

The Official Newsletter of EAA Chapter 493.

Concho Valley Aviator

www.geocities.com/eaachapter493/

111 South Washington Street, San Angelo, TX 76901

September 2001

The next meeting is Tuesday, September 18, 2001, at 7:00 P.M. at the Mathis Field Conference Room in the Terminal Building. Some members come early to have supper at the Airport Restaurant. Lawrence and Nan C. Wright will bring the refreshments. The Swim Party at Highland Range occurs Monday, September 10, from 6 to 10 P.M. R.S.V.P. Marti Beauchamp by Friday the 7th at 947-1672.

August Meeting

President George Spinks welcomed everyone to the meeting. He asked that members have in their thoughts Carol Orand at this time of her illness. Her husband Byron owns a Cherokee in partnership with Robert Jay.

President Spinks called attention to number of publications including Arrival Procedures for SWRFI, announcements of fly-ins, and newsletters.

Johnny Williams, chairman of the Fly Market (Country Store) at SWRFI, asked for volunteers to assist the two days of SWRFI, September 21 and 22, 2001. Johnny recently attended a meeting of SWRFI and reported that since the move to Abilene, the fly-in had profited financially. The admission to the two-day fly-in for an EAA member is \$10.00; for a family, \$20.00. Admission for a non-member is \$12.00; for a family, \$24.00.

Nan C. Wright, treasurer, reported a balance in the treasury of \$1,868.40. Nan C. is accepting orders for the EAA 2002 Calendar. Calendars are \$6.00 each. Nan C. will place the order in early October. Members may place an order at the September meeting or by send a check to Nan C. Wright, 8654 Ducote Air Park Road, San Angelo, TX 76904.

After an informal discussion, a Young Eagle Rally was scheduled at Mathis Field for October 13, 2001. Information about the EAA Young Eagles program will be distributed to the schools in San Angelo.

The president invited members to relate news of their activities. Johnny Williams said that he enjoyed being a volunteer at Sun 'n Fun, and that he and Mary plan to drive their RV there next year and do it again. He said that volunteers are being recruited. Johnny also mentioned that his son said he would buy his airplane. Buddy has the airplane; but Johnny hasn't seen the money, so he guessed Buddy stole the plane.

Paul Shacklette has been busy building wing ribs.

Bill Yeates has been flying sunset patrols.



Wayne Cutrell backs way up for the C-17 at Mathis.

Leon York said that John Goble recently flew from the Austin area to see him. Leon said he took John for a ride in his RV-6, and now John is going to sell his Pitts and order a kit for an RV-7!

Lawrence Wright has been working on his RV.

Don and Nancy Treadwell flew to Monahans for the fly-in breakfast. For summer fly-ins Don is looking for a flight to the west for breakfast with

access to a pool, lunch and dinner and a late flight home. Nancy has the magic for gaining the attention of seventh-grade boys in an English class: "I'm building an airplane."

Ed Brady has been flying his Stinson.

Wayne Cutrell has been braving the heat for his IFR training.

Andy Spinks is just flying his desk.

Cherrye Cude is courting a student. George is at the half-way point in his A & P course.

Bob Reece reported a good turn-out of people and outstanding aircraft at Oshkosh. He commented on the many new developments in products coming to the market.

Jack Sage has been working on his KR-2, and he said he is receiving help from Chapter members.

Marty Beauchamp said that grandson Matt was thrilled with his Young Eagle Flight in Ted Conrad's T-18 which Matt calls "Fighter Jet." Norm is working, working on his Kitfox.

Jim O'Hara reported that he can sit in the P-38 cockpit and put the flaps up and down. He has begun work on a Tigre engine. Mitzi is enrolled in "Engines 101."

Marty and Norm Beauchamp invited Chapter 493 members and guests to a cook-out and swim party at the Highland Range Estates Pool, September 10, 2001, 6-10 P.M.

The President suggested a break for cookies of several delicious flavors and soft drinks brought by Leon York.

Paul Shacklette who works on fifty-year-old airplanes presented the program. Paul's presentation focused on wing ribs, and he brought several wing ribs for members to see. He showed a wing rib of a 1932 Great Lakes, a 1930 Stinson factory-built rib, and a rib for a Stinson Reliant. Members could handle and inspect aluminum ribs and wood ribs. Paul called attention to the tiny rivets which are used on aluminum tubing and which are "spun" on a drill press. Paul brought drawings of wing ribs, and in order to show how he forms a rib, Paul brought a jig.

There being no further business, the meeting was adjourned.

Mitzi O'Hara
Secretary



This edition of the newsletter had to go out early because of my full schedule this month.

I am interested in ways to make flying safer, so I am including the following article about the Lift Reserve Indicator by Sam Buchanan of Athens, GA. Be sure to check out his web site.

Donald Treadwell, Editor

Installing (and flying) the Lift Reserve Indicator

[page one; installation of the LRI](#)

page two; flying the LRI



A reading of the articles and reviews on the [Lift Reserve web site](#) reveals that there are various opinions on just what the LRI is and what it measures, even by individuals who like and recommend the unit. Since I am no aerodynamiscist or engineer, this review is strictly based on what I observed with my installation in 399SB, and I will make no in-depth engineering analysis since I am not qualified to do so. I am qualified, however, to

report what the reader may expect to observe while using the LRI in the real world.



The LRI ships with instructions on how to calibrate and use the instrument. The face of the instrument has three colored arcs; the green arc indicates a flight configuration with abundant lift, the white arc shows a transition through a flight phase of lift at high angle of attack, and the red arc indicates that the AOA is sufficiently aggressive to prevent lift from being generated.

The only point that needs to be calibrated is the AOA at which the wing can no longer produce lift. I climbed to a density altitude of 5000' and began a deceleration (flaps up) of about 0.5 mph/second. The manual suggests approaching stall speed with full or cruise power, but the deck angle on an RV at high power and stall attitude is *very* steep! Consequently, I pulled power back to 1400 rpm and slowly decelerated to stall speed. As the speed decayed through 110mph, the LRI needle dropped off the right hand peg and slowly headed for the white arc. At 70mph, the needle reached the white arc, and as the stall gently broke at 60mph indicated, the needle was exactly on the transition between the white and red arc. The estimated aircraft weight for this test was 1350 lbs.

It appears I lucked out and got the calibration dead on with the initial setup; zero lift at the red/white mark is what is suggested in the instructions. Since bringing in flaps effectively changes the incidence of the wing, I repeated the test with full flaps. This time the stall was more abrupt at 58mph, and the LRI needle was halfway into the red

arc. This means that for all practical purposes, the red/white mark can be used as a benchmark for wing stall, and when carrying some flaps there will be a cushion in the indicator.

I repeated each of these tests several times with consistent results. Next step was a visit to a friend's short grass strip to see if the LRI would enhance a short field approach. Since an approach with the LRI needle at the white/green mark would occur at 70 mph, leaving a safe margin above stall, I set up the approach and flew the LRI with only occasional crosschecks with the uEncoder airspeed indicator. I must admit that 70 mph was a little slower than I was accustomed to comfortably flying into Spry International (1800' grass, one-way) but seeing the LRI needle hanging on the white/green mark gave me confidence to continue the approach since I could visually see how far above stall I was flying. Needless to say, the rollout was shorter than usual and ended a fine short field landing. At this point I was beginning to get *very* interested in what the LRI was capable of showing.

After returning to the home 'drone, I experimented with maximum performance takeoffs based on LRI indications. Since the LRI shows lift is available when the needle is in the white arc, it should be possible to fly the plane as soon as the needle leaves the red/white mark. I accelerated, raised the tail, and began pulling on the stick as the needle entered the white arc. My intention was to hold the needle at the white/green mark during climb-out. However, the RV-6 quickly blew right through my target AOA, and we were climbing midway into the green! The next time I got more aggressive with the pull-up and managed to hold the needle one third of the way into the green arc at an indicated 80mph. This is a *very* steep climb! While I have no doubt that 399SB would climb at 70mph (the white/green mark), the deck angle would be extremely steep with *no* forward visibility, and more important, an engine failure would almost certainly culminate with an abrupt entry into a stall over the runway. So, while I have no doubt the plane will sustain a climb with the LRI needle in the white arc, it is somewhat scary and too steep a climb for anything other than taking off from a tennis court.....

In both instances of short field landing and takeoff, the LRI gave me a great visualization in how close I was flying to actual stall speed. I realize that in the initial test phase of our aircraft we should establish the reference speeds, but as we accumulate hours on the plane, those reference points can get hazy, especially if we don't often use them. With the LRI, those V-speeds are right in front of my face at all times, instantly available if the need arises. Cool!

Now, just what do we have in the LRI? Is this unit an accurate indicator of wing angle of attack or is it just an expanded scale airspeed indicator? In either case it is a useful instrument since the typical airspeed indicator is notoriously inaccurate at low speeds, but the LRI is marketed as a type of AOA indicator. To test this premise, it was necessary to see if the LRI predicted stall at various aircraft weights. The wing will stall at the same AOA regardless of weight, but the airspeed will be higher as the plane is stalled at heavier weights. This is the utility of an AOA indicator since the plane can be safely flown above stall speed regardless of density altitude and aircraft loading.

Fortunately I didn't have to go far to find suitable ballast for the next phase of tests. After filling the plane with fuel, RV-8 builder and 230 lb pilot Robin Hunt firmly planted his, uh, *self* in the right seat and we were off for another look at the stall characteristics of 399SB when it was loaded at an estimated weight of 1650 lbs. After

climbing to a density altitude of 5000' (easily determined with the RMI uEncoder), we went through the same stall series as before. This time the IAS was 76mph when the LRI needle hit the green/white mark, and the plane stalled with flaps up at 66mph IAS instead of the previous 60 mph. However, the stall occurred within a needle-width of the red/white mark just as before when the plane was much lighter! The full-flaps stall was at 62mph IAS versus 58mph, and likewise was indicated on the LRI at nearly the same as when at the lighter weight.

So.....I believe we have a bonafide angle of attack indicator in the LRI. The pilot should be able to depend on the LRI to indicate when the plane will stall regardless of loading and density altitude. In the weeks to come I plan to calibrate the instrument for other V-speeds such as best glide, Vx, Vy, etc. There may very well be situations at the extremes of the performance envelope when the LRI will be less accurate, but as far as I am concerned, for day-to-day flying, the LRI shows an accurate picture of where the flight is located in the performance envelope. This is good!

I foresee really enjoying having the Lift Reserve Indicator in the panel, and I must confess that I am already using the LRI as the primary indicator for landing approaches (and flying slower approaches!). The recent price reduction brings the unit to a reasonable price point that can be justified by nearly all builders/pilots. Knowing just how close the aircraft is to stall speed is worth a bunch in piece of mind and intact airframes. Any instrument that will contribute to safety and longevity of the pilot and occupants is worth a close look, and I think the Lift Reserve Indicator fits that purpose very nicely.

Highly recommended



Sam Buchanan

[Return to *The RV Journal* front page](#)

Please submit all questions and comments to sbuc@hiwaay.net

Don:

It is with a heavy heart that I forward this from the Kitfox list. Within the last two weeks we have lost two Kitfox friends. Both very experienced pilots. Both wonderful individuals loved by everyone who knew them no matter how slight. Both appear to have pushed the envelope and will be missed by their families and friends. The following is a good account of the latest accident and perhaps a lesson in safety to be shared with the chapter.

Norm.

All,

It was only two weeks ago I sat at this computer trying to put words to how I felt about Ray Volk's death. Yesterday's tragedy with Michael brought me to my knees. Now I have the life-long task of wondering if

there was something I could have done to change the outcome of yesterday. Although I have come to grips with the fact I can't change fate, I feel it's necessary to carry on both of their energies in helping others to make the flying experience as safe and enjoyable as possible. As we all learn to fly, we learn about density altitude, weight and balance, aerodynamics, stalls, etc... Most of us start out flying Cessnas, Pipers, and other aircraft that have less performance than the Kitfox. We hear the stories about flying down rivers, over mountains, and going great distances with the Kitfox. We learn that the Kitfox can climb like crazy, carry a pretty good load, and take off and land on a dime. After flying the Fox for a while, it almost feels as if you can power up out of any situation. With the slower landing speed, we carry the thought that we can just "cush" it in anywhere if something happens. This feeling needs to leave our minds! This is an airplane that can kill us! I watched Michael as he made every attempt to reverse his fate. I talked with him on the radio as he tried everything in his power to bring his plane out of that canyon. I watched as he spun his airplane onto the rocky canyon wall and exploded. I will NEVER forget Michael or his enthusiasm for helping others to enjoy this passion he enjoyed.

To help us all, I will try to go through the last day's events. There were several factors which contributed to the accident. I am writing this because Michael would want others to learn from this. I feel that Michael would want everyone to fly safely and to help them in any way he could. He did a lot for Kitfox safety and helping others to get their birds off the ground. We left Chandler Municipal Airport at around 6:15AM for Sun Valley Airpark where Michael wanted to see the "home base" for the Desert Fox Squadron. We transitioned Phoenix Sky Harbor Northbound and then flew to Sun Valley. Nobody was home at Sun Valley, so we departed for Sedona. Along the way, we flew through Prescott Valley and spotted some antelope. Michael circled a heard of antelope. As he was circling, I thought of Ray and called over the radio, "Airspeed". I was flying around 500-800 feet above him, so I just slowed to wait for him to finish his turn and proceed on course. From Prescott Valley, we headed North over the hill to Cottonwood Canyon. Cottonwood Canyon is a canyon formed by a river and is level with the terrain and flows back and forth for 10 miles or so through some of the most beautiful terrain in the state. Michael was snapping pictures and sharing his enthusiasm for the scenery. Throughout the entire flight, I stayed about 1/2 mile behind him and let him lead simply because his airplane had a slower cruising speed and he could set the pace. From there, it was off to Sedona for a wonderful breakfast. We arrived in an extended left crosswind and landed. Michael noticed some coolant dripping from under the cowling. He removed the cowling and it seemed to him that the over-flow bottle was over-flowing. I asked if he noticed any over temperature indication in flight, and he said there wasn't.

Over breakfast we talked about his background and mine. We compared notes on our flight time and experiences. He had been flying for 17 years and had around 1500 hours. He was also instrument rated and, as we all know, used his rating. I was impressed with his experiences and enthusiasm for this great hobby we all share. He told me about his family and about moving from the New York area to Manassas. Once we finished eating, we both needed film and batteries for our cameras, so we headed to town. We hitched a ride both ways with some nice local people and got what we needed from the local Walgreens. Both of us topped off with fuel and started our flight planning for the next leg to Marble Canyon which is one of the Northern tips of the Grand Canyon. As we were looking at the charts, Michael mentioned that he would like to fly over the Grand Canyon. I wasn't crazy about that but agreed. When we looked at the altitude we would have to cross at, Michael told me he wouldn't be able to get up that high today because he was "at gross". He explained that, with the Subaru, the baggage and full fuel, it would be a factor to try to achieve that 11,500 foot transition altitude. We decided to climb to around 10,000 feet and fly to the East of the area. We went over the route we would take to fly around Sedona and I was to follow behind at 1/2 mile like before. He re-checked the coolant bottle and buttoned up the cowl. We took off at 11:30 as a flight of two. He rolled first. After he was off the ground, I rolled and climbed to around 800 feet above him and maintained the 1/2 mile spacing. He flew a wide left downwind departure to catch a picture of the airport with the red rocks in the background. We flew counter clockwise around Sedona snapping pictures as we went. We passed the entrance to Oak Creek Canyon and followed the terrain to the valley to the West of Oak Creek Canyon. At this point, I was worried that Michael was too low and called him on the

radio. He called back to acknowledge. He paused for a minute or so without climbing. I asked him if his temperatures were in the green. He replied and said everything was in the green and then began a climb. Although I was around 800 feet higher, I climbed with him. The spacing was still about 1/2 mile at this point. As we were climbing, we talked about how beautiful it was in the area and continued to snap an occasional picture. He turned to the east into Sterling Canyon. There was about a 1/2 mile delay before I could get a good view of what he was facing. I was still around 800 feet higher and was at an altitude where I could just see over the top of the pass going back toward Oak Creek Canyon. I radioed Michael to tell him, "There's a big space to your right to turn around. TURN AROUND!!" He radioed back and told me he should be able to make it. At this point, he had space to his right side which left the opportunity to turn around that lasted 1/4 mile or so. I radioed again and told him he had plenty of spacing and that I was turning. As I started my left turn, I looked over my right shoulder and saw Michael hugging the left canyon wall. He was to the left side anyhow, and it looked like he was setting up for a right 180 degree turn. About 3/4 of the way through my turn, I looked out the skylight and saw him in a steep right bank and the end of the canyon. This turn immediately turned into a spin. He spun for 2 1/2 turns before he hit the ground in what looked like a spin recovery attitude. (Nose down, get some airspeed back, pull) Immediately the airplane exploded. I called the Mayday to Sedona airport. I was shaking, numb, scared, angry, sad... There aren't enough words to describe what I felt that moment as I watched such a wonderful man die in front of me. I didn't know what to do from that point. I circled to give the GPS grid to the rescued helicopter as I cried out of control. The ten minute response time seemed to last forever. "Please stay over the crash site so we can locate it." My God! What a horrible experience. I'll never forget the feelings I felt then, and the ones I feel now. What can we do? How can I help Michael? How can I help Ray? It feels (and is) out of control. The density altitude was around 9500 feet. Winds were calm. There was no turbulence. The temperature was around 95 degrees. There were no clouds in the area. He slept well the night before. The airplane was near the 1200 pound gross weight. Two minutes before the accident, temperatures were normal.

I hope, by reading this, we can learn to fly safe. The Kitfox is a wonderful high performance airplane. Ray Volk was a great pilot. Michael Harter was a great pilot. Both men were the cream of the crop. They shared the title to multiple hours on their airplane, they flew nearly every day, and they knew their airplanes like the back of their hands. They both died doing what they enjoy in life. They both died as they pushed the limits of the Kitfox envelope. I will miss them both and will think about them each and everyday. We all need to show our love to our families and give our friends every bit of energy these two guys taught us to do. We need to appreciate everyday. Michael and Ray did...

Andrew Wikstrom

September Calendar

September 7-9 MUSKOGEE, OK Airshow Oklahoma takes place at Davis Field (MKO). Call 580/481-6767 for event information.

September 8 Greenville, TX 50th Anniversary of Raytheon at GVT 903 457-6797

September 10 EAA Chapter 493 Hamburger/Swim Party at Highland Range Swimming Pool. Call Marti Beauchamp at 947-1672 by September 7th.

September 14-16 Las Cruces, NM "Adventure Aviation" 877 525-0500 comefly@zianet.com

September 15 Sulphur Springs, TX EAA Chapter 1094 7th Annual Fly In 903 885-8363 lpchristian@excite.com

September 15 Vernon, TX Wilbarger County Airport 4th Annual Fly In gopherntx@yahoo.com

September 21-22 Abilene, TX SWRFI 1 800 727-7704 www.swrfi.org

September 29 Greenville, TX EAA Chapter 914 Annual fall gathering at Majors Field 903 454-9579 or brown@koyote.com

October 6-7 Midland, TX Confederate Air Force "AIRSHO 2001" 915 563-1000

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San Angelo, TX 76901



Wayne Cutrell shot this of the B-25 "Yellow Rose" from San Antonio.