



**PUBLISHED TO RECORD  
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KANSAS SOARING ASSOCIATION**

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**Neal Pfeiffer's Ka-2b, shown here on Harris Hill at IVSM 2012, won the "Best Restoration" award at the meet.**

## Notes from the President

Wow. What a month of soaring. We have really seen some awesome soaring conditions recently, so if you haven't been out to fly and enjoy it, come on out!

Couple of things I want to mention. First, an update on the runway sealing project mentioned last month. I have had three individuals take me up on my challenge and have written \$150 checks. That's 900 square yards of additional coverage. Look for an article about what we are planning and send in something to help us maintain the runway.

Second, I want to talk about tows. I have experienced and witnessed tows that have dropped off gliders 4, 5, even 6 miles away from Sunflower. Yes, the clouds were four miles west of the field, but from 2000 feet agl, it's a long walk home if I don't connect. General rule of thumb, don't cross a paved road on tow. There are paved roads two miles from the field south, east, and west. Tow pilots, try and keep the club ships within a mile or so of the field. The 2-22 glides much worse than my LS-3. Glider pilots, if you are being towed beyond two miles from the field (crossing a paved road) do not release at 2000 ft. Again, you DO NOT HAVE TO RELEASE! Stay on, eventually, the tow pilot should turn back towards the airport, hopefully climbing the entire time.

Last weekend a student pilot in the 2-22 landed out 1/2 mile short of the runway. The pilot executed a textbook off field landing, but should not have had to. Off field landings result in approximately 25% of all glider accidents and a high number of fatalities. Without a trailer, getting the glider back to the airport is not an easy task. I will say it again, as your president, a tow pilot, and CFGI, all club equipment (2-33, 2-22, Ka-6, and Grob) should be released within a mile from the runway. Please keep them in close.

Finally, we are halfway through the season. Please continue to do the great job you have done making you assigned duty days and finding substitutes if you can't be there. Thanks for all your hard work in the hot temperatures. Stay hydrated, and don't be afraid to ask for some relief if you need a break.

**Andrew Peters**

## 2012 KSA CALENDAR

July 28<sup>th</sup> - August 19<sup>th</sup> - World Gliding Championships: Open, 15 Meter, 18 Meter - Uvalde, TX

August 11<sup>th</sup> - KSA Meeting, Cookout at Sunflower

August 11<sup>th</sup> - 12<sup>th</sup> - WWC: Prescribed Area Distance

August 18<sup>th</sup>-19<sup>th</sup> - IAC Chapter 15 Harold Neumann Barnstormer Aerobatic contest - Olathe, KS

September 8<sup>th</sup> - KSA Meeting, Cookout at Sunflower

September 8<sup>th</sup> - 9<sup>th</sup> - WWC: Lap Race

September 23<sup>rd</sup> - 29<sup>th</sup> - US National Aerobatic Contest, Denison, TX

September 27<sup>th</sup> - 30<sup>th</sup> - Vintage Rally - Wichita Gliderport, Wichita, KS

October 27<sup>th</sup> - 28<sup>th</sup> - WWC: Last Man Down

## Sunflower Seeds

July 1<sup>st</sup>: **Rafael Soldan** towed, **Bob Hinson** and **David Kennedy** ran the line. **Tony Condon** flew the Cherokee, **Steve Leonard** the Zuni, **Jerry Boone** his Zuni, and **Keith Smith** flew Tinkerbell the PW-5. **Bob Holliday** self launched in the PIK-20E. Most ran to Harper at least, some to Pratt as well. **Dennis Brown** flew the Mosquito and **John Wells** his ASW-20. **Brian Bird** flew the WSA Ka-6 and was last to land. **Andrew Peters** instructed, students included **Gavin Smith** who also did some solo flights in the 2-33, **Matt Gonitzke** who flew the Grob and got a Ka-6 checkout, and **Lauren** for a Grob checkout. **Lauren** gave a ride in the Grob to a guest. **Bob Hinson** and **David K** also got a few flights in each towards the end of the day. **Keith** landed at Kingman and **Andrew** aero-towed him home, everyone else made it back. Climbs topped out over 9000 MSL for many. **Bob Park**, **Summer Gajewski**, and Kent Gajewski were also around.

July 2<sup>nd</sup>: **Bob Holliday** flew his PIK 20E

July 3<sup>rd</sup>: **Bob Holliday** towed **Andrew Peters** and **Lauren Rezac** and then launched in his PIK 20E.

July 4<sup>th</sup>: **Jerry Boone** and **Charles Pate** met early to start **Jerry's** Commercial Checkride. **Bob Hinson & Tony & Leah Condon** met around 9:30 and got the 2-33 out for some instructional flights, **Bob Hall** came out early to tow. **Jerry** was ready to fly at 10 so he flew first, passing his Checkride. Congrats **Jerry!!**. **Bob** and **Tony** did a few instructional flights while more people arrived. **Tony** gave a ride to **Gavin Smith's** girlfriend Lauren and then rides to two friends from the rowing club, Sherry & Dennis. **Bernie Mohr** showed up for his scheduled tow duty and **Steve Leonard** (VJS), **John Wells** (KJ), **KC Alexander** (XW), **Jerry** (K7), **Keith Smith** (LW) and **Dennis Brown** (LY) all launched. **Matt Gonitzke** flew the Ka-6 and **Tony & Leah** took off in the 2-33. **Kevin Ganoung** gave a few rides the KSA Grob and **Bob Park** and **Dave Woody** did **Dave's** flight review in **Bob's** Grob. **Sue McNay** and **Becky Cole** observed. Big kudos to **Summer Gajewski**, **Bob Hinson** and **Gavin** who ran the line when it was busy.



**KC Alexander** - Diamond Distance!

July 5<sup>th</sup>: **Bob Holliday** flew his PIK 20E

July 6<sup>th</sup>: Busy day! **Mike Logback** volunteered to tow and **Tony Condon** (YYY), **Jerry Boone** (K7), **John Wells** (KJ), **Bob Holliday** (OO), **Lauren Rezac** (YA), and **Steve Leonard** (VJS) all flew. **Tony & Lauren** did a 300km triangle to Anthony and Haviland. **Bob** flew to Alva and Haviland, **Jerry** did Harper and Pratt and then Kingman and Nickerson. **Steve** flew to Watonga, OK and Fowler Airport for a 419 mile triangle.

July 7<sup>th</sup>: Kowbell. **Jack Seltman** towed with the 182 and **Mike Logback** stepped up to tow for the Kowbell launch in the 175. Thanks **Mike!** 9 pilots launched, **Lauren Rezac** (YA), **KC Alexander** (XW), **Tony Condon** (YYY), **Jerry Boone** (K7), **Steve Leonard** (VJS), **Bob Holliday** (OO), **Keith Smith** (LW), and **Andrew Peters** (3T). Results are elsewhere in this edition. **Mike** took a couple solo flights in the 2-33 after everyone left and climbed to 10,000 feet for a flight of about 1:45! There were several visitors watching the Kowbell launch, presumably from the article **Jerry** got in the Wichita Eagle. Also watching the launch was Paul Wilson, who won the Kowbell in 1963. **Bob Hinson**, **Dakota & DJ Harms**, and **Jim Taulman** ran the line.

July 8<sup>th</sup>: Rich Stone flew the Ka-6, no other activity reported.

July 12<sup>th</sup>: Another weekday soaring session with **Mike Logback** once again towing. **KC Alexander** flew Diamond Distance in his PIK-20 XW. **Keith Smith** flew to Anthony and back in Tinkerbell the PW-5 and got 5 hours, completing his Silver Badge. **John Wells** flew over 6 hrs in KJ. **Dennis Brown** and **Gavin Smith** also flew, **Gavin** got 2+ hrs in the 2-33. **Andrew Peters** provided high altitude weather reports from a Citation.

## Sunflower Seeds

July 14<sup>th</sup>: Kowbell Konsolation. **KC Alexander** and **Mark Schlegel** towed. New member **Sarah Wildman** got checked out in the 182 and 175 for towing. **Keith Smith** (LW), **Dennis Brown**, (LY), **John Wells** (KJ), **Jerry Boone** (K7), **Andrew Peters** (3T) all flew. **Jerry** and **Andrew** both made long flights to the south and back, around 300km. **Matt Gonitzke** flew the Ka-6, getting over an hour for his C badge but not quite Silver Altitude. **Dave Stanko** instructed in the 2-33, and **Bob Hinson** soloed! **Steve Leonard** took a friend from work for a ride in the KSA Grob and went down to Kingman and back. **Dave Woody** flew the 1-26 Lil' Pumpkin. **Bob Park** was around. The cookout was good and there was some evening air to air and ground to air photo missions.



**Bob Hinson** after his first glider solo  
**Matt Gonitzke** photo

July 15<sup>th</sup>: **Gavin Smith** and **Andrew Peters** flew early in the 2-33 doing checkride prep. **Bob Hinson** took up the 2-33 solo after they were finished. **Andrew** launched in 3T on a 300km triangle attempt, but ended up landing at Kingman on the way back. **Keith Smith** flew Tinkerbelle the PW-5 on an out and return down to Harper. **Dennis Brown** flew LY and **John Wells** flew KJ.

July 20<sup>th</sup>: **Steve Leonard** flew the Zuni down to Alva, OK and back.

July 21<sup>st</sup>: **Mark Schlegel** volunteered to tow early and **Tony Condon**, **Bob Hinson**, **Mike Davis**, and **Don Jones** got started about 9 AM. **Bob** got checked out to solo the 2-22. **Tony** gave a few rides to **Leah's** god-parents visiting from Minneapolis, MN. **Mike** and **Don** took 3 instructional flights each in the 2-33, both getting a bit of soaring in on their last flights. **Don** made it to 4200 feet shortly after noon. **Jerry Boone** then gave a couple of guest rides in the 2-33 and **Dennis Brown** flew LY. **Dave Woody** and **Bob Park** were around and **Bob Hall** did some of the later towing. **Steve Leonard** ran the line with help from whoever else was available.

July 22<sup>nd</sup>: **Jeff Beam** reports: **Chris Swan** and I flew up from Strother in the 172 and readied the 175 tow-plane and GSE. A gentleman named Bud and his wife Heidi arrived soon after looking for a birthday ride for Bud. Bud is a powered pilot and had never flown in a glider. **Bob Hall** gave two intro flights in the 2-33. **Frank O'Donnell** and student **David Kennedy** took the next flight in the 2-33 and suffered a low level (150 ft., perhaps) rope break. **Frank** landed the ship nicely in the bean field west of the runway. After retrieving the 2-33, **Frank** and his student did two additional training flights while **Bob** and Bud readied the Grob. Bud later returned with a huge smile after a 1 1/2 hour flight in the Grob. Expect him to join the club and start training soon. **Steve Leonard** watered the Zuni and launched but soon returned with an errant gear door. He said the



Zuni II, July 14<sup>th</sup>, **Matt Gonitzke** photo

Zuni whistled like an oversized coke bottle and he couldn't stand the noise. **Dennis Brown** launched in the Mosquito while **Steve** fixed the gear door and re-launched in the Zuni. The Mosquito and Zuni were headed over the SW horizon at last sighting. **Chris** and I put the toys away, launched in the 172 and caught a couple of good thermals back to Strother. A good day and busier than we expected – nine tows I think.

July 27<sup>th</sup>: **Bob Hall** towed over lunch, **John Wells** (KJ) and **Lauren Rezac** (YA) took advantage. **Bob Holliday** self launched in the PIK-20E. **Lauren** completed his Diamond Distance!

## Sunflower Seeds

July 28<sup>th</sup>: **Jerry & Matt Boone** and **Tony & Leah Condon** met around 8 AM and activity started by 9. 8 Glider Orientation Rides were completed for CAP cadets before noon. All 8 cadets also got Orientation Rides in the CAP 182, either on the way to or from or in between glider flights. **Brian Bird** also made a few trips in and out planting turnip seeds. **Mike Logback** and **Mike Davis** showed up to run the line but **Mike** ended up towing and various people filled in to help with the line. **Mike Westmeier** instructed and had a busy day with a few guest rides, **Don Jones** (heard he made it to 10,000), **Leah Condon**, **David Kittle**, and probably more. **Bob Hinson** did a couple solo flights, as did **Leah** who managed to finally earn the coveted B Badge on her second flight. **Jerry** (K7), **Keith Smith** (LW), **Dennis Brown** (LY), **Lauren Rezac** (YA), and **Tony** (K) all launched in their single seaters. **Bob Holliday** self launched in the PIK. **Bob Park** flew his 1-26 #119, and **Dave Woody** had Lil' Pumpkin out although I'm not sure if he flew. **Brian Bird** took the last flight of the day and was last to land in the Grob, giving a ride to a friend. **Bob Hinson** had a bit of an adventure as he found himself too far from the airport and ended up landing in a Maize field over by the Radar dome. Very little damage was done to the crop and no damage to the 2



**Jerry** and a CAP Cadet, July 28<sup>th</sup>

-22. **Mike, Mike, Mike, Tony, Leah, Bob, Lauren, and David** formed a work party and in less than an hour the glider was back in its hangar. Also seen was **Mark Ross & Becky Cole**. I'm sure there were more, it was a busy day!

July 29<sup>th</sup>: **Keith Smith & Kevin Ganoung** carpooled down from up north for their line duty day. **Mike Westmeier** towed. **Tony Condon** flew Kate the Std. Cirrus. **Dennis Brown, Bob Holliday, and Bob Park** were seen around but none of them flew. **Tony** took off in the blue shortly after 1 and pretty much stayed in the blue out to the west and back for about 150 miles total. **John** and **Luke Marquardt** stopped out to see if anything was there was an instructor around.



2-22 in Maize, July 28<sup>th</sup> **Leah Condon** photo

## Strother Seeds

July 4<sup>th</sup>: **Chris Swan** flew the Russia, presumably **Jeff Beam** towed. **Chris** flew a tad over 2 hours and had a new personal best altitude gain of 5100 feet and gaggled with **Rafael Soldan**.

July 6<sup>th</sup>: **Chris Swan** had a 3.7 hour flight in the Russia, topping out at 10,000 feet.

July 7<sup>th</sup>: **Jeff Beam** flew the Apis for 4 hours and about 150 km on the OLC

July 14<sup>th</sup>: **Chris Swan** took his Russia on his first flight away from Strother, up to Udall and Cherokee Strip and back. 2.2 Hours.

July 15<sup>th</sup>: **Jeff Beam** flew the Apis mostly locally for 2:45

July 20<sup>th</sup>: **Jeff Beam** flew the Apis for nearly 4 hours

July 28<sup>th</sup>: I heard that **Jeff Beam** flew, but no details were provided

# The SparrowHawk with Power Pack Installation

By **Richard Boone**

As published in the July 2012 *Gliding International*



Sparrowhawk: Not so heavy

carve wood into boats to race down the street with water from the garden hose. If it flew, we were into it. Any size, bought or built, moving wings to the top, bottom, front and rear, ignoring all limits.

We grew up in Seattle Washington. My father was a Boeing Aircraft employee and our family moved from Wichita Kansas to Seattle during the Boeing surge of the 1960s spurred by the Boeing 747, Super Sonic Transport (SST), and the Dynasoar, an early predecessor of the Space Shuttle.

In Seattle, our house like many others was built on a hill. It is pretty surprising how many wheeled configurations can find their way to the bottom of a hill. Our specific hill dead-ended in thorny blackberry bushes and trees. Most of the time we mastered the art of sliding, spinning, or braking needed to stop before we entered the brambles.

With photography, if we could print a picture, why not in color? If we could fly a hand-launched glider, why not build one big enough for us to ride? In junior high we did just that. Or at least we tried.

Not wanting to be included in the group of early fliers to have jumped off the barn with a simple bed sheet, in 1967 we designed and built a large 12 foot span glider we hoped would get one of us into the air. It looked much like the model gliders we had previously built, but was built from spruce and doped canvas instead of balsa and shrink wrap. It featured two parallel tubes from which we hoped to hang our weight during flight. It turned out that even as big as it was, it was too small. No matter what we tried, we could not run fast enough to successfully get it off the ground. What we needed was a bigger glider or more speed. Seattle has its fair share of hills and as I said earlier, we lived on one. Adding wheels and getting gravity to help us seem to be a good idea. We were probably lucky to never get that glider in the air. But I didn't give up.

I was at the University of Washington in 1971 studying Mechanical Engineering when I was first discovered Hang Gliding. It was an infant sport and my opportunity to pursue my passion for flight and fame. I jumped into it with everything I had, single minded with little other purpose. I had endless enthusiasm, good skills, and didn't know enough to choose a smarter, safer path.

Hang gliding, to me, was a sport, not an "activity", that is to say that every flight is you against the machine and nature. Your skills are balanced against the performance and handling of the glider in the conditions at that particular moment in time. I always found flying inches from the ground more fulfilling than hundreds of feet altitude. Everything about hang gliding was literally in your face. Hang gliders were easy to transport and fast to set up. I felt there was no purer form of flight.

I was hired by Delta Wing Kites and Gliders in Van Nuys California in July 1973. Delta Wing was one of the leading hang glider manufacturers and within a couple of years I became head of Research and Development. Over the next decade I built over 100 prototypes and certified over 40 different designs.

My story and my eventual union with the Windward Performance SparrowHawk started in the 1960s.

I've always wanted to fly.

I was born a twin. Doug and I had red hair and freckles and boundless energy. If you walk into a mega store and all of the checkout lines are long, pick the redheaded cashier. That line will go twice as fast.

As children we were very close; never a minute apart. We were both creative and once we got an idea in our heads, we would go into complete "brain lock" and be off and running. We would build dams when it rained and tree houses if a tree existed. We would

Sparrowhawk cont.

In 1985 I left the industry to pursue opportunities related to composite materials. I continued to fly hang gliders for recreation, but had little interest in other forms of aviation. I had tried sailplanes but was initially disappointed in the control response and what seemed a disconnection from the outside. I got my airplane license in 2000 and bought a Cessna T210, but that was for travel. Nothing like a T210 to get you and your family almost anywhere fast.

Things changed for me in 2001 when I went to work for Adam Aircraft in Colorado. They had just started to build the twin engine (pusher/puller), all composite, pressurized 6 seated aircraft A500. This is where I met owner Rick Adam, VP of Engineering Dennis Olcott, and eventually the SparrowHawk designer, Greg Cole. Greg was brought in to support general aerodynamics and specifically control surface sizing. Dennis had worked with Greg before at Cirrus and Columbia and had helped in some early development of the SparrowHawk. Rick Adam, Dennis and I went together and purchased SparrowHawk #11.

From the very first flight I felt the SparrowHawk offered the best of the soaring world. One can set it up alone without special equipment. Each wing weighs only 40 lbs. The controls are light and it is comfortable to fly. It is so light to fly that no trim adjustment is offered, or missed. Ours came with a ballistic parachute and with the addition of some extra instrumentation weighed only 185 pounds. It is constructed from the same pre-impregnated carbon/epoxy material we used in the Adam A500. It was small, elegantly simple, with beautiful lines. It was love at first sight.

I am not a real fan of aero-tow, most likely due to my experiences with 500+ tows in hang gliding, so it took only a few hours of flight before I started dreaming about alternate ways of getting the SparrowHawk off the ground. At 425 pound gross weight and allowing for a 200 pound pilot, the challenge was to make the SparrowHawk self-launching for less than 40 pounds.

Simple calculations told me at 425 pounds I should need well under 20 pounds thrust to maintain level flight. My goal was:

1. Propulsion unit weight of 40 pounds or less fully fueled
2. 100 pounds of thrust which could not negatively impact ability to trim
3. Little/no impact to Center of Gravity
4. Allow operation of the ballistic chute
5. Easy to install and remove
6. Be self-contained including fuel



Installation Detail

The SparrowHawk is an amazing ship, but like most sailplanes is not known for its abundant baggage area. The ballistic chute is mounted on the centerline directly behind the canopy. Greg selected that position for the same reasons I wanted it for propulsion, its minimum impact of CG. I figured the best place to start is selecting an engine...or engines.

I had always admired the engine technology used on model aircraft so that is where I started. I was thinking that I had little weight reserves for gear reduction so I was going to have to deal with engines turning 6,000-7,000 rpm. This size limits propeller diameter to about 28". Greg had provided me a AutoCAD model of the Sparrowhawk and soon I had drawn in the locations of two 28" propellers snugged in nicely on each side of the cockpit slightly above the wing.

Low drag was my goal so I started with single cylinder engines. The websites that sell this sort equipment appeared to offer several options. The ZDZ Super 80s seemed to fit my requirements. They were 5.6 pounds each and claimed to create 9.8 hp at 7,000 rpm and 90 pounds of static thrust. There were enough dimensions on the websites to model them in AutoCAD. They, like the majority of engines, were designed for tractor, or the propeller mounted forward, operations. After a few hours of design I realized that this might be an issue. The tractor configuration supports mounting on the CG but at a price of the propellers placed directly behind the pilot's head. Yes this might be noisy and put the pilot at higher risk, but the bigger issue was this propeller position could block opening of the canopy preventing entrance or exit during starting and operation.

Sparrowhawk cont.

When stopped, exit required both props to be lined up in a specific position which was a nearly impossible task by the pilot from inside the aircraft. This was a potential issue, but I had enough things going through my head so put it off until later, though I did design the engine mounts to allow flipping to face the props rearward.

I got my engines, I knew the prop size, and I knew where I wanted to position them on the glider. My next goal was to design the strut and saddle arrangement. My remaining design issues were that engine mount and saddle needed to be light weight, low drag, able to hold gas and be rigid enough to hold the engines during operation. I was not too concerned about the vibration issues, thinking I had several connections that could adjusted to address vibration. This problem became much easier when I discovered that Aircraft Spruce, a distributor of aircraft building materials who caters to the homebuilt aircraft market, offered "streamlined aluminum tubing". One of their offerings was a section about 4" in chord, almost 2" thick with a 0.049" wall. This was exactly what I needed so I bought a 6' section and proceed to cut and trim. I also bought a fuel cap with locking base from Aircraft Spruce. I machined an aluminum pad to fit the locking base to the strut shape and this was TIG welded in place. The two horizontal members were then TIG welded together to make one open area which served as the fuel tank. The horizontal tubes were given some "dihedral" to minimize fuel movement and to shorten the mounting legs. Engine mount plates were then cut from aluminum plate stock and welded to the strut ends. Finally the legs were cut from the same streamlined tubing and positioned and welded to the horizontal struts. We had some issues with this last weld. Heat from the weld caused the horizontal tubes to bow. We spent some time straightening before proceeding.



ZDZ80 Engine Installation

The fuselage mounting pad was a bit easier, because it more suited my expertise, but required accurate positioning on the carbon/epoxy pads that were molded on top of the SparrowHawk fuselage. Once the engine mount was positioned I applied additional carbon fiber/epoxy. Some fiberglass with filler was used to smooth the transitions. Holes were positioned, marked, and drilled. The mount was then removed and the mounting holes were reamed to accept stainless steel bushings. Several addition plies of carbon/epoxy was added to the interior of the SparrowHawk where the holes were drilled. Once cured, these holes were re-drilled and then reamed to accept the same bushing as the strut. The final installation step was to bond the bushing in place including a thin offset foam layer applied to the mount to prevent direct contact with the fuselage.

The engine mount was complete, so the next task was the physical connection of the engines. The model industry has a done a pretty good job to make engine mounts universal, but my guess is they had never planned on my intended use. My configuration required the engines to be mounted at 90 degrees as compared to the normal model airplane so this required more design and fabrication. I intentionally left the ends of my struts open, so the engine mounts could be sealed, yet allow fuel lines to pass through. This turned out to be pretty easy, but needed some experimentation on what to use as a seal for the struts. After many attempts I ended up making a seal by applying fuel tank sealant on both faying surfaces and clamping them together, leaving a gap between the two metallic plates to provide a gasket thickness that would allow for some movement.

My original plan was to control the engines by a simple electronic control system similar to a model airplane. My goal was not to impact the cockpit area. What made this a bit more complex was the power requirements to spark the engines. These small engines do not have the ability to generate electricity and so rely on battery power and controller to create the power needed to spark. This power requirement added to the transmitter and receiver was made even harder, because my installation located these items at three different locations. An electrical engineer friend designed a box which included a dual slider that were made to look like small engine throttles. This seemed to work pretty well and was used for the first flight, but the radio control wiring did not meet my need for a robust installation. I finally went to a dual electrical power configuration; one battery to power the engine and a second for the glider instrumentation. Aircraft push/pull throttle cables were installed in the instrument panel and a link system was added to the aft cabin bulkhead. Finally two RPM meters were installed as these are the only instruments, other than my ears, that monitor engine performance.



Sparrowhawk cont.



Liftoff!

First flight was conducted by Darrel Watson. Darrel had vastly more glider experience and stick time. Darrel managed to get it off the ground, but the flight ended early when a muffler came loose and one engine stopped. The mechanical system appeared to work well but showed the need for more power. I first thought I might have a bad engine, but I had two and they were clearly operating at the same level. It became clear that the manufacture had over stated their performance. I had the engine issue and the problem of the propellers blocking the canopy. The next year was spent working on getting the engines to perform better and moving the propellers to the rear. I spent a good part of the next year designing and building a test stand.

I found I had selected an engine with a unique design. The ZDZ Super 80s were high compression, running on premium fuel/oil mix, and they had replaced the reed system with a rotor system to supposedly improve fuel flow to the cylinder at higher rpms. The high compression made a normal electric hand starter useless and required me to design and build a special unit to turn these engines over. I faced the engine to the rear and installed special pusher propellers. The wood pusher props did not perform as well as my carbon tractor props. Frustrated, I felt I had three options; wait until new props were developed, build props myself, or reverse the engine direction and mount the tractor props backwards. I spend several weeks looking into the chance of success designing and building my own props before I found articles that stated that reversing the 2 cycle engines was easy, at least for engines with reed fuel delivery systems. Investigation indicated that my ZDZ engines could not be reversed. People that know me understand that I hate when people say something cannot be done. Within a few weeks a new mill was delivered and I had removed, redesigned and machined a new ZDZ rotor system to operate backwards. The engines started and ran in reverse, but even with the carbon props, lacked the ability to reach desired RPM. It also turned out that these small, high compression engines produced a high amount of heat and needed the direct air movement produced by the propeller. In pusher configuration little air was forced across the cylinder walls. Static runs on my test stand showed the engines would heat to dangerous levels after only a few minutes. This started me down the path of adding cowlings to channel the air. Several months of work and 12 months of dealing with the FAA to achieve the proper "experimental" tag and I was once again ready to fly.

The glider did great. The engine locations were perfect. The glider controlled exactly the same power on or off and now I could get out of the cockpit, but the engines still lacked thrust. The rpm meters showed only 5,000 rpms which is vastly under the 6,500-7,000 needed to achieve rated power.

I had put a huge amount of time into the ZDZ engines and it was not an easy decision, but it was time to let them go. I replaced them with two DLE 110's. These are twin cylinder engines with a normal reed induction system. They are rated at the same 9.5 hp as the ZDZs and only weigh about 20 ounces more. They required a new mounting pad and I easily reversed their rotation. From the first test these engines performed much better making rated power. A really big plus is they are easily hand-propped. One small disappointment was that I had thought the twin cylinder would produce less vibration. It turns out that with two cycle engines both pistons fire at the same time.



DLE 110 Engines

The new engines required a new FAA review because they had over a 10% increase in engine size (80cc to 110cc). The Wichita FAA office did a great job getting me back into the air. Since switching to the DLE engines all has been great and I have enjoyed flying this unique aircraft.

The speeds have not changed from those provided by Windward Performance for the sailplane. I rotate at about 45 knots and climb at 50 knots. Climb rate appears to be about 400 fpm. Cruise is typically at 60-65 knots at about 2/3 throttle. The tank holds 0.75 gallons and this seems to last about 45 minutes.

The speeds have not changed from those provided by Windward Performance for the sailplane. I rotate at about 45 knots and climb at 50 knots. Climb rate appears to be about 400 fpm. Cruise is typically at 60-65 knots at about 2/3 throttle. The tank holds 0.75 gallons and this seems to last about 45 minutes.

Sparrowhawk cont.

Glide and sink rates, after engine shut down, are not great as compared to the sailplane SparrowHawk, but it is easy to soar in most conditions.

Future development? I feel I am personally done with this project. I accomplished what I set out to do and am working on a new project related to very low speed hang gliders. I do believe there is a need to develop an engine fairing and/or a prop folding or feathering option. Inflight engine start would also be desirable, which might be achieved by an engine compression release valve to allow the propellers to spin up and/or combining the feathering feature to find a pitch angle that will turn over the engines. I can start both engines by myself and get into the SparrowHawk, but it currently requires a wheel chock. There may be a need for better brakes and a method to lock them on.

I hope you have enjoyed my experiment and if you are interested in the glider, please feel free to contact me.

## Member Achievements

**Gavin Smith** earned his A Badge for soloing and B Badge for a 30+ minute solo flight on July 1<sup>st</sup>

**Tony Condon** claimed 3 State Records for his July 1<sup>st</sup> flight to Harper and Pratt in the Cherokee II

**Jerry Boone** passed his Commercial-Glider Check-ride on July 4<sup>th</sup>

**Matt Gonitzke** B Badge on July 4<sup>th</sup> in the Ka-6

**Steve Leonard** claimed several State Records for his July 4<sup>th</sup> flight of 425 miles to Hobart, OK and back in the Nimbus.

**Steve Leonard** broke several State Records for his 419 mile triangle flight July 6<sup>th</sup> in the Nimbus

**Tony Condon** broke his records from July 1<sup>st</sup> and added one more for his July 6<sup>th</sup> 300km triangle to Anthony and Havilland in the Cherokee II

**Lauren Rezac** earned his Diamond Goal and Gold Distance on July 6<sup>th</sup> in his ASW-24, finishing his Gold Badge

**Steve Leonard** broke at least the Open Class Free Distance State Record for his July 7<sup>th</sup> Kowbell flight

**Tony Condon** broke a few state records for his 242 mile July 7<sup>th</sup> Kowbell flight in the Cherokee II

**Andrew Peters** earned his Diamond Distance for his July 7<sup>th</sup> Kowbell flight

**Keith Smith** flew over 5 hours to complete his Silver Badge on July 12<sup>th</sup> in his PW-5 and also earned a few World Class state records.

**KC Alexander** flew Diamond Distance on July 12<sup>th</sup> in his PIK-20D. Now he just needs the Altitude!

**Bob Hinson** Solo & A Badge in the 2-33 on July 14<sup>th</sup>

**Matt Gonitzke** C Badge on July 14<sup>th</sup> in the Ka-6

**Tony Condon** placed 7<sup>th</sup> at the 13.5 Meter Regionals

**Bob Hinson** solo in the 2-22 on July 21<sup>st</sup>

**Rich Stone** finished his 18<sup>th</sup> Marathon, this one in Okoboji, IA. He finished with a time of 3:27:57. He was 9<sup>th</sup> overall and 3<sup>rd</sup> in his age group.

**Lauren Rezac** Diamond Distance on July 27<sup>th</sup>

**Leah Condon** B Badge on July 28<sup>th</sup> in the 2-22

## Wellington Seeds

July 3<sup>rd</sup>: **Rafael Soldan** flew the Cirrus

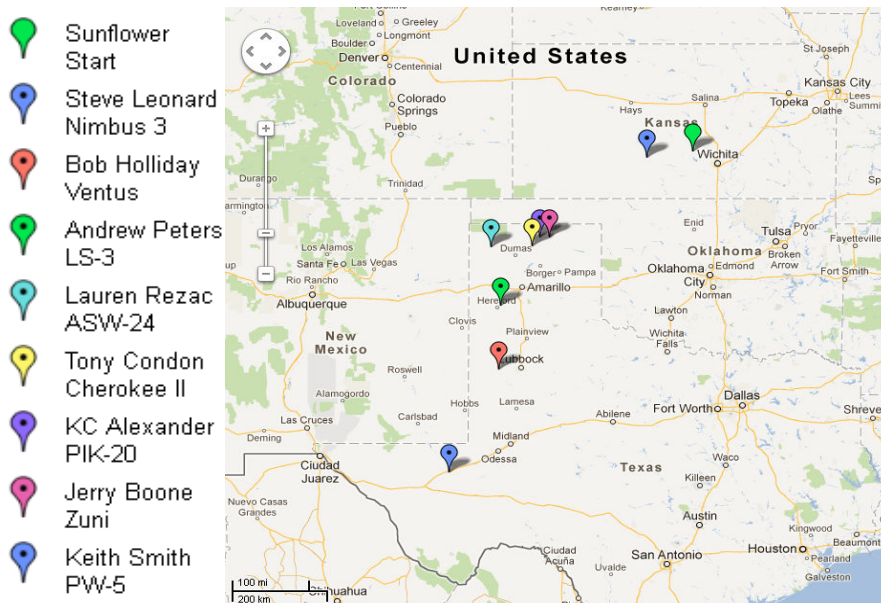
July 4<sup>th</sup>: **Rafael** flew the Cirrus for 4 hrs 56 minutes after release. So close! He ventured over to Strother and did some flying with **Chris Swan**

Follow Dave Leonard (ZL) and the rest of the pilots in Uvalde at the World Championships: <http://wgc2012uvalde.com>

# Kowbell 2012

The 50<sup>th</sup> Annual Kansas Kowbell Klassic was a resounding success, with generally great weather and some really long flights logged. Here are the results:

- 1<sup>st</sup>: **Steve Leonard** - Nimbus 3 - Pecos, TX - 552.5 Miles
- 2<sup>nd</sup>: **Bob Holliday** - Ventus 2 - Levelland, TX - 392.2 Miles
- 3<sup>rd</sup>: **Andrew Peters** - LS-3 - Hereford, TX - 324.2 Miles
- 4<sup>th</sup>: **Lauren Rezac** - ASW-24 - Dalhart, TX - 287.7 Miles
- 5<sup>th</sup>: **Tony Condon** - Cherokee II - Near Morse, TX - 242.0 Miles
- 6<sup>th</sup>: **KC Alexander** - PIK20D - Gruver, TX - 226.7 Miles
- 7<sup>th</sup>: **Jerry Boone** - Zuni - Spearman, TX - 216.0 Miles
- 8<sup>th</sup>: **Keith Smith** - PW-5 - Near Byers, KS - 58.0 Miles



## Weekend Warrior July

July Results are as follows:

Pilot	Glider	Miles	Points
Steve Leonard	Nimbus 3	552.5	1025
Tony Condon	Cherokee II	242.0	837
Bob Holliday	Ventus 2	392.2	800
Andrew Peters	LS-3	324.2	706
Lauren Rezac	ASW-24	287.7	632
KC Alexander	PIK-20D	226.7	508
Jerry Boone	Zuni	216.0	488
Keith Smith	PW-5	58.0	153

## Weekend Warrior Cumulative

Cumulative Standings are as follows:

Pilot	Glider	Points
Steve Leonard	Nimbus 3, Zuni II	2025
Bob Holliday	Ventus 2, Duster	1618
Tony Condon	Cherokee II	1330
Jerry Boone	Zuni	1224
Andrew Peters	LS-3	706
Lauren Rezac	ASW-24	632
KC Alexander	PIK-20D	508
Keith Smith	PW-5	153

# Weekend Warrior Contest

By **Andrew Peters**

Complete rules for the Weekend Warrior Contest are in the April *Variometer*. Here are the rules for August.

## **August 11-12th – Prescribed Area Distance Task (PAD)**

The Prescribed Area Distance Task (PAD) is a type of distance task that was used in US glider competitions. It is a distance task, which means the competitor flying the furthest handicapped distance wins the day. You must stay within the boundaries defined by the turnpoints furthest from Sunflower (Herrington, Lucas, Ness City, Ulysses, Satanta, Alva, Blackwell, and Winfield)

You accumulate distance by flying to different turnpoints in the prescribed area. You may only fly to a way point once (Sunflower is both a turn point and a finish point, so you can fly to it, then to one more turnpoint, then return and land.)

For the WWC, here is the PAD task:

- Start Point: Overhead Sunflower
- Maximum Start Height: 3500' AGL x your Handicap (e.g. 1582' + 3500' x 0.915 = 4785' MSL)
- Repeating turn points is NOT acceptable.
- Photos: Must be taken looking back towards Sunflower.
- GPS: Must go to the far side of the turn point from Sunflower.
- Finish Height: 500' AGL minimum (2082' MSL with current Hutchinson altimeter setting.)

Turn point files can be found at <http://soaringweb.org/TP/NA.html#US> for Hutchinson, KS. The list of turn points is also in the April *Variometer*.

## **Task Explanation**

The start will be over Sunflower (plan to cross the runway or imagine a line from the tower to the wind sock to cross on your way to the first turn point.) Note your time crossing the start line. Also, remember that the maximum start height is 1582 + 3500 x your handicap. You need to cross the line below this altitude. Call in your start time on 123.5. "3T 1540"

Fly to the far side of the turn point (reference Sunflower), take a photo or use GPS. Proceed to the next turn point of your choosing. Make sure you record the turn point name/number and the order that you arrive at them. Repeating turn points is NOT acceptable. Continue to fly to turn points until you land. You do not have to return to Sunflower, however Sunflower is both a turnpoint and a finish point, so it is possible to fly over it twice, if you do land there.

Remember, if photos are being used to verify your task, you need to be oriented looking back at Sunflower and the landmarks must be distinguishable on Google Earth or Google Maps. Your distance will be the total of the distances between all the turn points you declare after the flight.

If you land out, your distance will be the total for all the turnpoints achieved, plus the distance from your last valid waypoint to your point of landing. However, your landing point must be within the boundaries of the Prescribed Area.

Low finishes are not going to be encouraged. Therefore, you should plan on arriving back overhead Sunflower no lower than 500' AGL (2082' MSL). If anyone observes unsafe or low finishes, disqualification or penalties may result.

# Runway Project

By **Andrew Peters**

We are one of the few soaring sites in the US that can boast of a 6000x200 asphalt runway, without having to worry about corporate jets, general aviation airplanes, or upset airport managers. The runway at Sunflower is our most important asset and essential for the future of our club.

Recognizing the importance of the runway, KSA has focused its efforts on maintaining what we have. It is impossible to restore or resurface the runway, given the limited funding available to us. However, there is stuff we have done, and more that we can do. We have sprayed chemical to kill weeds. We have scraped off the dead vegetation. The board of directors has unanimously approved a contract to seal a section of the runway.

In September, PCI will apply sealant to the asphalt surface. The amount of coverage depends on you. The contract is for \$25,000 to cover 25,000 sq yds, with the option to increase coverage for a \$1/sq yd. The goal is to cover an area that's at least 2000 feet long. For \$25,000, the area will be 110 feet wide. An area 150 feet wide will cost \$34,000. The full width of the runway (200 feet) will cost \$45,000.

KSA has saved approximately \$34,000 over the past several years to pay for this kind of work. Farmland rent, special use fees, and hangar rent have been the sources for these savings. You'll notice membership dues are not on the list. Well, here's the pitch.

My goal is to reach the \$45,000 mark. With 80 members on the roster this year, that's \$140 per person. I recognize that that is a significant amount of money. But just like a 500 km cross country, we have to start with the first thermal. With \$25, we can cover one 12x20 block. \$50 will put down sealant 2 feet wide across the entire runway. That's what you and I would spend on tows to get current or for a biannual flight review. If each member contributed \$100, we could seal an area three blocks wide for 2000'.

As president, I pledge to match, dollar for dollar, five members that contribute \$150 to the runway fund.

Over the next two months, I encourage you to think about the wonderful soaring you have experienced at Sunflower and what the opportunity to fly from there means to you. And please consider writing a check, to help us preserve the runway. Send your checks, no later than **August 31**, to:

**Neale Eyler**  
**2114 N. Shefford St.**  
**Wichita, KS 67212**

## New Members

**Don Jones** is a former skydiver who read the article in the Eagle about Kowbell and came out to watch the launch. He took a ride with **Dave Stanko** the next weekend and has joined the clubs and started training.

**Sarah Wildman** is a CAP friend of **Jerry Boone** and **Mark Ross** who works at Flight Safety and used to tow at K-State. She is now checked out and ready to tow at Sunflower, welcome **Sarah!**

## CAP Activity

**Jerry Boone**, after earning his Commercial-Glider certificate, got checked out to be a CAP glider pilot. Starting July 28<sup>th</sup>, he'll be working to get as many CAP Cadets from the Wichita CAP Wing orientation rides in the 2-33 as possible. They'll be flying in the mornings before normal operations begin at Sunflower, typically on Saturdays. Keep an eye on the Soar-Kansas email group for opportunities to help out.

# IVSM 2012

By Neal Pfeiffer

Thirty-three Vintage gliders were in attendance, of which only three were not flown. There were two first-generation fiberglass sailplanes to represent the Classic gliders. Thirty-three Vintage gliders were in attendance, of which only three were not flown. There were two first-generation fiberglass sailplanes to represent the Classic gliders.

## **Schleicher**

1958 Ka2B  
1957 Ka6B  
1963 Ka6CR  
1963 Ka6CR  
1966 Ka6CR  
1967 Ka6E  
1967 Ka6E  
1962 Ka-8B  
1967 ASK-13  
1968 ASK-13  
1970 ASK-14

## **Schweizer**

1942 SGS 2-8 (TG-2)  
1947 1-21  
1947 1-21  
1948 1-23  
1950 1-23  
1952 1-23  
1952 1-23B  
1952 1-23C (a work in progress on its trailer)  
1964 1-26B

## **Ross, Harland**

RS-1 Zanonía (on display at the National Soaring Museum)

## **Bowlus**

1939 BA-100 Baby Albatross

## **EON**

1948 Olympia II B

## **Focke-Wulf**

1952 Kranich III

## **Franklin**

1931 PS-2 (on display at the National Soaring Museum)

## **Morelli**

1963 M100S

## **Scheibe**

1959 Zugvogel III A  
1960 Bergfalke II/55  
1976 Bergfalke IV

## **Slingsby**

1951 T-21B Sedbergh  
1969 T-53B

## **Homebuilt**

1966 Cherokee II RM  
1934 Hütter 17

## **Classics**

1969 Bolkow Phoebus C  
1974 Glasflugel Libelle 201B

The pilots at IVSM 2012 were able to fly on seven consecutive days off of the Harris Hill field adjoining the National Soaring Museum outside of Elmira, NY. There were flights that reached silver altitude gain, silver distance and beyond, and goal duration of five hours. These all qualified for a VSA Soaring Achievement Coin. The weather for the week was generally dry and with temperatures slightly above normal, but far less than the weather in Kansas and the rest of the Midwest.

While single-seat sailplanes flew long and far, two-place gliders were also popular with pilots that were not able to bring their own glider. Flights in these were often within ten miles of the field, but allowed everyone a chance to get into the air. These gliders were often near the top of a gaggle and for those with a photographic interest, they provided an opportunity to get in-flight pictures. Burt Compton from Marfa, TX made over 30 flights in his ASK-13, often with the local Harris Hill youth members. The TG-2, T-21B, and T-53 in military

IVSM cont.

colors, and the Kranich, Bergfalke, ASK-13s, and Ka2B (that was recently repaired, restored, and returned to service after a trairling incident) were all busy providing rides and stick time to many.

We were fortunate to have guests from Europe in attendance, including Nick Newton (Vintage Glider Club (VGC) President and Board Member), Bruce Stephenson (VGC Secretary), Vincenzo Pedrielli (VGC Coordinator for Italy), and Jörg Ziller (from Germany). Jörg and his sister Barbara Harding presented a beautiful ceremonial cowbell to the VSA to be used at VSA meets for ringing at the opening and closing ceremonies.

Presentations of Historical interest were scheduled each morning.

Our European friends all helped out. Nick gave a welcome from the VGC, Bruce made a presentation on Gliding in the Wenlock Olympian Games, Vincenzo gave a presentation the Pioneers of Italian Gliding, and Jörg talked about the Akafliugs (Academic Flying Groups) in Germany and their influence on soaring. In addition,



Cherokee RM N10124, Sister ship to YYY

we had presentations by Dr. Walter Cannon on Health and Pilot Physiology, by Bill Batesole (in lieu of Dave Raspert who, on short notice, could not attend) on John Robinson and the Zanonja glider, and by Walter Klemperer on his father Dr. Wolfgang Klemperer (who was one of the pioneers of glider design). Locals, Kyle Schweizer and Phil Wescott made a presentation on the 1952 World competition. This was the 60<sup>th</sup> anniversary of the first world event to which the USA sent an organized team. This team consisted of Dick Johnson with his RJ-5, Paul Schweizer with a 1-23C, Paul McCready with a 1-23B, Stan Smith with a 1-21, and Bill Beuby and Shelly Charles with a rented Kranich II. All of the single seat gliders from that contest were on Harris Hill for the 2012 IVSM. Rusty Lowry prepared a presentation on Flight Operations at the SOARING100 Event last October on the Outer



Baby Bowlus

Banks of North Carolina. Rusty was delayed in his arrival time, so Jim Short gave the presentation. The next day Rusty presented the VSA Soaring Achievement coins to those who had earned them at this year's events at Chilhowee and Lawrenceville. On Saturday Simine Short gave the final presentation on 100 Years Ago: How Soaring Started around the World.

In addition to the flying activities on Harris Hill, we also had dinner events at the adjoining Youth Camp on three evenings. Another evening we visited the nearby Glenn Curtiss Museum in Hammond sport, NY. We were all able to see Christian Buck standing at an airstrip south of the museum a mile or so, waiting for his 1-23 trailer. After the museum tour, most of the group went to dinner at a small restaurant on the west side of Lake Keuka. Another traveling evening event was a dinner cruise on Lake Seneca starting from Watkins Glen. The big evening event was a casual tour and dinner at K&L Soaring on Tuesday evening. Les & Kyle Schweizer were very gracious to host everyone at their shop a few miles north of Elmira. We were able to see how the heritage of the Schweizer gliders is being maintained into the future. They can provide anything that is needed to keep a Schweizer glider in tiptop condition.



Robert found time to visit the race track

Although there were many good flights during the week, we did have a few incidents. The limited drag devices on the Cherokee RM made for a couple of overruns on landing, but with no damage to glider or pilot or bystanders. We did have two other incidents on landing, one with a Ka6CR and one with the EON Olympia that resulted in breakages of the aft fuselage just behind the wings. In both cases the pilots were uninjured. We are especially thankful for that and we remain hopeful that these two gliders will be repaired and returned to service.

# August/September 2012 Duty Schedule

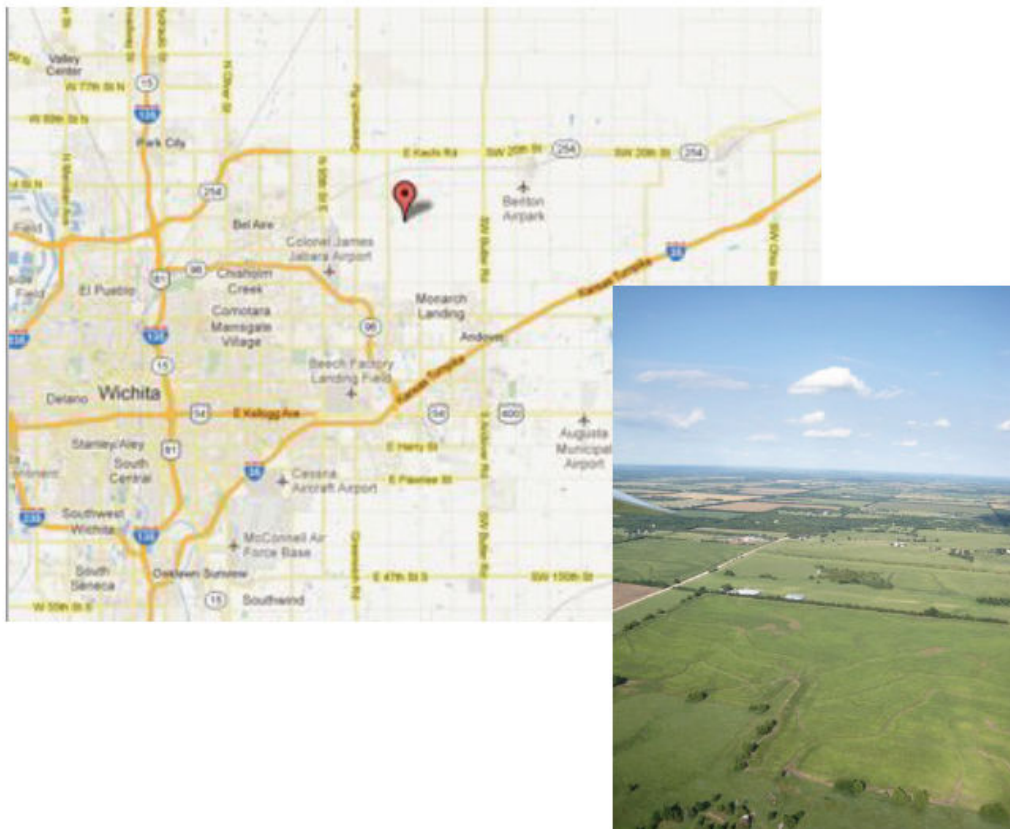
For complete schedule, see May 2012 *Variometer* and <http://my.calendars.net/ksa>  
 Sub List: Rich Stone (LLM) 612-2008, Frank O'Donnell (CFIG, Tow Pilot) 316-788-3224

Sat Aug 4	Bob Hall 636-4218	Anthony Geide Scott Dimmick 733-5678	
Sun Aug 5	Brian Bird 636-4218	Jerome Martin 620-259-7827	Lauren Rezac 619-3207
<b>Sat Aug 11</b> Cookout	Mark Ross 636-4218	Bob Blanton 683-9759 Keith Smith 785-643-6817	Brian Bird 636-4218
Sun Aug 12		Bob Hinson 841-5561 David Kennedy 841-2912	
Sat Aug 18	Chris Swan 513-410-2418	Ron Blum 295-7812 Jeff Beam 620-441-8116	
Sun Aug 19	Dave Stanko 393-6249	Ray Girardo 942-0638 John Peters 620-367-3711	Andrew Peters 636-4218
Sat Aug 25	Jack Seltman 636-4218	Neal Pfeiffer 686-4306 Jim Taulman 913-837-0062	David Stanko 393-6249
Sun Aug 26	Rafael Soldan 706-255-9909	Harry Clayton 644-9117 Jerry Boone 620-662-5330	
Sat Sep 1	Mike Westemier 729-2551	Jared Bixenman Doug Wilson 733-6484	Brian Bird 636-4218
Sun Sep 2		Dave Woody David Kennedy	
<u>Mon Sep 3</u> Labor Day	Lauren Rezac 619-3207	Richard Boone	
<b>Sat Sep 8</b> Cookout	Bernie Mohr 733-4524	Steve Leonard 249-7248 Kevin Ganoung 785-536-4540	Lauren Rezac 619-3207
Sun Sep 9		Jared Bixenman Mike Davis 772-8535	
Sat Sep 15	Jack Seltman 636-4218	Ron Blum 295-7812 David Wilkus 788-0932	Mike Westemier 729-2551
Sun Sep 16	Tony Condon 515-291-0089	Leah Condon 249-3535 Matt Gonitzke 815-980-6944	
Sat Sep 22	KC Alexander 943-7641	John Baldessari Bob Hinson 841-5561	Tony Condon 515-291-0089
Sun Sep 23	KC Alexander 943-7641	David Kennedy 841-2912 Scott Dimmick 733-5678	
Sat Sep 29	Chris Swan 513-410-2418	Jeff Beam 620-441-8116 Jared Bixenman	Andrew Peters 636-4218
Sun Sep 30	Mark Ross 636-4218	Ray Girardo 942-0638 Mike Logback 620-241-8486	



The 7th Great Plains  
Vintage/Classic Sailplane Regatta  
September 27-30, 2012  
With cooperation from  
The Vintage Sailplane Association &  
The Kansas Soaring Association  
at  
Wichita Gliderport (37.765 N, 97.180 W)  
Just NE of Wichita, Kansas

*Come join the fun, show off & fly your vintage/  
Classic glider.  
Limited hangar space available, call!*



Contact: Neal Pfeiffer (316) 686-4306 [nealpfeiffer@sbcglobal.net](mailto:nealpfeiffer@sbcglobal.net)  
or Tony Condon (515) 291-0089 [abcondon@gmail.com](mailto:abcondon@gmail.com)  
or Harry Clayton (316) 744-2389 [hclayton@pixius.net](mailto:hclayton@pixius.net)

### *Wichita Gliderport*

- *2600' & 4000' grass*
- *2000' tows are \$20*
- *Limited hangar space*
- *Some camping at field*
- *Close to motels*
- *Close to restaurants*
- *Schweizer 2-33 two-place glider for rent*



*Lunch options available at airport  
Cookouts or local restaurants for dinner*

*Informal Soaring Seminar on Saturday Morning  
Starting at 10:00 AM*

*Tell us you're coming & what glider  
you're bringing!!!  
If you can't bring a ship,  
just come and have fun.*

*Motels: Search [maps.google.com](https://www.google.com/maps) for 'Motels East Wichita, KS'*

*start along North Greenwich Road or Webb Road down to US 54 / 400*

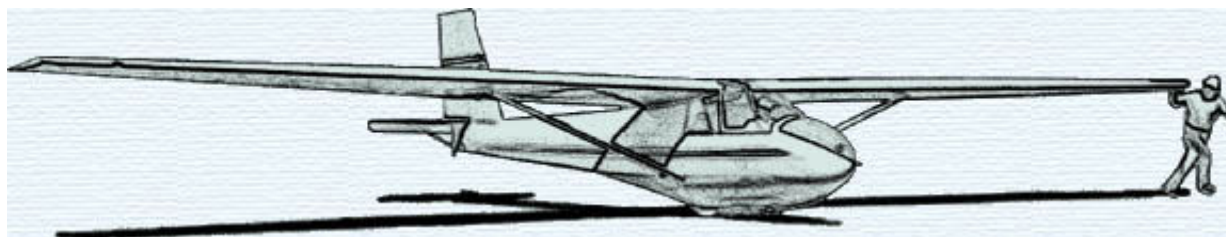
<p style="text-align: center;">KSA TOWCARD</p> <p>TOW NUMBER    START TACH TIME</p> <p>_____</p> <p>TOW PILOT _____</p>	<p style="text-align: center;">KSA TOWCARD</p> <p>TOW NUMBER    START TACH TIME</p> <p>_____</p> <p>TOW PILOT _____</p>
<p>PILOT _____</p> <p>ADDRESS _____</p> <p>_____</p> <p>SAILPLANE _____</p> <p>TOW HEIGHT _____</p> <p>TOW SPEED (MPH) _____</p> <p>DATE _____</p>	<p>PILOT _____</p> <p>ADDRESS _____</p> <p>_____</p> <p>SAILPLANE _____</p> <p>TOW HEIGHT _____</p> <p>TOW SPEED (MPH) _____</p> <p>DATE _____</p>
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KSA VARIOMETER

911 N Gilman

Wichita, KS 67203

abcondon@gmail.com



## **MONTHLY KSA MEETING**

**Cookout at Sunflower**

**Saturday August 11<sup>th</sup>, 2012**

**Grill lights by 5:30 PM**

**Meat provided by KSA, bring a side dish to share!**