primarily to give craftsmen teachers the hands-on experience they need to implement a program of aircraft manufacturing. The content will have equal appeal for undergraduate, graduate, and non-degree seeking persons. Priority will be given to teachers of Industrial Arts, Vocational-Technical Education, and Science; however, the Workshop is open to any adult with essential interest and capabilities with tools and materials.

DEADLINE FOR APPLICATION IS MAY 15, 1984

Aircraft Manufacturing Workshop will carry six semester hours credit and dates will be as mentioned above. Information relative to housing, fees, registration, etc., may be obtained by writing to:

ROBERT D. NESBITT, PROFESSOR
INDUSTRIAL EDUCATION
COLLEGE OF EDUCATION
UNIVERSITY OF NEW MEXICO
ALBUQUERQUE, NEW MEXICO 87131

PHONE (505) 277-2645

LETTERS 'N SHOP TALK



KITS: The FAA's list of kits determined to meet the requirements of FAR 21.191 (g) - (the 51% rule) continues to grow.

Kit Manufacturer	Model
American Aerolights, Inc.	Eagle 2-place
American Eagle Corp.	Minihat Sailplane
Birdman Aircraft Co.	TL-1
Buck Sport Aircraft, Inc.	Buck Mini-Coupe
CGS Aviation, Inc.	Hawk Model A
Christen Industries	Christen Eagle II, Kit Array No. 1 Condor III + 2
Condor Aircraft Co.	XTC
Diehl Aero-Nautical	BJ-1B Duster Sailplane
DSK Aircraft Corp.	Quicksilver MXII
Eipper-Formance Corp.	F.P. 101, F.P. 202 Koala
Fisher Flying Products	Goldwing
Goldwing Limited	Orion G802
Jean Grinvalds	Avid Flyer
Light Aero, Inc.	Hummer A and B
Maxair Sports, Inc.	Monera, Moni
Monnett Experimental Aircraft	
Pitts Aerobatic Aircraft Co.	Pitts Master Kit, List No. 100, 200, 201 Ascender II + 2
Pterodactyl	Rally 3A, Rally Sport, Rally 2B
Rotec Engineering, Inc.	Exec Helicopter
RotorWay, Inc.	VariEze
Rutan Aircraft Factory	ST3
Sky Tractor of America, Inc.	Hiperbipe SNS-7
Solrell Aviation	Glasair SH-2 and SH-2R
Stoddard Hamilton Aircraft Co.	
Swallow AeroPlane Co.	Model B
Teratorn Aircraft, Inc.	Tierra, Tierra II
Ultra Systems, Inc.	Weedhopper, J-24
Wag-Aero	Sport Trainer, Sport Trainer II, Acro Trainer, Super Sport, Observer, Acro Sport II, Wag-A-Bond Classic, Wag-A-Bond, Traveler, Sportsman 2 + 2
Zenair Corp.	CH-200, MC-12 Cricket
Zia Applebay Corp.	Zia Motorglider

CAUTION!

From the F.A.A. General Aviation News via the Peach Ridge Air Force Chapter 704 Newsletter

The mystery of how pieces of thick aluminum foil ended up in the oil sumps and filter screens of several different aircraft during recent inspections has been cleared up. Some oil manufacturers now distribute their aviation oil in plastic containers with built-in spouts. Before the oil can be poured, an aluminum foil seal (which keeps out contaminants) has to be removed. Some pilots and mechanics, however, are just puncturing the seal or peeling it only partly off, allowing pieces of the seal or the entire seal to be poured into the engine with the oil. No reports of engine stoppage or damage have been noted — yet. To prevent that unpleasant possibility, make sure you peel the seal off and throw it away.

PIPER LIFT STRUT FITTING FAILURE: Fatigue failures of the lower attach fork fittings on high wing Piper lift struts continue to be reported to the FAA. Problems with cracked forks date back to 1958. Since that time airworthiness directives, emergency airworthiness directives and numerous AD amendments have been issued by the FAA on the subject.

Preventative actions in the form of AD mandatory repetitive inspections and the installation of improved forks have effectively brought the problem under control. Nevertheless, the FAA continues to receive reports from A&P's on cracked forks. Since October of 1980, FAA engineering has had 60 forks returned to them from A&P's reported as cracked. Upon a thorough re-inspection by FAA engineering, all forks were found to be, in fact, not cracked at all.

It is therefore clear that some A&P's are not only inspecting the forks improperly but they are also incurring unnecessary costs and sending shock waves through the ranks of Piper owners.

The Piper aircraft models affected are:

J-3, J-4, L-4, J-5, PA-11, PA-12, PA-14, L-14, PA-15, PA-16, PA-17, PA-18, L-18, PA-19, PA-20, L-21, PA-22, AE-1, HE-1.

Although forks are relatively easy to inspect, compliance with all the requirements of the AD is very complicated.

● The rules vary depending upon the airplane model involved and 19 models are involved.

● The rules vary between seaplanes and landplanes.

● Four old part numbers are involved and four new numbers are involved.

● New forks look just like old forks. Piper has provided no obvious identification to distinguish between new and old forks.

● Piper does not reply to written requests from A&P's for their recommended inspection procedures to detect cracks.

Because of the serious consequences resulting from a cracked fork, the Authorized Inspectors Association has prepared a free Airworthiness Inspection Bulletin which is available to any Piper owner and any A&P who requests it. Send a 4" x 9 1/2" stamped, self-addressed envelope to: **AIA, P.O. Box 464, Goldenrod, FL 32733-0464**

The Authorized Inspectors Association is a group of unpaid A&P's who are tired of complacency in aviation and are working to clarify and simplify maintenance and FAR problems confronting A&P's and aircraft owners.

AVID FLYER SPAR BRACES

From Jack Blackwell, Designee 763 of 1165 Karoo Drive, St. Charles, MO 63301

Jack reports that while visiting an avid flyer project he discovered that the "diagonal braces between wing spars are cracked in the formed ends . . . also appear over formed causing high stress area. These braces are prefabricated and furnished in a kit for amateur (homebuilt) construction by Light Aero, Inc. Recommend separate end fittings rather than overformed aluminum tubing."

Parts supplied in kits or individually from all sources should be inspected with the same careful eye as one would inspect your own work. The fact that it was done "commercially" is no guarantee of its being airworthy. Any discrepancies found in purchased parts should be brought to the attention of the manufacturer who will, I am sure, be very interested in the problem and providing a solution to you as well as other builders of their design or users of their parts. - Ed. -

TECHNICAL TOPICS

FIRST FLIGHT

*The first of a two-part article
from THE STARDUSTER MAGAZINE
published by Stolp Starduster Corp., 4301 Twining
Riverside, CA 92509. It is available by subscription
for \$8.00 per year.*

This is in response to an article in the September 1975 issue of *SPORT AVIATION* by L. D. Sunderland. Title, "First Flight Procedures". I find myself in complete agreement with Mr. Sunderland, except for those procedures concerning flying.

My objections start with Rule 6. He points out the necessity of an accurate Airspeed. I see no reason for an A/S, much less an accurate one. When I was in primary training none of the PT-3's or PT-11's were equipped with one. We were taught to fly by feel, which is necessary in becoming a good pilot. Secondly, what difference does it make if the airplane stalls at an indicated 60 MPH or 600? Your only concern should be whether it was consistent.

Rule 7 actually makes me shudder. He recommends a series of lift offs and low flights down the runway. This technique, low & slow, is recommended so frequently, I think it is time to challenge those advocating this method, due to its inherent dangers. Its about as practical, in my opinion, as the famous admonishment made by the little old lady, "be careful, fly low and slow and don't lean in the turns".

I include the following only to qualify myself on the subject. I trained in the Army Air Corps, was Assistant Base Engineering Officer at Langley Field, have been Experimental and Production Test Pilot, Fighter Pilot, and Airline Captain. Total a little over 22,000.00 hours.

I have had engine failure in both single & multi-engine airplanes in almost every conceivable phase of flight. The most memorable was engine failure during takeoff. This occurred at a height of 5 feet in a P-51. The engine became so rough I elected to abort takeoff.

Believe me, I had my hands full during the initial part of the landing roll, and I was familiar with the 51. I bring this up to point out, that landing from this attitude is most difficult, even when you know the plane well. How do you think you will fare in your new but unfamiliar homebuilt?

I believe most experienced pilots will agree, and they normally don't agree on very many things, that the approach is at least 50% of the landing. If proper glide, speed, and trim has been established, the landing has a better than an even chance of being good. A bad landing normally starts before the plane ever crosses the threshold.

I have witnessed some first flights using the low and slow method that almost ended in disaster. The reason was due to almost uncontrollable gyrations during the roll out. This same pilot, now convinced that his airplane would fly, took off as he should have done in the first place, climbed to a safe altitude, and became acquainted with his airplane. After he had done this, knowing now how it responded, he made a normal approach and a good landing. Don't misunderstand, I am not one who thinks that a pilot should be judged solely on his ability to make a good landing, like many laymen tend to do.

Anyone that can fly a strange airplane at minimum airspeed, watch his oil pressure, oil temperature, cylinder head temperature, and keep an eye on the airspeed while 5 feet off the ground without cracking up is just plain lucky. To me this sort of testing, or flying, is ridiculous, I wouldn't try this after 100 hours, let alone on the first flight.

Even at Edwards, when there is more than 10 miles of runway available, this so called technique, low and slow is not used, and they, being professionals, know what they are doing. After taxi tests have been completed, the airplane is taken off convention-

ally and flown to a safe altitude. The pilot goes about familiarizing himself with the airplane in a routine way which gives him the most information in the least amount of flight time. In case something happened, he wants as much knowledge about the airplane as possible. When satisfied that he can cope with the airplane's responses, he will then proceed to land.

I can think of no valid reason for this low, slow method. Granted you don't horse the airplane off the ground and climb at max angle of climb. After getting the tail up (assuming a tail dragger) you put a slight back pressure on the stick and ease it off. It is at this point that you can tell whether it possibly may be uncontrollable. If this is the case you cut the power and set it back on the runway. I guess the fear that the airplane may be uncontrollable, after becoming airborne, may influence some homebuilders to use the low and slow approach on their first flight. Almost like the guy that says, "I'll fly so long as I can keep one foot on the ground".

A word about what to prepare for may be of some help. Most important is check the direction of control movement. Cross check with a friend observing the movement and direction from behind the airplane, looking forward. To many this may seem unimportant, they know they aren't that stupid. Yet unfortunately, it's happened too frequently that control direction has inadvertently been reversed during building.

As you sit in the cockpit, pull the stick back. Have your friend call out the control movement. ELEVATOR UP - NOSE UP. Put the stick to the right. Observer should call out RIGHT AILERON UP LEFT AILERON DOWN - ROLL RIGHT. Run through the rest of the controls in like manner, including trim tab when applicable.

The other source of uncontrollability would be incorrect weight and balance computations. Here again, during the time of weighing, its good to have a knowledgeable friend around. Have him run the weight and balance figures separately, then compare answers. It goes without saying, recheck, especially if your figures disagree.

Do not panic, should a problem arise on your first flight. If you have rehearsed your flight in your mind, gone over emergency procedures before your first flight, you probably have already decided what should be done. The uppermost question in your mind may well be that of uncontrollability. During T.O. if it seems it takes excessive forward stick pressure and movement to get the tail up during takeoff, it's best to suspect something amiss. Don't wait until you are airborne and find, with full forward stick, you are still climbing. Should you allow yourself to get into such a position, reduce power and let the airplane settle back onto the runway.

If the opposite were true, nose heavy condition, where your tail comes up almost as soon as you apply power and requires excessive back pressure to get airborne. Again it's best to cut power and land. Taxi back, find out what the problem is before any further attempts to fly are made. A final comment, disregard any misguided remarks made by well meaning friends that may try to encourage you to fly before the problem has been discovered much less fixed.

In the next issue of the Designee Newsletter, I will present a complete test flight program. Along with the article will be a test flight form which can be filled out, giving a complete performance record for your airplane.

DESIGNEE VISITS

One of the important services provided by our DESIGNEEES is visiting aircraft building/restoration projects to discuss and offer suggestions about them. The DESIGNEEES in the following listing are to be commended for their efforts in helping to make sport aviation a safer activity by providing this service. Comments for publication are selected for the purpose of providing guidance or assistance to builders and the DESIGNEEES visiting them. DESIGNEEES are requested to note problems or procedures observed in their project visits in the comments section of the Designee Visit Report.

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