

# WINTERMAIL

EAA CHAPTER 25

MINNEAPOLIS / ST PAUL, MN

MAY 2002

## Young Eagles at Airlake

by Mike Dolan see page 2



Getting organized



Little nervous?



Not the crew from Washburn Aviation Magnet!



Can we go up again?



You call that a crosswind?



We flew over our house!

## Kermit Weeks' Fantasy of Flight Museum

by Rob Johnston

Whenever I travel I try to take in whatever aviation activities I find. This spring, I had the opportunity to visit Kermit Weeks "Fantasy of Flight" museum in Polk City, FL. In addition to a beautiful facility, Mr. Weeks has assembled an awesome collection of mostly flyable examples of aviation history.

The museum collection is privately owned by Kermit Weeks. You may have heard of him. He's a very active pilot and

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# Cleared for the Approach

by Frank Hanish



We have another chapter gathering planned that is sure to entertain you. This month the meeting date is May 15<sup>th</sup>. Noel Allard will be this month's presenter.

I encourage each of you to come to Noel's slide presentation. It will be our last meeting of the season at the Washburn High School.

Some have suggested that we hold the May meeting at the hangar. But hey...we can still get those wet and chilly evenings which would ruin the ambience. Do you remember what a steady rain can sound like in a non-insulated metal building? For June through October it is in the books. We will be meeting out at the chapter hangar for these months.

We will start having a section in the newsletter covering chapter hangar needs. One such immediate need is for a couple of adequate fire extinguishers. This matter was evident in a review of applications for hangar insurance. These are things that maybe some member out there is wondering just how s/he may contribute to the organization. Another idea, given that we are planning some picnics, would be to have a refrigerator.

I am delighted to announce that we have recently held a very good fund raising meeting. I commend Ed Hansen for his leadership skills in running one of the finest business meetings we have had in some time. Ed had made some calls, and a number of members had responded in forming a committee. This committee has set a date for a picnic fundraiser.

The picnic is going to be held at the chapter hangar on Saturday, June 1<sup>st</sup>. It will be tailored after, and in place of, our annual chapter potluck picnic. We will invite all Airlake Airport tenants to join us for this year's event. Committee members have divided up the membership list, and will be communicating with each of you in the weeks ahead. Please consider helping us out this summer. Many hands makes for light work...

It is currently the first week of May. Tomorrow -- I start a week's vacation. Of course, any vacation would imply some degree of cross county flight. You might have read a past statement of mine, that one of my dreams is to just fly for months. To where ever the weather suits my fancy. That's right, no preset destinations. Floating around from any high pressure system to the next, much like a sailplane soaring from the base of one cumulus cloud to the next. It's only seven days, and there is a destination. Still, next month I will fill you in with adventures on "Flying To The Dogs."

—Frank

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## Young Eagles at Airlake by Mike Dolan

Our April 20th Young Eagle event was a success as usual. Success is defined as introducing aviation to youngsters between the ages of 8 and 17. We were successful in doing that for 21 young citizens on Saturday, April 20th. Our chapter should be grateful for all the volunteers we have for this program. This time the ground crew that had the opportunity to help and have fun included Ron Oehler, Elyce Mueller, Robin Mueller, Greg Cardinal, Jim Mayer, Ed Hansen, Phil Schaffer, and Frank Hanish. Our hearty pilots for the day were Earl Adams flying a Mooney, Pete Gavin in a Warrior, Stan Chrobak in Cherokee 180, Pat Halligan flying his Cessna 172 and Jon Cumpton with his nice Citabria. The winds were directly across the runway at 10 to 15 all morning, favoring 12 for part of the takeoff then switching to 30 for the rest of the takeoff or landing. The Young Eagles flown puts our Chapter at a total of 60 so far this year. This may not be a huge number but we are 60 ahead of last year at this time so we are doing better.

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# ON FINAL



Minneapolis/St. Paul

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### President

Frank Hanish 952-974-0561  
[frankhanish@cs.com](mailto:frankhanish@cs.com)

### Vice President

Ed Hansen 952-892-7266  
[DnEHansen@aol.com](mailto:DnEHansen@aol.com)

### Secretary

Greg Cardinal 612-721-6235  
[cardigj@gw.startribune.com](mailto:cardigj@gw.startribune.com)

### Treasurer

Chris Bobka 952-432-7969  
[bobka@charter.net](mailto:bobka@charter.net)

### Membership

Ron Oehler 952-894-2332  
[ron.oehler@worldnet.att.net](mailto:ron.oehler@worldnet.att.net)

### Newsletter Editor

Pete Gavin 612-866-6676  
[petegavin@mn.rr.com](mailto:petegavin@mn.rr.com)

### Young Eagle Coordinator

Mike Dolan 952-652-2436  
[iamtopgun@voyager.net](mailto:iamtopgun@voyager.net)

### Technical Counselors

Earl Adams 651-423-2973  
Chris Bobka 952-432-7969  
Dick Burns 952-473-1887  
William Faulstich 612-772-6597  
Bill Witt 651-633-8849



The Leader in Recreational Aviation

## June 1—Chapter Potluck

### **Picnic, Fundraiser & Raffle Kickoff!!**

The 2002 fundraiser officially begins with a kick-off party on Saturday, June 1 with a pot-luck beginning at 11:00 A.M. in the Chapter hangar (34A) on India Lane at Airlake airport in Lakeville. The entire family is encouraged to attend. The chapter will provide the brats, hamburgers, punch and eating utensils. Everyone should bring a dish to pass and their own chairs. All chapter members will be contacted by a committee member to encourage their participation and to get an attendance count.

This year we will be selling raffle tickets for a 2 year lease on a Ford 150 Super Cab 4x4 Pickup complements of fellow chapter member Mark Gulbrandson, owner of the Apple Auto Group, which includes Apple Valley Ford and Apple Ford of Shakopee. The value of this 2 year lease is approximately \$7,000.00. All monies collected from the raffle will be used to pay-down the hangar mortgage. The chapter owes a deep debt of gratitude to Mark for his support in this effort.

It is our intent to take the pickup and sell tickets at as many regional fly-ins as possible. To accomplish this we need volunteers. It is the committee's hope that the membership will step forward and provide the manpower for this effort. At the kick-off party there will be a sign-up sheet for the various fly-in's. Please consider selling tickets at one of the events.

All Chapter members will receive 20 tickets (4 books of 5 each). The cost of each ticket is \$2.00. The tickets will be distributed at the hangar kick-off party or will be mailed to the member's home. The State of Minnesota requires that all tickets be accounted for at the end of the Fundraiser. So it is important that each chapter member take the State requirement seriously and be accountable for tickets and the monies collected.

The committee is extremely excited about this year's fundraiser. We have the product (pickup), the experience from last year and an enthusiastic membership which will generate a successful effort. We're looking forward to seeing everyone at the kick-off.

The fundraiser committee members are Jeff Coffey (612/915-1725), Chris Bobka (952/432-7969), Mike Dolan (952/652-2436), Pat Halligan (651/452-7050), Frank Hanish (952/974-0561), Ed Hansen (952/892-7266), Lee Hurry (952/938-7856), John Koser(952/831-5142) and Craig Nelson(952/949-0400).

## Next Young Eagle Event

Our next Young Eagle event is planned for Lake Elmo on May 18 at the request of a Boy Scout troop from Stillwater.

## Free Flight Models in the Dome

**Thursday, May 9 from 3 to 7 PM**

**Sunday, May 26 from 1 to 6 PM**

(Note that this is Memorial Day weekend)

**Tuesday, May 28 from 3 to 7 PM**

Any Chapter 25 members that can give help winding and trimming or just want to observe are encouraged to come.

## This Month-May 15 6:30 pm

### **Slide Presentation by Noel Allard**

My presentation for the May meeting will be a selection of my favorite vintage slides, many going back over thirty years ago. They include scenes from Rockford, Oshkosh, Ottumwa and Blakesburg, plus local Minnesota airshows and personalities. Many of the slides are spectacular. I've picked some of my favorites from over 3000 in my aviation collection. I'll have slides of Walt Bullock, Noel Wien, Art Scholl, Jim Southworth, and Jack Lysdale, for example, plus a lot of guys that were in Chapter 25 a long time ago, (and some still are.) I've got pictures of a C-119 Boxcar landing at Lakeville, Doyle taking off with skywriting smoke from his farm in Apple valley in his Stearman, and other neat stuff. I know you are going to like them.

—Noel

**From the South:** Stay in the left lane of 35W and take exit 108 at the Crosstown. Continue north on Lyndale Ave to 50th Street. Right turn and proceed 3 blocks. Turn left into the parking lot and park anywhere space is available. Door #9 facing the south parking lot should be used to enter.

**From the North:** Take 35W south to the 46th street exit and turn right. Proceed west on 46th street to Nicollet Ave. Turn left. Proceed south on Nicollet to 50th. Turn right. Continue west on 50th past the Junior High School (at 50th and Nicollet) to the Senior High School 2 blocks west of Nicollet. Turn right into the south parking lot and park anywhere space is available. Use Door #9 to enter.

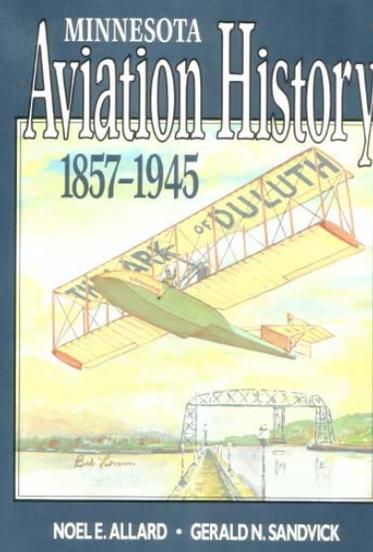
If the south parking lot off 50th is full, drive around to the parking lot off 49th Street on the north side of the school. Enter the school from the south using Door #9.

The meeting will be held in Room 119.

The Chapter has 16 hardcover copies of the Minnesota Aviation History Book, donated for fund-raising purposes. They are available to Chapter members at the reduced price of \$25/copy. (The retail price is normally \$39.95)

Here is a great chance to add this to your library or pick it up as a gift for a flying friend, and help the Chapter

with its finances as well. The author will be happy to autograph it for you. If you would like a copy, they will be available at the hangar at LVN during the next few months.



# Eric's RV8 Project *by Eric Strandjord*

Although I have held my Pilot's License for 22 years, like most people time, money, family and work never coordinated themselves enough for me to be a very active pilot. Although I am a very low-time pilot, I have been blessed with the opportunity to fly many types (Luscomb to DC3). Fourteen years ago, I assisted with the construction of a Watson Wind-Wagon, and a Glasair. At that time, I started putting a little cash away so that I could also participate in the noble art of aircraft construction. In the late 80's I went as far as sending for the tail-kit for the Wheeler Express (A four place, fiberglass craft that looks somewhat like a Cirrus). I had just completed my first surface, when (in short order), they crashed their demonstrator on the way to OSH, lost all their orders, and went out of business. So much for that project! In retrospect, I was lucky. They folded just before I sent in "the big check" for the rest of the kit. Last year's EAA Flying Qualities Report was not too good either.

Recently, I found myself wanting to become a more active pilot. My first inclination was to purchase a Mooney M20 or Cessna Cardinal RG because I wanted to do long cross-country trips. My desire to be part of a group of people I admired steered me to building. Besides, the right homebuilt would cruise 50mph faster than any Mooney (I could afford!) and cost about half.



*Then I discovered VAN'S RVs!*

A year's investigation found me "following the herd" with the purchase of a Van's Aircraft RV8 tail-kit. There are nearly 300 RV's being constructed in the tri-state-area, and a good friend was beginning an RV6. We could help each other! (He is now trying to sell his box of untouched tail parts. So much for the help and teamwork!) With experience in composite construction (Besides the Glasair, I have built two boats and many motorcycle gas tanks), the prospect of four years up to my elbows in "maple syrup" was not too attractive. Besides that, aluminum has very little odor. (Much better for human relations in the house.)

## **My RV8-QB Project (OK, I'm un-manly -- it's a quick build)**

### **Aluminum Monocoque Construction**

RV aircraft are all aluminum. Structurally, thin skins of aluminum sheet are riveted to a light framework forming a strong, light, and rigid aircraft. The RV is built like a Boeing, with mostly hammer-driven solid flush rivets. (Ever heard of

an AN426-AD3-3.5? The RV has about 20,000 of them!) A very similar and high quality aircraft, the Zenith is fastened together with "pop" rivets.

### **Tail Kit Boxes**

Like many kits, Van's kits are available in sections. Tail, wings, fuselage, finishing. Since I have been saving for twenty odd years, I bought them all at once! Knowing that many projects go unfinished, I hope that the financial commitment will keep me going.

Here are some truths I have learned about Van's kits. (Verified by many others on the internet support groups!)

- They give a lot of "bang for the buck". RV's are the most inexpensive kits available, especially for the performance!
- The airplane is considered to be one of the "best flying" around.
- The quality of parts and engineering are unsurpassed.
- The manual sucks.

Shipping parts can be expensive (Van is cheap, remember). Almost everything can be sent by UPS. The Quick-build kits come in a BIG box! (By freight.) The fuselage box is on the right.



### **The Tail**

Before beginning any project, constructing a proper shop is a ritual that must be followed. Since I have a large-unfinished basement, getting ready consisted mostly of electrical work and building benches and fixtures. Although the newer RV kits require no jigs, mine does. A rigid "H beam" is required to hold the aluminum structures in place until they are completely riveted together.

I spent two weeks building the jig for the tail. When I finished the tail, I found out that I might have overbuilt it a bit. I built it straight and accurate to .02 inch! Since the tail is held in place by adjustable brackets, they could have been shimmed. At least the floor upstairs quit bouncing!



(Did I mention that I tied it into the house structure so it would not move?) I'm told that the "repeat offenders" as Van calls builders of more than one RV, can build the whole tail in the time I took on the jig. I was advised that a couple of two-by-sixes would have been fine. There's no harm in being cautious. Since this would be the first aircraft project I was entirely re-

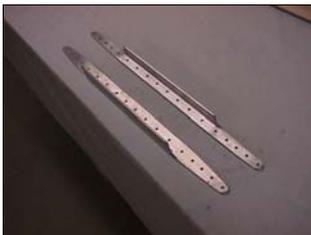
sponsible for, I decided that a philosophy of caution, care, and attention to detail would be the only way to go. I am a very mechanical “farm boy” type, but this ain’t a thresher I’m working on. I build straight and sound. For me, the hardest part is cosmetics (avoiding scratches, etc.) (I hate painting too!)

Like the entire aircraft, the tail section consists of load bearing skins on a light frame, all held tightly together with lots of rivets. “In the old days”, a lot of the monocoque construction process consisted of laying out and drilling holes through the skin into the framework (skeleton). The hardest part for someone without expensive tools is getting the holes in the correct place and spacing them evenly. This is the part Van does for us. The RV8 is a partially “pre-punched” kit. The pre-cut skins and some skeleton parts are pre-drilled with pilot holes in just the right places. It’s just a matter of drawing a line on the center of the skeleton parts (like a rib), and looking through the holes to line up the parts. You just drill through the pre-punched hole into the rib, assuring perfect alignment. Above, the skeleton is temporarily clecoed together with the skins clecoed to them. For those of you that are used to building aircraft out of the same material they make “porta-potties” out of (composites, ha ha!), a cleco is an ingenious device that goes through holes in two matched parts and then expands, locking the parts in alignment. Clecoes are the secret to getting 500 holes perfectly aligned, you just put a cleco in every hole as you drill them. Yes, I have 500 clecoes!



On the left, I have drilled through the right HS skin into the rear spar, temporarily held in place with 9 clecoes. The entire process consists of lining up skins with their corresponding skeleton part and drilling the two together. Later they will align perfectly.

Since my kit is a “quick build”. Van’s must certify, and I must document that I have done more than 51% of the work. Since so much of the kit is pre cut and pre punched the builder is forced to do a lot of the tedious, repetitive, work; and build a few non-critical but labor-intensive parts. The horizontal stabilizer front spar center section is a good example. The two spars (formed 032 sheet) are connected with two hand-formed pieces of aluminum angle. Actually, they sound critical to me!



An 18 inch length of  $\frac{3}{4}$  by  $\frac{3}{4}$  inch angle has one web removed and the other tapered as shown.

I wish I had a bandsaw for this, but two hours with a hack saw, and 4 hours with a file...voila two beautiful parts! Nothing in an RV is cast or specially manufactured. Everything is manually fabricated from raw stock. A few steel parts are pre-welded. The RV can be built entirely with hand tools. I splurged and bought a cheap drill press. The old portable belt sander is awful useful for things like these brackets too!

Here’s an example of the steel parts provided. I have riveted two powder coated steel angles to an aircraft quality roller bearing. It is the center hinge for the elevators. One of the reasons that RV’s are supposedly so nice to fly (I couldn’t tell you, I have never flown in one!) is that bearings like this are used throughout the flight control system.



Here’s an outboard elevator hinge bracket. A Heim bearing (rod end) screwed into the moveable surface will connect here. You can see the rear HS spar, two aluminum reinforcing bars, and the steel hinge brackets. Notice the “gold” clecoes. They are for -4 or 1/8 inch rivets. The silver ones above are -3 or 3/32 inch. Aluminum airplane building is a science! BTW, the drill stops are color coded too! The RV uses mainly these two sizes.



Building an RV is mostly a one-person job. There are times that two are necessary. The final riveting of the tail skins to the skeleton is a good example. For this, I taught my loving wife to use the air-powered rivet gun, and to buck. It turned out that once the gun was well adjusted, she was very good at running the gun. I could then buck and inspect the shop head of the finished rivets. Once we had the cadence figured out, we could really go to town. (My entire tail was fully clecoed together and ready for this for almost a year, while I waited for her to have time to help – she was working on a business degree full time, studying while I built airplane parts at night.)

The plans call for a single jig that would be re-used for the vertical and horizontal fixed tail surfaces. Since my riveting partner was very busy, I continued the rest of the kit, eventually adding the extension shown to the left of the main “H”. You can see the skinned vertical stabilizer next to the bare skeleton of the main tail-plane. The parts are gray because Van recommends that non-alclad parts or any parts that mate should be primed. Since I hate painting, I chose to use NAPA Self-etching primer in “rattle” cans. I found out that this is really Sherwin Williams 988 aircraft primer in a cheap can!



At right is the completed VS, ready for final riveting. After disassembly, each of the holes you see holding a cleco was aligned, drilled, deburred, dimpled (remember, the RV is flush riveted) and re-primed. Then, the whole thing was re-assembled. I think this is the 51% part! The big “C” clamp is just a weight holding tension on a string running across the top of the jig to use as an accurate center line. The plumb-bob is slid along the string to align the parts perfectly.



People often wonder “how do you buck the rivets INSIDE a closed surface?” Find out in the next installment of “Eric’s RV8 Project”. I’ll also get into movable surfaces...

# Fantasy of Flight Museum

(continued from page 1)

Kermit Weeks B-26 Marauder



collector, having assembled one of the largest privately owned collections of rare aircraft in the world. Kermit learned to fly as a teenager and started construction of his first airplane at age 17. By 1977, Weeks had designed his own aerobatic airplane called the "Weeks Special", and qualified for the United States Aerobatic Team. The following year he was runner up among 61 competitors worldwide. Over a 20-year period, he won 20 medals in World Aerobatic competitions and won the United States Aerobatics Competition twice. His love for the restoration and preservation of historic aircraft began the late 1970's, and in 1985 he began operating the Weeks Air Museum in Miami. In 1992, Hurricane Andrew destroyed the facility and most of the planes in it. Through hard work and determination, many of the aircraft were restored and the "Fantasy of Flight" museum opened a few years later in Polk City. The facility has 2 hard-packed grass runways. The longest runway is 5000' and is able to accommodate large airplanes such as an ex-Lufthansa Airlines Lockheed Super Connie that was ferried to the museum this past winter.

## THE COLLECTION

"Fantasy of Flight" is home to some very unique aircraft – most of which fly or are being restored to flying condition. Some notables include a Supermarine Spitfire, North American P-51A (one of Kermit's favorites), and a B-26 Marauder – the only flyable one in the world. Others in the collection – most of which are flyable - are:

- |   |                       |
|---|-----------------------|
| Grumman FM2 Wildcat                     | Grumman Ag – Cat      |
| Grumman F4U Corsair                     | Piper J-3 Cub         |
| North American B-25                     | Junkers JUN 52        |
| Republic B-24 Liberator-unrestored      | Avro Cadet 643        |
| North American P-51D "Cripes a Mighty"  | L-4J Grasshopper      |
| North American P-51D "Old Crow"         | B U.181 Bestmann      |
| Shorts Sunderland                       | Hiller YH 32 Hornet   |
| Bell 47 (military H-13 version)         | Spad                  |
| Fi.156c-1 Storch                        | Morane Saulnier MS-a1 |
| Ryan "Spirit of St.Louis" replica       | FW 44j Steiglitz      |
| Lockheed Vega                           | Bucker-Jungmann 131   |
| Lockheed L1649A Starliner Constellation | AT-6 Texan            |
| Boeing B-17 – Piccadilly Princess       | Mitsubishi Zero       |
| (interactive display)                   | Beech AT-11           |

## BUILT TO FLY

What makes Kermit's collection so unique is that almost all of the aircraft are not only restored to flying condition, but are flown regularly. "Fantasy of Flight" offers daily demonstrations. Additionally, if you attend any of the big fly-ins, chances

# What's Your AOA?

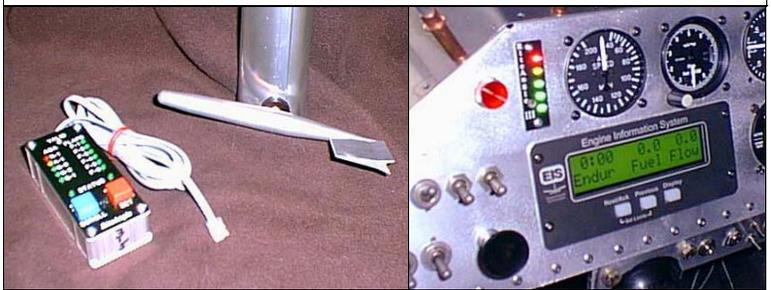
by John Koser and Jeff Coffey

In the last issue of "ON FINAL," we reviewed Rich Stowell's presentation on stall-spin awareness at a recent WINGS seminar. We also reported on member responses to a brief questionnaire regarding stalls and spins.

When describing how they would avoid the stall-spin, especially without an ASI, members mentioned pitch and power settings, GPS ground speed, visual horizon, and other methods. In effect, people identified airspeed, power, pitch/attitude and ways of approximating these characteristics. As all of us know, VFR "seat of the pants" flying relies on visual and other sensations whether instruments fail or not, so we become accustomed to using these cues.

Continued on page 7

Rite Angle™ angle of attack vane, calibration module, and its panel readout.



are you will see one of Kermit's planes. Museum staff told me that if Kermit has to fly for business or pleasure alone, he often chooses to fly his P-51A over his Baron or King Air. At that moment, I found myself feeling a bit jealous!

## LOTS OF STUFF

During my visit to the facility, I attended a "Back Lot" tour. This tour included a visit to the various storage buildings and shops located adjacent to the museum. The next time you look into your garage and say, "man, I've got a lot of stuff", well, you don't really have a lot of stuff – Kermit's got a lot of stuff. For example, one storage building is dedicated solely to engines. Housed in this building are dozens of radials and v-12's from various types of planes. Most of these

Continued on page 8



Kermit Week's Spitfire

A major point made in Rich Stowell's presentation was that an airplane can stall at any speed or attitude, depending on other circumstances. One such circumstance, and a common source of airplane accidents, as we all know, is the base to final turn.

On the questionnaire of last month, it was interesting that no one mentioned using any kind of angle of attack or lift reserve indicator should an airspeed indicator fail while trying to land. It was likewise interesting that Rich Stowell asked the audience during his presentation how many people had AOA or LRI instruments on their panels. No hands were raised. Yet in situations where we become distracted or confused, these instruments offer clear, objective data on our true margin above stall. It seems that such instruments might be "bacon savers" in the event of a faulty airspeed indicator. To that end, the next few paragraphs and images will describe both of these devices.

### Angle of Attack Indicator

The *RiteAngle III* angle of attack indicator, as manufactured by EM Aviation, is an electronic system that accurately determines your aircraft's angle of attack. It is a version of a fully FAA certified STC/PMA'd system. It consists of several components including a vane, flap sensor, logic module, LED indicator light, and a calibration box. Sold complete for \$375.00, the entire system weighs about 16 oz. and is quite easy to install.

Angle of attack is determined by using actual airflow over a wing, strut, or fuselage-mounted vane (see picture). No pitot or static lines are tapped into as just three wires are run to a logic module which can be mounted anywhere in the plane. The logic module then interprets the signal and sends it to an LED display on the instrument panel (see picture). The LED display consists of five LEDs – three green, one amber, and one red. The more that are lit, the closer the aircraft is to stall – red being a stall warning. The LEDs auto dim for night flying and two displays can be installed for tandem aircraft. It only requires .625" x 2.125" of panel space and is only .5" deep. It can even be installed to reflect up into the windshield as a poor man's "Heads Up Display."

Each LED is independently set to the exact angle at which you wish it to illuminate, using a simple push-button calibration box. Once the system is set, the calibration box is unplugged and stored. To set up, no maneuvers are required that you didn't do before your first solo flight.

Other nice features of the *RiteAngle III* system include audio warnings. Via voice warnings it indicates "Speed Slow" when the amber LED illuminates or "Stall Stall" when the red LED illuminates. The *RiteAngle* system also takes into account up to six different flap positions. There is also an optional landing gear warning for high performance aircraft. You can also add a small 12V Gel Cell battery or 8 AA batteries as a back-up system in case of an electrical failure.

An excellent article on angle of attack awareness and management can be found at: <http://www.monmouth.com/~jsd/fly/how/htm/aoa.html>

For more information on the EM Aviation *RiteAngle III* product visit: <http://www.riteangle.com>

### Lift Reserve Indicator

The LRI has a probe mounted under the wing, usually about where a pitot tube would be located. This probe has two small parallel holes, positioned on surfaces which are at 90° to each other. When ram air enters these holes, there is a difference in air pressure due to the orientation of the surfaces in which the holes are bored, and due to the orientation of the probe to the relative wind. If a maximum difference of pressure is evident, the readout indicates "in the green," or safe region.

As the angle of attack is increased, the probe, being at a fixed angle to the wing's bottom surface, will be repositioned so that its two surfaces at 90° to each other come closer to receiving the same ram air pressure.

The difference in air pressure, though extremely small, is sensed by the *differential pressure gauge* located on the panel. (This gauge is a Dwyer Mini-Helic II, with a range of differential pressures from zero to 2.0 inches of water pressure – an extremely small range, making it quite sensitive. The gauge may be purchased via the internet for approximately \$50.)

The probe can be fabricated if one has access to a machine shop. To see a shop diagram of the probe, go to <http://www.snyder.on.ca/pages/lri.htm>. This diagram on this site will allow you to machine your own probe, but doing so requires a few special machine tools. Drilling two holes parallel and about six inches long lengthwise in a 1/2" by 1" by 6" block of aluminum is the most difficult part.

The entire Lift Reserve Indicator, as a manufactured unit can be purchased at <http://www.liftreserve.com/> for a price varying from \$450.00 to \$550.00.

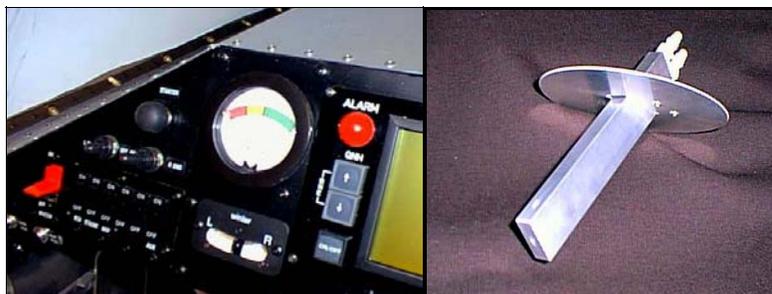
The installation is done by making a plate for the probe to be secured to, and mounting the plate on the underside of a wing. The two barb connectors from the probe are connected to the gauge via two pieces of 1/8" Tygon tubing.

Calibration can be done in a few trips around the pattern so that the gauge indicates when "lift reserve" is approaching the dangerous level. The gauge can be mounted fairly high on the panel so that it's almost in the line of sight of the pilot, thereby being easy to glance at while making slow turns in the pattern.

To see a web site directed to installation and calibration of the LRI, go to <http://home.hiwaay.net/~sbuc/journal/liftreserve.htm>. This site is authored by an RV builder who has the device on his airplane and has test flown it.

If the airspeed indicator failed, the LRI (along with a slip/skid ball or turn indicator), requiring no power or connection to any other system in the airplane, could provide critical information to get the airplane safely on the ground.

*Differential pressure gauge on a Sonex (N167JK) panel and the LRI probe.*



## Chapter Gatherings

**May 15 EAA Ch 25 Meeting, 6:30 pm**  
Noel Allard will present slides of homebuilts and antiques taken over the years locally and at Oshkosh Washburn Sr High School, Rm 119

### Planned Young Eagle Events

May 18 Lake Elmo (21D)  
June 8 Airlake Airport (LVN)  
Contact YE Coord. Mike Dolan

### Jun 1 Pot-luck Picnic Fundraiser at LVN

At chapter hangar, bring a dish to share, meat and punch provided (see page 3).

## Fly-Ins/Special Events

### May 18 Anoka MN (ANE) 8a-noon

EAA Ch 237 Fly-in Brkfst & Lunch  
Tom av8or@citlink.net

### May 18 Blaine MN (ANE) 1-3p

Speakers Forum, American Wings Air Museum Hangar. L-19/0-1A Bird Dog.  
Carol Keyes 651/481-1695

### May 19 Eau Claire WI (EAU) 7-11a

Pancake Brkfst  
Doug Apland 715/729-5919

### May 19 Spring Green WI (LNR) 7a-noon

Lone Rock Fly-In Pancake Brkfst  
Marc Higgs 608/583-2600

### May 30-Jun 2 Minneapolis MN (FCM)

American Bonanza Society Outreach and Town Hall Conference  
Registration, (316) 945-1700.

### May 31-Jun 2 Rice Lake WI (RPD)

IAC Ch78 Cloud Dancers Aerobat.Comp.  
Pete Tallarita 715/386-1676

### Jun 1-2 Oshkosh WI

EAA's Family Flight & Balloon Festival  
Website [www.flightfest.org](http://www.flightfest.org)

### Jun 2 Mason City IA(MCW)6:30a-12:30p

EAA Ch 94 Flight Breakfast  
Dennis 641/357-5606

### Jun 2 Reedsburg WI (C35) 7a-noon

50th-Annual Fly-In Breakfast, PICs free.  
Don Hull 608/524-6888

### June 8-9 Fargo ND (FAR)

Blue Angels Airshow, Hector Int'l Airport  
701/241-1502.

### Jun 9 Montevideo MN (MVE) 8a-1p

Ch 688 Pancakes, PICs free. Classic cars.  
Don Ruether 320/269-4824

### Jun 9 Albert Lea MN (AEL) 7a-12:30p

26th-Annual Cloverleaf and LakeView Lions Flight Breakfast PICs free.

### Jun 9 Buffalo MN (8Y2) 8a-noon

Fly-In French Toast Brkfst  
763/682-5452 763/682-9952

### Jun 9 Red Lake Falls MN (D81) 8a-1p

Red Lake Falls Flying Club Pancake Brkfst  
PICs free 218/253-4304

### Jun 9 Rush City MN (ROS) 8a-noon

Annual Fly-In Pancake Breakfast

## Fantasy of Flight Museum *(Continued from page 6)*

engines are destined to be re-built; some will be "parted out". One interesting example—39 Allison V-12's, stored from war surplus for 30 years before being purchased by Kermit.

### A GREAT PLACE FOR KIDS

I visited "Fantasy of Flight" with my favorite co-pilot, my 3-year old son Diego. This is a boy that is definitely taking after dad with his interest in flight. I was pleased to see that the museum offered many "interactive" displays perfect for kids. Diego's favorite was a Beechcraft D-18 cockpit. I had a hard time getting him out of there (well, I might have been having a little fun too...) In addition to the D-18 cockpit there are various simulators, and hands on activities guaranteed to keep young and old eagles happy.

### STORCH DEMO ENDS THE DAY

At the end of our busy day, Diego and I enjoyed the daily aircraft demonstration flight. This day's featured a 1939 German Storch Reconnaissance plane. This STOL aircraft was designed to perform various front line functions such as surveillance and air ambulance. It can land on unimproved surfaces. When necessary, the wings fold up and it can be towed behind a jeep. It's not a speed machine as top speed is around 55 miles per hour. My favorite part of the demo flight was the landing. The demo pilot was down and stopped in piece of real estate the size of my driveway. Their website is [www.fantasyofflight.com](http://www.fantasyofflight.com).

Static displ/classic car show 320/358-4743

### Jun 14-16 Hancock MN BrownsApt (pvt)

Fly-In, Hog roast 5 p.m. Saturday.  
N45.33.13 W95.47.26 4 miles no of city  
Marvin and Mary Jo Brown 320/392-5869

### Jun 14-16 Urbana IL (C16)

1st SAA Gathering, Frasca Field

### June 15 Moose Lake MN (MZH) 7:30-11a

Lake Air Flying Club Annual Fly-In Brkfst  
Larry Peterson 218/485-4441

### Jun 16 Canby MN (27D) 8a-12:30p

Depot Days Fly-In Brkfst, arpt expansion  
Mark Kallhoff 507/223-5075

### Jun 16 Dodge Center MN (TOB) 7a-noon

EAA Ch 100 Fly-In Pancake Breakfast  
Dan Crandall 507/282-4760 dan@gigtech.com

### Jun 16 Crystal MN (MIC)

Open House, Pancake brkfst, helicopter rides.  
763/531-1000

## Chapter 25 Sponsor



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**Apple Ford of Shakopee**  
(952) 445-2420

### Jun 16 Hutchinson MN (HCD) 8 a-noon

Fly-In, Pancake brkfst ; pork chop supper 4-7 p.

### Jun 16 Lake Elmo MN (21D)

Father's Day Pancake Brkfst  
St. Croix Squadron CAP 651/773-1210.

## Stuff for Sale/Wanted

For Sale: Signed Smithsonian aviation prints from the family of Bud Anderson. Prices range from \$100 to \$1000; subjects include Rutan's round the world Voyager, a Doolittle B-25 taking off from the carrier, a photo of Doolittle and 3 vintage aircraft, plus others.  
952-432-6194 hollyjorgenson@hotmail.com

For Sale: Lincoln Arc Welder 220V 225Amp \$80.00  
Dale Johnson 952/890-3905

Wanted: Kit project, new or used, partially built OK. Partnership acceptable. Looking for cruise range ~150.  
952/435-5597 funtimes450@yahoo.com

For Sale: Lycoming O-235C, 0 SMO, no accessories, all logs. \$4900.  
John Curry 952/983-0742

For Sale: 62-29 VW prop, beautiful condition for plane or den, \$300, plus numerous new and used en-

gine gages.

Bert Sisler 952-8848920 [sisle001@tc.umn.edu](mailto:sisle001@tc.umn.edu)

For Sale: One Share in J-3 Cub Club, currently \$100 per quarter plus \$20 per hour wet. Hangared at Crystal, priority to chapter members.  
Keith Miesel 651-227-6199

For Sale: one yellow tagged engine mount for a 1977 Decathlon.  
Mark Kolesar, H 763-544-6766, W 612-371-5171.

For Sale: Hartzell propeller from Piper Cherokee 180  
Ronn Winkler 952-829-5654

For Sale: O-290-G Lyc, on stand with prop. \$2,500  
Csna 150 main gear/pants/cyl/tires-complete \$250  
Buick and Olds. Aluminum V8 engines-both \$200  
8" spinner w/plates—cont. bolt pattn, new in box \$50  
Gene Stinar EAA 121451 651/258-4432