



DESIGNEE NEWSLETTER

THE PUBLICATION OF THE EAA DESIGNEE PROGRAM



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(414) 425-4860

Paul H. Poberezny — Publisher

Chuck Larsen — Editor



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.



Designees and Subscribers,

Many EAAers are enjoying OSHKOSH '83 as this issue travels through the mail to your home. If you were among the fortunate who were able to enjoy this year's Convention I invite you to sit down and rest your feet and rub lotion on your sunburned nose while you peruse this month's Designee features. If you weren't able to attend you have the opportunity to read this before those who did. Everyone has much to look forward to in future issues of *SPORT AVIATION* and other EAA publications as the story of OSHKOSH '83 unfolds on their pages.

Most of the aircraft on display at our annual Conventions are the result of years of dedication and hard work by their builders. Builders recognize family, friends, fellow Chapter Members and Designees as being instrumental in their successful pursuit of putting wings on their dreams of personal flight. We all look forward to the day when our own and those we help can take our creations to glitter like jewels on the emerald green carpet of Wittman Field.

FAA Advisory Circular 20-27C (provided in the June issue of the *DESIGNEE NEWSLETTER*) brings Designees to a new level of importance in assisting builders to present a "zero defect" aircraft to the FAA for the plane's Airworthiness Inspection. EAA has published or revised several technical publications and log books to support builders in documenting the progress and operation of their plane. A list of these publications is included on page 4 of this issue. It is of particular importance that EAA Designees understand that, in their position as a Designee, they are not authorized to make any log book entries or provide any documentation when visiting projects. These activities are the function and responsibility of FAA Inspectors. AC 20-27C should not be interpreted to require or suggest Designees enter a pre-cover visit in the builders log book. Designee visits to builders and restorers projects should be recorded on the latest version of the Designee Visit Form available from my office at Headquarters. When this form is completed, one copy should be sent to EAA and the other retained by the Designee.

Until September,
Chuck Larsen, Designee Director

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DESIGNEE VISIT REPORT

DATE _____ DESIGNEE # _____

DESIGNEE _____ EAA # _____

Street _____

City/State/ZIP _____

Telephone _____

BUILDER _____ EAA # _____

Street _____

City/State/ZIP _____

Telephone _____

Aircraft Type _____

Aircraft Registration Number _____

Engine & Horsepower _____

Have you visited this project before? _____ How many times? _____

Does the builder have the EAA Service Manual? _____ EAA Aircraft Log? _____

What is the estimated percentage of completion of the project? _____

When does the builder estimate the need for an FAA inspection? _____

PROGRESS REPORT (Designee Comments) _____

NOTE: The EAA Designee is a volunteer technical advisor only and in this capacity has no authority to approve or "sign off" the aircraft or any aspect of their construction.

The EAA Designee Program is intended solely to facilitate informal contacts between homebuilders of aircraft and interested persons who have informed the Experimental Aircraft Association that they are available to render advice to such homebuilders. The EAA Designee is not an employee nor agent of the Experimental Aircraft Association and the Association makes no representations as to the Designee's experience or competence with respect to aircraft building or restoration.

The builder agrees that he has read and understands the preceding, and consents to the distribution of this Report to EAA Headquarters and any appropriate governmental agencies.

Original — Write for Designee's records
1st Copy — Cream logbook — postage paid return card to be mailed to EAA Headquarters

Signature of Builder(s)

LETTERS 'N SHOP TALK



CHAPTER DESIGNEE PROGRAM

By Don Prestin, EAA 105084, D/N 1162. From the Santa Rosa EAA Chapter 124 Newsletter.

The Designee is an important member of all Chapters. He should be an experienced individual in the construction methods and maintenance procedures of the various types of chapter aircraft, whether they be tube and fabric, wood, metal, or composite type materials. Since he is not licensed, his is an advisory position only. He does not sign off work as the A & P does . . . that is done by the builder and the FAA Representative. Each visit to your project is to help you, the builder, with questions, problems and normal aircraft construction procedures. By working with the Designee, you should be able to have the FAA Representative come out at the recommended times and sign off your project with few or no delays.

An additional task of the Designee is to help transmit known problems or discovered ones, to the builders and designers of certain type aircraft (e.g. Vari-EZ, Quickie, Mustang II, Marquardt Charger, Starduster, etc.). Reports on each visit are sent to EAA Headquarters with a status report or problems. These reports are similar to an FAA Airworthiness Directive. EAA Headquarters then sends this information out by means of their monthly DESIGNEE NEWSLETTER. Your Chapter Designee then tries to pass the information on to you . . . the builder by this newsletter, or however possible.

There are many other Chapter men who are experienced with the various aircraft. If you need any help with a problem or have questions, feel free to call or ask them for assistance. We all want to help you build a safe and complete aircraft project.

BENDING CAP STRIPS

Dear Chuck,

Here's how to bend cap strips using a solution of hot water and Downey fabric softener. First build a container of black 6 inch ABS pipe by cementing a cap on one end and putting a removable cap on the other. Don't try regular PVC pipe; it won't hold up to high temperatures. The length of pipe can be whatever fits your needs.

Mix one part Downey to twelve parts water, and heat the solution to boiling. Put the cap strips to be bent in the container and pour in the hot solution. Seal the open end of the container. It is important to keep the container warm. I set the pipe out in the sun. On cloudy days I've set the pipe next to a mirror and heated it with sunlamps. Leave the wood in the hot solution for a minimum of one hour. You'll find that cap strips softened in this solution will hold its shape better and not snap in the bending process.

Russ Borton, President, EAA Chapter 34
34 Loren Drive
Jackson, MI 49203

CESSNA 150 EXHAUST EXTENSIONS

Cessna 150 owners can keep their planes' bellies a lot cleaner looking - and enjoy a quieter cabin, too - by installing exhaust pipe extensions. Fixed base operator Leon Rediske of Franklin, Wisconsin recently obtained STC approval of an exhaust extension for the 150 and claims that it not only eliminated the exhaust streaks normally left on the underside of the fuselage, but makes the cockpit quieter. No airspeed loss is reported. The STC kit includes new muffler outlet tubes for both sides of the engine. Leon Rediske, Rainbow Airport, Franklin, Wisconsin 53132.

SLICK MAGNETO REBUILDS?

There is an advertisement running in some publications for rebuilding 4000 Series Slick Magnetos. Slick indicates these magnetos are not rebuildable in the field as they are a sealed unit. They also indicated they had discontinued production of this series. The "rebuild" reportedly consists of a new oil seal, a pin and some grease which doesn't seem to constitute a "rebuild". The \$80.00 exchange probably indicates the motivation for this offering.

The Slick 4000 Series Magnetos cannot be rebuilt according to the manufacturer.

RADIO LICENSE

From the Punta Gorda, Florida, EAA Chapter 565 Newsletter

A new procedure for the temporary licensing of aircraft radio stations has been announced by the Federal Communications Commission.

The action will allow new aircraft operators to use their radios sooner than now possible and also reduce the number of Special Temporary Authority requests required to be processed by the FCC staff.

Effective June 1, applicants will complete only Form 404 and mail it to the FCC. At the same time, they will complete a Form 404-A, which is attached to the Form 404, and post it in their aircraft.

The Form 404-A, which replaces Form 453-B, will serve as a temporary aircraft station license for a 90-day period from the date the Form 404 was mailed to the FCC.

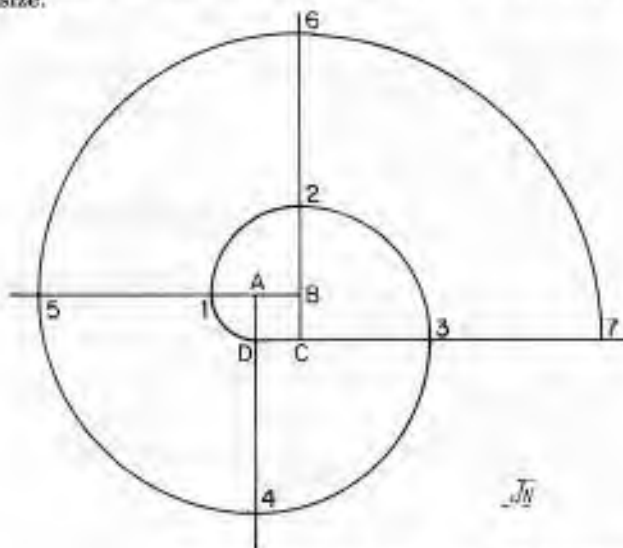
HOW TO DRAW A SPIRAL (OR AN INVOLUTE OF A SQUARE)

By Walter Ahlers, EAA 92795, as published in RUNWAY 7, Antique/Classic Chapter 7's Newsletter

This month I will show you how you can draw those spirals which were popular on aeroplanes when popular aeroplanes had the small wheel at the tail. Spiral decorations of this sort were popular decoration for main and tailwheel hubcovers.

On the assumption that the person drawing the spiral wants it drawn according to some predetermined system, he can first draw a square of such size that one side is equal to the radius of the arc at the beginning of the spiral. Referring to the drawing, with AD as a radius and A as the center of the arc, draw the arc from D up to the horizontal line extending left from A. Call the stopping point 1. Then, with the distance from 1 to B as a radius, and B a center swing another 90° arc that touches the vertical line extending upward from B at 2. Now, use the distance from C to 2 as a radius and C as a center, and swing an arc around until it hits the horizontal line at the point marked 3. The next step is to use the distance from D to 3 as a radius and D as a center, and swing an arc that comes around to the vertical line at the point marked 4.

Continue to increase the radius by going around the square, using the four corners of the square as centers, continuing to draw the spiral until it reaches the desired size.



Illustrated by Jim Newman, EAA 109981

TECHNICAL TOPICS

SUSPENDED HOT WIRE "SAW"

Dear Chuck,

We are not sure whether anyone has come up with the following ideas or not, but if they haven't, we may have a solution to a problem that appeared in Bob Walters' article in the February 1982 issue of SPORT AVIATION. We think it may be worthy of publication if no one else has already written about it.

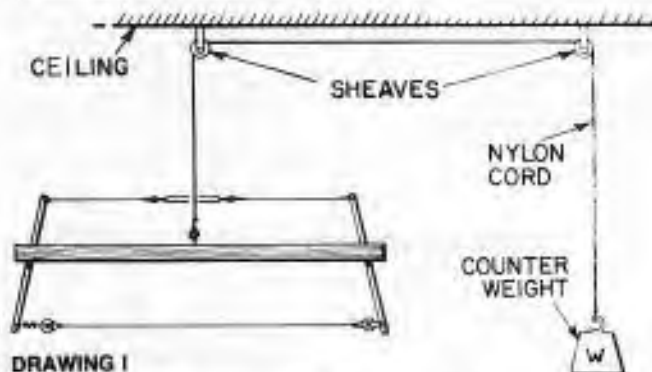
We are part of a group that is building Dragonflies, and since we were cutting a lot of wing cores, canard cores, etc., the problem of the hot wire saw causing arm fatigue and the tendency to "flight" the saw (case of trying to let the right hand know what the left hand is doing) jumped up immediately.

We solved this problem very simply by suspending the hot wire saw from the ceiling by using two small sheaves and a counterweight. The saw is tied to a piece of nylon cord at its balance point and then through a sheave over the work table and through another sheave at the side of the shop. We found that a single firebrick was just about right for the counterweight. (This, of course, will vary according to the weight of the hot wire saw.)

We found the results are amazing compared with trying to hold the saw with one hand and cutting with the other, and we are using a light hot wire saw. The saw is counterweighted so that it takes about the weight of the hand to cause it to drop. We found that it is much easier to "one hand" the saw and control the cut.

We only used single point suspension of the saw, but it's easy to see that a little extra time and money and the saw could be "tracked" (that is, the sheave above the table put on a track that is parallel to the direction of the cut) or a swivel arm could be easily constructed from the side of the shop to the work table.

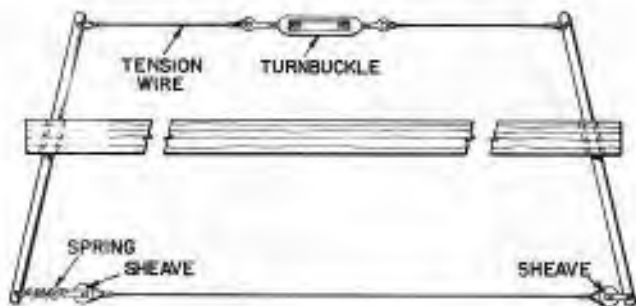
Another alternative is a bridle that is attached to each end of the wooden bar, which would have a tendency to "automatically" balance the saw.



DRAWING 1

We also tried a couple of tricks with the hot wire saw which seemed to work and may be worth mentioning.

The first is the use of a lightweight turnbuckle as a tensioner across the top of the saw to tighten the cutting wire and the use of a spring and two heat-proof sheaves to keep the wire in constant safe tension. The rationale here is a couple of bucks spent trying to keep the hot wire from breaking during a cut will save a lot of bucks that would have to be spent buying one or two or three new styrofoam billets. We also used a different approach to heating the wire. Some techniques call for heating the wire red hot and then backing off until the wire is no longer red. We used a modified version of Bob Walters' technique of gradually increasing the heat until the wire cuts properly.



DRAWING 2

The use of the spring and sheave allows the hot wire saw to be kept in constant tension hot or cold. The use of the sheave (heat-proof) is to "ease" the wire and to position it below the arm of the hot wire saw. This "easing" of the wire over a larger radius prevents strains induced by short radius bends and kinks. The spring is attached to one side of the arm of the hot wire saw and is located between the arm and the sheave. The spring should be selected according to the minimum tensile strength of the wire. For example, the minimum tensile of Nichrome V wire is 100,000 P.S.I. We used .036 Nichrome V and by using the old calculator we came up with the fact that the wire should support minimum pull of approximately 102 pounds. Right here you have to make a judgment. We could not easily find springs in different ratings so we purchased a one-inch coil spring that one man could just barely manage to open slightly by pulling on it with pliers. This spring probably has about a 50-75 pound pull. The idea, of course, is to get maximum tension without over-stressing the wire.

NOTE: Don't make a mistake. The hot wire saw wooden cross piece must be made slightly longer than normal to accommodate the spring-sheave arrangement.

NOTE: If sheaves are heat-proof insulators (porcelain, glass bakelite, etc.) you must attach electric wire directly to hot wire. We made ours out of bakelite because we did not know what the heat would do to our coil spring or whether the spring would heat up. It very well might be that the sheaves could be metal and then the electrical supply could be connected to the arms as it is shown in various designs. We did not try this, however.

Operation:

1. Tighten turnbuckle until coils open.
2. Heat up saw gradually until proper "sizzle" sound is heard and "angel hair" appears at end of test cut.
3. Check spring. If coils have closed, tighten turnbuckle until coils open. This should (and it seems to) keep the wire in constant tension at 50-75% of its minimum tensile strength. This should prevent a lot of hot wire breakage.

We all very much enjoy your magazine and have learned so much from it that it is a real pleasure to try to contribute in return.

Respectfully submitted,
Charlie Hayes, EAA 171787
Don Hewes, EAA 32101
Jim Green, EAA 137367

Illustrations by Jim Newman, EAA 109981

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 citing them. DESIGNEEES are requested to note problems or procedures observed in their project visits in the comment's section of the Designee Visit Report.

James R. Maile, #1379
Scymour, Indiana
(812) 623-8804
*Mitchell B-10
*Jungster I
*Sidewinder
*Q2
*Sonoran II

Doug Martin, #1563
Carmel Valley, California
(408) 569-3056
*Mani

Michael L. Rice, #1533
Mebane, North Carolina
(919) 563-3065
*Miller Skybolt

Michael Shipman, #1534
Charlotte, Iowa
(319) 677-2366
*Quail Aerospport

Rich Hartzell, #16
North Canton, Ohio
(216) 499-8438
*EAA Biplane

Arthur E. Froehlich, #87
Holiday, Florida
(813) 847-8090
*KR-1

Gil Hausler, #126
Phoenix, Arizona
(602) 846-2016
*Taylorcraft

John P. Dagle, #156
San Luis Obispo, California
(805) 544-4286
*Starduster II

Gene Harst, #290
Beaumont, Texas
(713) 835-1990
*BD-6

Matton C. Renfro, #342
Baker, Louisiana
(804) 776-0748
*Fly Baby

Richard Fry, #447
Hickory Hills, Illinois
(312) 698-5216
*Hats CB-1

Jorgen A. Kjoested, #483
Grand Rapids, Minnesota
(218) 328-2556
*Tailwind
*LongBZ
*Cassuts
*Poliwagen
*Falconair

Gideon J. Haggood, #516
Newport News, Virginia
(804) 596-2672
*Dragonfly

Jack Blackwell, #763
St. Charles, Missouri
(314) 441-0094
*Cricket

Dewey E. Ballard, #1064
Prairie Village, Kansas
(913) 642-6626
*PDQ-2

R. M. Lane, #1093
Grafton, Ohio
(216) 458-4829
*Baby Great Lakes

EAA TECHNICAL MANUALS now available.

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CAM-18	\$6.95 ppd.
Powerplant Handbook/CAM-107	\$5.00 ppd.
Basic Hand Tools, Volume I	\$4.40 ppd.
Pilot Reports and Flight Testing	\$4.50 ppd.
Modern Aircraft Covering Techniques	\$4.40 ppd.
Metals Aircraft	\$4.40 ppd.
Tips (Volume 3 & 4)	\$4.25 ea. ppd.
Hardware Standards by Dixie	\$12.95 ppd.
Detailed Design by Izik	\$15.95 ppd.
SPORTPLANE BUILDER by Bingelis	\$19.95 ppd.
How To Build The Aero Sport	\$4.50 ppd.
Theory of Wing Sections	\$7.50 ppd.

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EAA PROPELLER (or rotor) LOG BOOK	\$2.95 ppd.
EAA ENGINE and REDUCTION DRIVE LOG BOOK	\$2.95 ppd.
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EAA ULTRALIGHT PILOTS LOG AND ACHIEVEMENT AWARD	\$2.95 ppd.
EAA ULTRALIGHT ENGINE AND AIRCRAFT LOG	\$2.95 ppd.

ALSO NOW AVAILABLE:	
AMATEUR-BUILT AIRCRAFT SERVICE & MAINTENANCE MANUAL	\$5.95 ppd.
AMATEUR-BUILT AIRCRAFT CONSTRUCTION LOG	\$5.95 ppd.

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