

Twenty-Nine Palms Winchfest - Add an “E” for Exhilaration!

By Flieger Hucksfeder



Interest in winch launching is growing rapidly in SoCal. With the innovation of plasma rope adopted by multiple clubs in Region 12, it seemed timely to run an event gathering as many winch enthusiasts together to compare and learn from each others experiences. The goal was to share between clubs and experts skills, equipment, and resources, as a first step towards establishing “best practices”. Thus over the Memorial Day week, the Twenty-Nine Palms Soaring Club, Associated Glider Club of Southern California, Orange County Soaring Association, and Los Alamitos Civil Air Patrol Wing 41 all put their heads and efforts together over two back to back weekends in 29 Palms. The time we had is exemplified by the following comments:

“The weekend was great! Should have done it years ago. Winch launches are about the cheapest thrill ride you can get in a glider – and you still get to go soaring after the launch!” – Bruce Markovich

“Damn, I never had so much fun with my clothes on.” – Jeff Donoho

“I had a great time...and learned a lot. Climbing at 40 degrees, nose up in a hard crosswind will make your thing sing. On Saturday night, after we were all dead tired, the BBQ was great and exactly what we needed to get us back to life. What a great bunch of people.” – Dick Stevens

“The more tools you are able to transfer to a student, the more you enable, empower and have a direct cause over the safety of their flying career.” - Harold Katinszky

“The helpfulness of the other two more experienced winch launching clubs was outstanding! What a great group of glider pilots and winch drivers. Everybody helped everyone!!!” – Mary Rust

*“All the great food – thanks to the crew support – and the startling amount of drinking water that went through the cooler. The group support was incredible.”
– Sam Brown*

“Great plan, very well executed.” – Ed Slater

“Just how green is a typical winch when compared to an aerotow? Roughly ten times. Even though our winches were painted bright yellow, if you look closely they are really very green.” – Rolf Shulze

“It’s given me a lot of food for thought. I’m already plotting out a scheme to get a winch going up here in the short term...” – Marc Ramsey

At the Twenty-nine Palms Winchfest, multiple winchlines were set up. For most of us this was a first. Sometimes in parallel to increase launch capacity, other times on a crosswind runway to anticipate changes in wind direction. The glider staging area was kept centralized to aid in communication and control. Twenty-three pilots were registered to fly, six pilots received their ground launch endorsements. Over 150 launches were recorded. Several flights were 4+ hours and engaged in cross-country from the Joshua Tree National Park to Mt San Gregonio. Instructional flights were the bulk of the launches and generally were intentionally terminated early to maximize the launch phase of instruction.



A resurgence of winch launching in the USA is now underway. Isolated groups have linked up via the internet and a rapid exchange of ideas is driving enthusiasm and practice. Since the 1950’s, the last time winches were popular in the USA, new technologies and safety practices have evolved. Most of these developments have occurred in Europe where the winch launch has remained popular.

So first of all- add an “**E** for **Ex**hilaration” to your pre-flight checklist. The most noticeable difference is the acceleration at launch. Much faster off the dime than either an aerotow or car launch. The first time comes as a surprise to even the most prepared. If the pilot is not distracted, a distinct advantage of rapidly gaining control authority is achieved. Would you consider getting catapulted solo off the end of an aircraft carrier without instruction? Bottom line: Get instruction!

OK, it's fun, so what is driving this resurgence? Obvious factors combine to create the tipping point: plasma rope, rising aero tow costs, old available somewhat adaptable winch equipment, modern sailplane performance, and the search for fun club activities. With experience in the winch launch process, additional subtle advantages become apparent.

Without question the #1 driver is the development of "plasma rope", aka Amsteel or Dyneema. This product is revolutionary. It has reduced the weight of the tow line significantly; extended the useful life of the line, increasing the height of the launch, minimized the danger from the line falling onto power wires/ground structures/aircraft and lessened the energy contained in a broken line should it lash out and hit a bystander.

Additional drivers are the increased cost of gas and insurance now being passed onto towplane operations. In SoCal a commercial tow to 3,000 ft now costs around \$63. At this price point the aero tow operators are struggling to maintain volume as pilots get choosy about when and how often they will fly. For the price of one aero tow, a pilot could have had 4-6 winch launches.



Third is the (apparently) easy modification of old winch equipment to the new plasma rope. The USA actually has many winches, perhaps not the most modern, sitting gathering rust in the weed fields of glider ports. These winches are being rebuilt, tuned up, modified, and are now demonstrating the basic proof of concept of the plasma rope. Nevertheless these upgrades to old equipment do not bring them up to "world class". The introduction of modern equipment is expected to be seen next year in America. Hydrolytic power transfer, sophisticated sensors, computer controls, multiple drums, and air-conditioned comfort are in the pipeline. If you are interested in a discussion on future developments or have questions about this article, peruse the archives of the Winchdesign group on Yahoo!

Fourth is the fundamental improvement in performance of our sailplanes. In the 1950's, we had 20 to 1 ships towed by heavy steel cable. Combined they near guaranteed a pattern flight. Good for training students but not much else. Our current modern 40 to 1 fleet combines with higher plasma rope launches to produce a greater likelihood of a soaring flight.

Fifth, many soaring enthusiasts desire a "community" atmosphere. Indeed this is desperately needed to grow the sport. We hear soaring competitors and their crews bemoaning of the "loss of the gate" and the "low finish". There is still excitement for the spectator in winch launching. It takes a group to winch launch a sailplane. Each winch launch is an "event" which captures all eyes on the field. Soaring has lost a lot of group



camaraderie and winching brings it back. It invites inter-club activity. Everyone helps everyone. Sometimes the old ways have their charm!



Now to take that idea a step farther, consider winch launching as a “spectator sport”. In Europe open air flight-line restaurants cater to a non-flying crowd who come out just to watch the action close up. Versus an aerotow - the quietness, nearness, and lack of dust possible with the winch makes this 40 degree spectator visual experience very pleasurable, indeed almost magical. The profitability from the restaurant helps

support the soaring “entertainment”. Hmmmmm...

The last reason to note is the “environment” and our sport’s relation to it. The world is rightfully so becoming very conscious of environmental issues. Being seen as environmentally responsible is very important to the younger generation. Activities are being segregated in people’s minds as “green” or “not green”. There are those who would join soaring if they knew how environmentally benign our sport truly is *and* there are political forces out there who are currently wrongly lumping soaring in with the gas-guzzling nesting-bird-scaring dark forces of heavy aviation. We need to trumpet the image of soaring as “the green aviation exception”. Winches are a part of this dynamic.

What’s holding back the implementation of winching in the USA? Apparent hurdles for progress are the lack of modern standardized SSA approved safety procedures, experimental upgrades on our old winches, resistance by airport managers and towplane operators, the need for mentoring new winch masters, a critical mass of signed off and current ground launch pilots, and the general low recognition of the high level of “team cohesion” required for efficient safe operation. Having quality equipment and current operational experience is important to avoid frustration and maintain safety. It is significantly different from auto tow and more complicated than aerotow. The weak link in the chain will be tested. All issues can be overcome with a conscious effort.



American winching is now at a crossroads as far as safety and acceptance. Half we’ve forgotten and the other half is brand new. The rest of the world has been honing its expertise and the USA is just now emerging from the 1950s. Isolated groups may be attempting to learn by trial and error and may scuttle the momentum via creating a

negative insurance loss experience. Better we arrive quickly at “best practices” from both domestic and international experience and codify them into an updated “SSA Method”. This information is available; we just need to get ahead of the curve.

So what did we learn at the 29 Palms Winchfest? Everyone said they picked up something, be they experts or novice. The morning pilot meetings often brought spirited discussion.

- **Training is landing options is not optional**

Nearly all student pilots had a premature rope break to deal with due to weaklinks, winch slowdowns, and line breaks. Training in the landing options was covered extensively on the chalkboard and repeated every morning. The BGA’s brochure “Safe Winch Launching” was provided to all students and reviewed.

- **An experienced winch operator is critical**

A prematurely terminated launch brought on a discussion which led to an improvement in understanding of contribution of winch power adjustments to a premature termination of a launch. Some thought that it should be backed off before or simultaneous with rotation. Depending on the horsepower of the winch, generally power is taken back a notch after the glider accelerates after rotation. This is part of the “art” an experienced Winchmaster who knows his equipment can offer the apprentice winch operator.

- **The urge to reach for maximum altitude should not be emphasized**

The urge to compete for maximum launch altitude led to a temptation of dangerous early rotations, over the top releases, and overstressing of the glider. It’s important to avoid making a contest out of “how high I got”. The most common result of the “altitude contest” is dangerous early rotation. There is near universal agreement that rotation should be progressive thru 200 ft. An early rotation exposes the pilot to a nose high attitude when its most likely the winch motor will cough or the towline will break. The pilot can’t tell the difference between an cough and a break and if the nose is too high a moment of hesitation is disastrous. At low altitude the options for recovery are minimal. 1500-1800 foot launches were common with 3500 ft winch lines. At \$10-15 a launch it’s OK to take a few! Every winch at Winchfest had 6,000 feet of line but after we started no one talked seriously about using it. We all had hooked thermals and were off soaring.

- **Awareness of the situation of “overspeeding” needs to be taught**

“Overspeeding” is a rarely imagined but fairly common situation which needs to be covered with students. The situation occurs when the winch over revs at the initial phase of launch generally caused by the pilot delaying rotation and thus not putting a load on the winch motor. The glider exceeds V_w and is rapidly drawn toward the

winch while gaining minimal altitude. If the pilot freezes trying to ride out the situation and does not release in the initial launch phase (which is really all they need to do), then as the glider nears the winch the downward pull of the line increases and a dramatic further increase in speed can occur. The result is the glider overruns the winch while being pulled nose down. *Gulp!* You will not experience as quick or severe a situation in an auto tow.

Between “early rotation” and “overspeeding” is the pilot’s artful “Goldilocks just right” launch.

- **Review your weaklinks and be sure they are up-to-date**

All clubs showed a substantial increase in sophistication in their launch hardware (shakles, weak links, and safety cables) at Winchfest. Various discussions between the club Winchmasters will result in further improvements in the next round of winch activities in SoCal. The hardware at the aircraft end of the line is one area of discussion.

Various types of weaklinks were evident. Shielded and unshielded TOST tests definitely showed the value of shielding as the cable/parachute will twist an unshielded TOST weaklink leading to a premature weaklink failure. Others were using graded poly rope, tested for failure based in the glider weight. While everything worked, this variation in approach begs the question of what should be the USA standard?

Everyone saw the benefit of using a “safety cable/snake” so expect these as SOP. Easy to construct from garden hose covering 10 feet of 3/16 braided wire, set near the Tost link they prevent the cable from being caught up in the landing gear on takeoff.

- **Invest in an appropriate parachute for ground launch**

All winches used parachutes with variation in whether the tow load was passed thru the parachute shroud lines or transferred onto a parallel steel cable. The use of the shroud lines appeared to work better, less adjustments and the fully collapsed chute was less likely to kick up gravel. Note the parachutes thus used had heavy strapping as shroud lines. Suitable parachutes are available on the surplus market and appear to be originally designed as drogue chutes for military aircraft (note these do not come from our personal emergency parachutes).

- **Communications are critical and cannot confound**

With the distances between ship and winch that are now possible, the debate over using visual vs. electronic communication between the winch and the launch appears to be over. Electronic is the only way possible. The distances are getting too far for

traditional visual signals to be effective. Communications must be bulletproof. A strict procedure for isolating the winch/flightline ops frequency from other operations must be enforced. Handheld VHF radios are not up to the task both due to limited antenna height and battery failures at the end of the day. The radios in the gliders when sitting on the ground are just as sketchy and should not be considered functional until the glider is 20 feet off the ground. A 10 foot high base antenna is required at either (if not both) ends of the line. The “flight line boss” must have the best radio and be the only one communicating with the winch and in control of the launch end of the line start. Mixed up, garbled, stepped-on, non-standard communications are frustrating at best and at worst dangerous.

Issues arose when two separate club winches were operating in two separate directions with communication and coordination being confused with two lines and two winch attempting operation simultaneously. It can be done, but everyone needs to understand the potential for conflict and one winch must “stand down” with absolute radio silence while the other operates. Test your system, the secure communication link between winch and line boss is critical.

- **You should not try to learn winch launching alone, get help!**

Operating the winch is a skill which should not be learned in isolation. The combination of novice winch operator with novice winch pilot is extremely dangerous. Running a winch is ultimately an “art” for which an experienced guide is needed to learn safely and quickly. Get help. More work on developing training curricula for winch operators needs to be investigated. The risk of attempting to be self taught is high to your friends. One club at Winchfest had observed more than seven different winch operations before it started its own winch operation.



As the comments at the beginning of this article related, the Twenty-nine Palms Winchfest was fun and an interesting learning experience for all who attended. The fantastic soaring conditions made the event very satisfying for pilots. A new set of pilots were “signed off” for ground launch and are now eager to use their skills. The gathering of clubs provided the opportunity for a social event on a scale not generally seen in soaring except at competitions, conventions, and vintage meets. The exchange of ideas will benefit the future success and safety of all winch operations on the West Coast. All

clubs came out of Winchfest encouraged to take and invest in the next steps to improve their operations.

Where will the next Winchfest be held? Winch and ground launch operations are all around in Region 12, you just have to look to the clubs!

At this year's BITS meeting one very accomplished pilot asked after a winch presentation "where is anybody in Region12 actually doing a ground launch operation?" Well...operations continue at 29 Palms Soaring Club most Sundays. AGCSC is planning a Winch Clinic at Warner Springs. OCSA wants to expand its twice yearly dry lake operations. There are rumors of start-up operations in other locations. And the CAP has never let up at Los Alamitos.

Enjoy a change, it's a real "back to the future" experience!

Flieger Hucksfeder