



The ThunderWord

Thunderbird Field EAA Chapter 1217 September 2020

Scottsdale, Arizona

PRESIDENT'S CORNER

Greetings from my corner of the hangar! We had a brief hiccup in last month's newsletter distribution which I apologize for. With all the stuff going on in our lives it might be a good time to spend some time away from the television in the shop or hangar working on our planes. It's really nice to work on something and have control over the outcome.

Right after Labor Day we finally got a break from the heat and it was great to see so many people out at the airport. When the temperatures in the hangars get over 130 degrees it can be downright unhealthy to try to get anything done, plus your productivity goes way down, it is good for stripping paint though!

Stay healthy and keep a positive outlook. See you around the airport!

Curtis

CHAPTER MEETINGS

RESTART IN 2021

A few weeks ago we emailed a survey about the timing for starting our monthly meetings. There was a great response with 63 people responding. The overwhelming consensus was that it is too early to start having meetings in person. It was great to hear from so many people, thanks for your input.

With the information in hand, Chapter 1217 President Curtis Clark, Vice President Terry Emig and Secretary/Treasurer Jack Polack reach a unanimous decision that we would have our annual Holiday Party in December and get back to regular meetings in January 2021.

Rest assured that for 23 years we have been having monthly meetings and we will get back to it when life gets back to normal.

SKYLEADER ALBI UL-39

An entirely new concept in aircraft design that is already a head-turner at European aircraft exhibitions has hit the sky. The ALBI is a replica of the L-39 Albatross fighter jet designed in the 60s and used by the Czechoslovak Air Force and other air forces around the world during the 1970s.

Although it looks like a sleek fighter jet, ALBI is actually a European-category light sport aircraft. And rather than using a conventional turbine engine to provide thrust, ALBI uses a powerful and economical Rotax engine to spin an internal ducted-fan whose thrust propels the plane forward.

ALBI has the flight characteristics of a turbine powered aircraft, but without all the heat and noise, making it safe and convenient to operate in areas where conventional jet propulsion is prohibited. With two-place tandem seating and its fighter-jet-like flight characteristics, ALBI UL-39 would be an ideal inexpensive trainer for jet pilots. And with its stunning looks, it is sure to be the center of attention anywhere you fly.

SKYLEADER NORTH AMERICA, LLC is the exclusive US and Canadian distributor of the ALBI UL-39.

Why Ducted-Fan Propulsion?

For lightweight airplanes, an internal ducted-fan propulsion system driven by a piston engine enables considerably higher cruise speeds, much better external aerodynamics, lower noise generation and safer ground operation in comparison with traditional jet engine or a spinning propeller. In comparison with a standard turbojet engine, the operating cost of ALBI is much lower and the propulsive efficiency is considerably better.

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Miniature Carbon Fibre SKYLEADER ALBI UL-39

With ducted-fan propulsion, ALBI offers the handling qualities of a jet plane in the size and weight of a traditional light sport aircraft. Because ALBI has the straight through thrust characteristics of a jet engine without the torque associated with a propeller, it can be used as an inexpensive training aircraft for jet pilots.

The ALBI UL-39 is currently undergoing testing and development at a university in the Czech Republic and will be introduced to the North American market in late 2020.



Ducted Axial Fan from the ALBI UL-39

How It Works.

ALBI UL-39 offers the market the properties of a jet airplane in the ultralight (European) category, where conventional jet propulsion with hot exhaust gases is not possible, due to legal constraints. The propulsion unit consists

of a piston engine driving a thirteen bladed ducted axial fan. Air is induced through two specially designed fuselage intakes and compressed by the ducted-fan. The compressed air is accelerated by the shape of the exhaust pipe. The thrust of the compressed air exiting the exhaust pipe pushes the aircraft forward in much the same way as a traditional jet engine.

Planes like this are going to add an entirely new dimension to Light Sport kit planes.

- Engine Rotax
- Empty Weight 772 lbs
- Fuel capacity 26.4 gal
- Endurance TBD
- Range TBD
- Never exceed speed (Vne) 162 knots
- Maximum safe speed (Vh) 140 knots
- Cruise speed (Vc) 124 knots
- Stall speed (Vso) 35 Knots
- Rescue system GRS Ballistic

To learn more or to get on the waiting list for your own plane visit:

<https://www.flyskyleader.com>

HOOKER HARNESS

Scott McPhillips of Freeport Illinois could never have imagined that when he went to work for Jack Hooker literally sweeping the floor that his name would someday be on the door. After starting at the bottom, Scott's role in the

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Picture giving an idea of the size of the new ducted fan kit plane from Europe

company grew to increasing prominence as he provided coverage in the manufacturing facility during staff vacations and various road trips. Scott himself made a number of trips to Oshkosh and the Reno Air Races where the Hooker Harness product line continued to grow.

Scott has elevated the company's product line to include some of the finest harnesses for the race car industry while still providing the same excellent aviation harnesses that we have all come to love.

Scott's relationship with Hooker Harness goes back to his teenage years when he began working part time. In those years, he was cutting webbing material, assembling hardware, sewing various webbing configurations and producing the final assembly of aircraft harnesses. Still a teen, Scott made his first trip to Oshkosh in 1987.

Speaking of product line, Scott was the key leader who was instrumental in bringing Hooker Harnesses to the auto racing industry. To the first time visitor to their facility it is easy to be overwhelmed by the huge number of autographed photos (mementoes of thanks) from the race car teams that are relying on Hooker Harnesses. And, just like the aviation product line, Hooker Harness has garnered

some of the most prestigious clients in the auto racing industry. Racing teams from dirt track Sprint cars all the way up to NASCAR have sought Scott's help to keep their drivers safe.

A Hooker harness begins its life with the webbing material. You would never have imagined all of the different material used to produce harnesses. Each application has its own specifications, ranging from race cars, vintage warbirds, unlimited class aerobatics, experimentals and even some crazy guy rebuilding a Breezy in Arizona, as well as many certified factory aircraft.

Of course, no harness can be assembled without the unique hardware and fittings that bring it all together. Hooker Harness stocks an amazing inventory of ratcheting devices, clasps, buckles and anchors for each application.

Putting it all together requires some interesting processes. Scott is proud of the variety of different machines that are used to manufacture Hooker Harnesses. All of the commercial grade sewing machines can produce a consistent and accurate pattern for securing the webbing and hardware. Each machine has a unique job to perform during the manufacturing process.

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Hooker Harness has proven the strength of the seam patterns, webbing materials and attachments through rigorous tensile testing. A machine is used to pull test the materials to gain FAA approval for the supplemental type certificates when installing these harnesses on factory certified aircraft like vintage Cessna 120/140s. and Piper Cubs.

As the company grew, it was necessary to find a building that could accommodate the expanding manufacturing and inventory. Scott was instrumental in locating and securing the building that is now their headquarters in Freeport Illinois. January 2018, Jack Hooker

retired, and Scott took over the ownership role. If you need a new harness or parts for you existing harness give them a call.

One example of their honest personalized service is when I wanted them to make new harnesses for my motorglider. Scott told me buying new ones was throwing money away, He said to throw the old ones in a bucket with Oxidal detergent in it and leave them sit for a month. I followed his directions and the harness is soft and looks like new for a total investment of six dollars versus two thousand for two new sets!



Replica 1931 Curtiss Jr. that Curtis Clark bought this summer

Newsletter Editor Health

I apologize for not publishing a newsletter in August. I was sick and couldn't seem to accomplish the various tasks necessary to get the newsletter put together. Curtis sent out an e-mail identifying that I was sick and provided an abbreviated version of the August newsletter. Some of you may have thought that I had the Covis bug.

I had a lot of pain, chills, and profuse sweating. My temperature is always a little low and it stayed at 97.5° F or less. I had a Covis-19 test which was negative. A chest X-ray to look for Valley Fever was negative. Many tests were done on blood samples with all normal. After about a week and a half, I got over it. Never did get a diagnosis.

Ron



Travis Foss, Curtis Clark, Gavin Mitchell, and Jerry Lane after unloading Curtiss Jr at Deer Valley. Jack Pollack and Brian Mitchell were also helping out

Aerospace Hardware: AN Bolts & Respective Nuts/Washers

Aerospace grade hardware (bolts, screws, nuts, washers, cotter pins, rivets, etc.) should be used when designing and constructing an aircraft. Aerospace grade hardware is held to a higher standard for mechanical properties and corrosion prevention than "off-the-shelf" hardware. It is designated by **AN** (Army-Navy), **MS** (Military Standard), or **NAS** (National Aerospace Standard). Below is a high level overview of the common AN bolts and its respective hardware and details on mechanical properties, naming convention, and torque values.

AN Bolt: High Level Overview

AN bolts use a "smart part numbering" system meaning the letters and numbers that make up the part number relate to the attributes of that bolt. See table for a list of examples.



AN Bolt Type	Example	Visual	Description
non-drilled shank	AN6-10A		Most commonly used out of all AN bolts for general purpose bolting applications for both shear and tension loaded scenarios. For AN bolts designated in the double digits of length (anything above 7), the bolt length becomes the first number plus the second number multiplied by 1/8". For example, a -12 bolt is 1 and 1/4" inches long.
drilled shank	AN6-10		Drilled shank AN bolts leave off the letter "A" at the end of the part number. They are to be used with castle nuts and cotter pins in applications where you want a physical stopping feature for the nut to prevent the nut from backing
drilled head	AN6H-10A		Drilled head AN bolts include the letter "H" after AN and the diameter number. They are to be used with safety wire to keep the bolt heads from turning loose.
drilled head & shank	AN6H-10		For an AN bolt that contains both a drilled head and shank, the call out for the part number includes the letter "H" with the letter "A" dropped off the part number.
stainless steel	AN6C-10		Stainless steel bolts include the letter "C" following the AN designation. The stainless steel bolts use 431 SS and contain iron.

AN hardware charts in easy to read format

AN Washers							Additional Notes
Green Cells = physical washer weighted by scale (recorded value is the average of 50 weighted at once)							Plain washers (AN960/AN970) are widely used w/ AN bolts to provide a smooth bearing surface, act as a shim to obtain the proper grip length, and to position castle nuts in relation to drilled cotter pin holes in bolts. AN960 washers are the smaller outer diameter (OD) washers compared to AN970.
Orange Cells = CAD weight of washer							
AN Bolt Size	Washer Type	Inner Diameter (in)	Outer Diameter (in)	Thickness (in)	Weight (grams)	Weight (lbs)	<p><u>Material:</u></p> <p>No Code: Washer Material: Carbon Steel (per MIL-S-7952) C Code: Corrosion Resistant Plated (per MIL-S-5059, AMS 5510, or AMS 5512) D Code: Aluminum alloy 2024 per QQ-A-250/5, condition T3 or T4 B Code: Brass per QQ-B-613, composition I or II</p> <p><u>Coating:</u></p> <p>No Code: Cadmium plate per QQ-P-416, Type II, Class 2 (for carbon steel only) K Code: Anodize per MIL-A-8625 J Code: Chemical Surface treat per MIL-C-5541, Class 3 X Code: Black Oxide coat per MIL-C-13924</p> <p><u>Thickness:</u></p> <p>No Code: thickest washer for that size bolt/screw L Code: "light series" or thinner option for that size</p>
AN3	AN960-10L	0.203	0.438	0.032	0.46	0.001	
AN3	AN960-10	0.203	0.438	0.063	0.84	0.0019	
AN3	AN970-3	0.203	0.875	0.063	4.4	0.0097	
AN4	AN960-416L	0.265	0.5	0.032	0.56	0.0012	
AN4	AN960-416	0.265	0.5	0.063	1.1	0.0024	
AN4	AN970-4	0.265	1.125	0.063	7.1	0.0157	
AN5	AN960-516L	0.328	0.562	0.032	0.67	0.0015	
AN5	AN960-516	0.328	0.562	0.063	1.33	0.0029	
AN5	AN970-5	0.328	1.375	0.063	11.35	0.025	
AN6	AN960-616L	0.39	0.625	0.032	0.77	0.0017	
AN6	AN960-616	0.39	0.625	0.063	1.52	0.0033	
AN6	AN970-6	0.39	1.625	0.063	15.84	0.0349	
AN7	AN960-716L	0.453	0.75	0.032	1.16	0.0025	
AN7	AN960-716	0.453	0.75	0.063	2.27	0.005	
AN7	AN970-7	0.453	1.812	0.109	33.9	0.0747	
AN8	AN960-816L	0.515	0.875	0.032	1.62	0.0036	
AN8	AN960-816	0.515	0.875	0.063	3.19	0.007	
AN8	AN970-8	0.515	2	0.109	41.13	0.0907	

ThunderAds

SCHWEIZER 1-26C GLIDER

Complete restoration, new fabric and paint with Stewart Systems. New skid, new tire and canopy. Has cg hook and factor tip wheels. Trailer painted with new tires, lights and wheel bearings. Completed in spring of 2012 and stored inside. You tube video glider Jerry Lane. This glider is 100 percent legal and ready to tow to field and fly today. \$10,500.⁰⁰ Jerry Lane - 602-663-2432

MISC GOODIES

Continental 0-200 case with data tag and extras. \$500; **Cleveland 6:00 x 6 used wheels**, discs, bearings and double puck calipers \$500; **Beech 18 fabric rudder**, fits either side or make into a coffee table. \$200; **Beech Staggerwing** carved desktop model with stand, about 12 inch wingspan \$100; **Douglas DC-4 pedestal** with throttles and controls. Perfect for your man cave \$100. Curtis Clark 602 710-4494

ALASKA BABY BUSHWHEEL

tailwheel assembly, Like new. 6x8.5 tire Used but in good shape, Jack Pollack 480 695-4441

LONGEZ AND SONEX

Tom Partin has decided to stop flying and has two airplanes for sale at Thunder Ridge air park (AZ28), a 180hp LongEz and a 120hp Sonex. Anyone interested can contact Bertha Partin at bmpartin@gmail.com

GLASAIR III

Lynn Babcock has decided it's time to sell his Glasair III. This aircraft has every upgrade from speed brakes to airconditioning and cruises at 220 kts. He is asking \$215,000. Lynn is the original builder and the plane has been based at Scottsdale Airport its entire life. 480-227-5945.

THATCHER CX-4 PLANS & BUILDERS MANUAL

New, never used, donated to our Chapter. Curtis 602 710-4494

COOL PLANES FOR SALE

Only flown by little old ladies to church on Sundays. <http://captainbillywalker.com/aircraft-for-sale/aircraft-for-sale>

RV-4 PARTIALLY BUILT KIT

\$13,500 Lycoming 0-290-D2, kit for \$3,000 or \$16,000 for both. Bill Refrow 602-843-9862 w7lov@cox.net

LYCOMING 0-360 A1A

Engine built up for RV project never completed. Invested \$50,000. Price very firm at \$25,000. Martin Del Giorgio delgiorgiopels@gmail.com

GARMIN GDL39 PORTABLE GPS

ADS-B Receiver with free Weather and Dual-Link Traffic. Battery Pack with extra Battery included. Works with all Apple Products. Brand new in the box, \$400. Ken Roth 602-228-5000, or e-mail: RothDevCor@aol.com

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