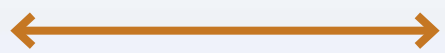


A Digital Publication of the
United States Hang Gliding & Paragliding Association

Preflight Safety for HANG GLIDING





Swipe to see Paul Voight's view high over the Yosemite Valley.

HOST | Paul Voight Making this safety film was a fun, challenging project. It was scripted to be timeless, and to send a message that hooking-in is critical. Demonstrating the specific mechanics of every style or method of safety check used by hang glider pilots around the world was obviously not the goal.

I'm happy with the result, and I really enjoyed working with all the folks who helped with the project. New friendships were born and old ones revitalized.

DIRECTOR | Greg Gillam We couldn't have made this digital publication without the help of the gracious volunteers listed in the credits. Their personalities and contributions brought the concept to life. Thank you all.

Yes, hang gliding and paragliding involve certain risks. But as with scuba diving, skiing, and other outdoor activities, adventurous souls are free to progress at their own pace. We can err on the side of caution, while we develop the skills and good judgment that help us safely explore the sky.

Thank you for lending us a little space on your iPad. Please leave your feedback in the App Store. Your comments and insights are appreciated. 🇺🇸



CHAPTERS

10 minutes

Introduction

Hosted by Paul Voight

Assessing the Site

Produced by the US Hang Gliding & Paragliding Association

Written by Greg Gillam & Paul Voight

Initial Weather Check

USHPA regional director and hang gliding school owner Paul Voight walks you through the obvious and not-so-obvious steps of making sure you are ready to fly.

Head Check

Preflighting the Glider

Harness Inspection

Hang Check

Credits



METHODS OF HOOKING IN



Photo by Tyler Gross



METHODS OF HOOKING IN

Illustrated by James Tibbs

Preflight Safety for Hang Gliding doesn't attempt to show every detail of how to preflight a glider or every step in making sure you're ready to fly. The film is meant to encourage renewed focus on preflight safety and highlight some areas that are easily overlooked. Your instructor is the best source for developing a specific system that works for you. We encourage you to watch this film with him or her and discuss how your specific routine differs and why.

The film places special emphasis on hooking in. A simple check is all that is required to prevent launching without being hooked in, which has consequences that are as dire as they get.

When it comes to hooking in, we've found there are two dominant schools of thought. It is common in the US for a pilot to put on their harness, make sure all is well, hook in to the glider, and then conduct a hang check. Another approach, commonly referred to as the "Australian system", has the pilot hooking the harness to the glider first, then climbing in and

Common Method

Australian Method

Touch the numbers to step through a launch routine and compare methods.



checking that all is well before conducting the hang check.

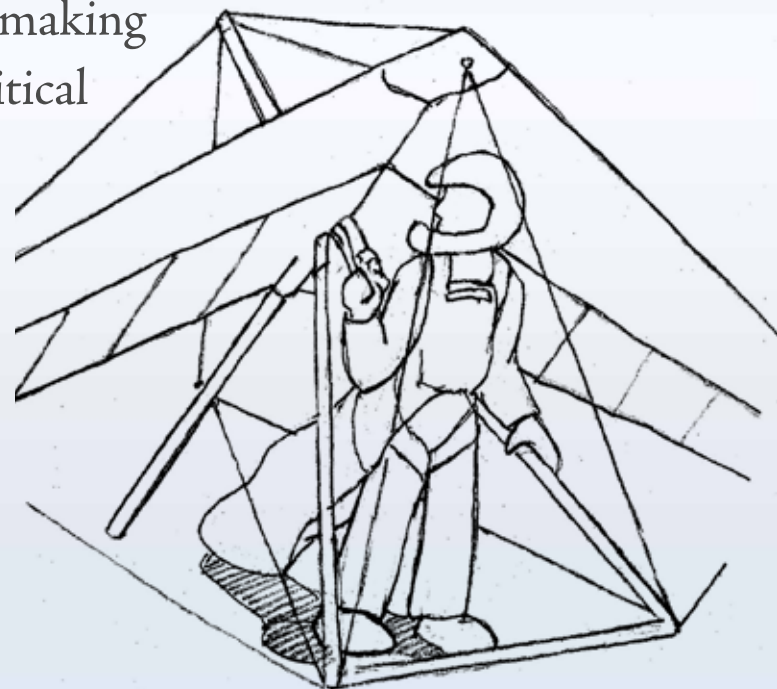
The approach that's right for you will depend on which method your instructor believes is best. As you progress in your flying career you may decide to switch your approach, or mix it up in some way. In fact, instructor Rob McKenzie encourages this sort of thinking (see video).

Either way, once you've performed a hang check and are ready to launch, if there is any delay whatsoever you must re-check that you are hooked in. If your launch is delayed considerably you may want to get some assistance and do another hang check.

Instructor Joe Greblo believes in a rigorous additional step called the "Hook-In Check" (see video).

A hook-in check is something you do every time you are about to launch. Set the glider on the ground and visually confirm that you are still hooked in. Another way to do a hook-in check is to lift the glider until you feel the harness straps tug upward on your body. If you don't launch immediately thereafter, you should do a hook-in check again when you are about to launch.

No matter how you do it, making sure you are hooked in is a critical step in your preflight routine that requires discipline. Discuss hooking in with your instructor, and never let distractions interfere with your preflight checks and routines. 🇺🇸



[top] Rob McKenzie of High Adventure talks about mixing up your launch routine. **[bottom]** Joe Greblo of Windsports stresses the importance of additional hook in checks. **[right]** Performing the hook-in check.



STARRING
**ERIKA
KLEIN**



STARRING ERIKA KLEIN

Interview by Greg Gillam



ERIKA KLEIN, a 20-year-old pilot and college student from Southern California, volunteered to play the role of “Student” in *Preflight Safety for Hang Gliding*. But her elegant soaring technique along the small dune ridge at Dockweiler Beach makes it immediately clear to any pilot that she’s no beginner.

Erika, what were your impressions about the safety of hang gliding before you became a pilot?

ERIKA : I started wanting to fly when I was 12, so I probably wasn’t as concerned about safety at that point as I should have been. But when I was 16, I did a lot of research so I could write a high school paper on hang gliding. I knew it wasn’t a completely safe sport, but I did discover how it has progressed over the years from when it started. People used to jump off of cliffs with gliders built from bamboo and plastic! Now the national organization, the United States Hang Gliding and Paragliding Association (USHPA), and USHPA certified instructors implement a strict training and certification process. Hang glider technology has come a long, long way as well.

I think the public was most aware of hang gliding in the ‘70s because that’s when it first started. It was a new thing. But pilots weren’t trained and they were using home-made equipment. It earned a widespread reputation as a really dangerous sport and that has lasted until the present day. The public has never really

Tap to Listen

How I got into hang gliding

Erika wanted to fly since sixth grade, when she made a hang glider model with a coat hanger and a T-shirt. She convinced her parents to let her get off the ground as a teenager.



“ I still don’t consider hang gliding a safe sport,
but it’s a far different sport than it used to be.”

been updated on how safety in the sport has progressed tremendously.

I still don’t consider hang gliding a safe sport, but it’s a far different sport than it used to be. I’ve had friends who play soccer break many bones and end up in the hospital for weeks, while I have yet to break anything hang gliding. That doesn’t mean it won’t happen, but it does show that anything can be dangerous. Unfortunately, because hang gliding is not as new as it was back in the ‘70s, it’s not in the public focus anymore, and its

outdated reputation persists.

Now that you are a pilot, how have your feelings about the safety of the sport evolved?

ERIKA : As a pilot I have more personal experiences in the sport, obviously. I’ve observed that many of the accidents and deaths are from aerobatics, which gliders aren’t designed to do anyway. But people still do it and that can result in accidents.

I’ve had a few scary experiences myself. I think it’s really important to understand that no matter what we do as pilots, we can’t avoid all accidents because we fly in the air, and the air and the weather can be unpredictable. But much of the time, incidents can be attributed to pilot error – errors that compound on each other. If you make one error, you might be OK. But if you make two or three, that’s when a bad accident can occur. I try to minimize errors. I’m very selective about which days to fly on.



Swipe to see snapshots
of the girl who would
one day be a pilot.

Tap to Listen

Telling people all about it

All hang glider pilots answer questions about the sport. Listen to how Erika responds to her friends’ inquiries and concerns.





[above] One of Erika's early launches. Windsports instructor Andy Beem runs alongside for support | photo by Cyndia Zumpft-Klein.

Tap to Listen

Watching other pilots

Erika puts emphasis on watching other pilots on launch to see how they are handling the conditions and how she takes that into consideration before deciding to fly.

What are some general principles you stick to in order to stay safe?

ERIKA : One of the main things I think about is how comfortable I am. By that I mean whether or not I've eaten properly, had enough sleep and feel good about the weather. And the people I'm flying with do make a difference. If all those things are in order, I'll feel good about flying. I'll feel safer. If some things are off, I may not feel ready and I'll decide not to fly that day.

The biggest issue is what's going on with the air—the flying conditions. If it's too windy and I can't control the glider, I won't fly. Other pilots' actions might worry me, too. One time I hiked up to launch—which was already tiring—and once I got there, one of the pilots ended up getting flipped over on launch by a gust. After seeing him turtle, I decided not to fly that day, despite the hike up, because too many things didn't feel right. I didn't feel comfortable or safe.

I also preflight my hang glider AND my equipment very carefully. It's easy not to pay enough attention to your harness and other equipment. The glider is obviously the main thing, but if your harness fails you could be in just as bad a position as if



something happens to the glider. You are completely dependent on your equipment when you're in the air and if something goes wrong, it's going to be difficult or impossible to fix it. Yes, we have reserve parachutes, but it's definitely better to do something about any potential problems before launching.

What kind of pilot do you want to be?

ERIKA : I want to have fun but stay safe. Staying safe really is the most important thing to me. There are many pilots who take risks, push themselves and end up doing fine, but I'd rather avoid that. Even if I progress more slowly, in the long run I'll hopefully be more comfortable flying and just be able to enjoy myself.

Near the beginning of my flying career, one of the pilots I was flying with didn't carefully look over his glider. His upper rigging wire got tangled around one of the battens. When he launched, it essentially caused his glider to enter a perpetual left turn. He was lucky. When he realized the problem, he went to land and was able to control it, but it could have been a bad situation. That underlined for me the importance of doing a proper preflight inspection.

What was your training experience like?

ERIKA : When I first started training, I stayed at Dockweiler Beach for a year because I wasn't 18 yet. The flight school's rule is to get a lot of experience training at the beach before progressing to the mountains. The beach is a great place to learn. I don't think you can call anything in hang gliding safe, but the beach would be the best candidate. My mom even told me that if she'd known about the beach training site before, she may have let me start flying when I was 14 or 15. It's just a great place to practice – to get really good at launches and landings. People

Tap to Listen

Forgetting to preflight

Erika recounts a scary experience when she forgot to preflight her glider, and what caused her to slip up.

Tap to Listen

My first time

Erika talks about her first flying experiences as a new student.



Erika works the dunes on a grey day at Dockweiler Beach in Los Angeles | photo by Hannah Birch.



“...when you get started hang gliding, they don’t just throw you off a cliff and expect you to fly.”

should understand that when you get started hang gliding, they don’t just throw you off a cliff and expect you to fly.

What is your routine prior to flying?

ERIKA : Once I have preflighted my equipment and am ready to fly, I hook in right before launch and follow a process called the 4 C’s. I check my chinstrap to make sure my helmet is on. I check my connections by doing a hang check, making sure I’m hooked into the glider and all the lines are straight. I also check my clearance to ensure that I’m hanging the right height above the base tube. The last C stands for crotch, which is a reminder to confirm that my legs are through both leg loops and I’m fully in the harness. After that, I know I’m good to go.

After hooking in, I ground-handle on launch for a bit, getting a feel for the conditions. If I’ve been standing on launch for a while without actually taking off, I check again to make sure I’m still hooked in, since last-minute adjustments can sometimes require disconnecting from the glider, and subsequent distractions can result in forgetting to hook back in. I set the glider down, look behind me, and make sure I’m hooked in. If I don’t launch within a minute or two after that, I will again set the glider down and make sure I’m hooked in – right before I launch.

Tap to Listen

My favorite flight

Like many pilots, Erika’s favorite flight isn’t necessarily her longest or highest. For Erika it’s the first time a new perspective on the world is revealed.

Tap to Listen

Sharing the experience

Erika talks about how hang gliding has changed her life and how much she loves being a part of the flying community.

Where do you go from here?

ERIKA : I’m going to keep on flying. My mom started hang gliding last year, too, so now I can fly with her. I’m also training to be an instructor. I think it’ll be a lot of fun to teach other new pilots. 🇺🇸

THE MODERN HANG GLIDER



Jeff Shapiro battens up the hatches on a Wills Wing glider in Yosemite | photo by Jeff O'Brien.





←→
Swipe the image to spin Colorado pilot Eric Austin's Wills Wing Sport 2 glider a full 360 degrees.

THE MODERN HANG GLIDER



[above] Bob McCaffery and Richard Eipper (USHPA pilot #00001) pose with an early Eipper Formance glider circa 1972.

MUCH HAS CHANGED since the 1970's when brave pioneers (some would call them crazy) were building their own hang gliders in garages with bamboo, plastic, and a prayer. The modern hang glider is a product of decades of research and testing by pilots and engineers. Today's gliders offer a myriad of well-developed features aimed at maximizing both performance and safety.

Modern hang gliders come in four basic flavors: single surface, double surface, "blades," and rigid wings. Single surface wings have exposed structural members and only one layer of sail fabric. Dual surface wings enclose the structure between two layers of sail, increasing performance by



[above] Jeff O'Brien shows off his double surface Wills Wing glider over Yosemite National Park.

eliminating drag and providing a more wing-like profile. Blades, unlike single and double surface wings, have no king post or upper rigging. These high performance wings are fast and sleek and are preferred by competition pilots. Rigid wings are like portable sailplanes, with the best performance of all hang gliders, but they also have the highest cost, weight, and complexity.

All gliders have a keel running down the middle that the pilot is suspended from, a control bar that the pilot holds on to while shifting their weight to control the glider, and various other structural members and cables that maintain the shape and integrity of the wings. 🇺🇸




VISUAL GLOSSARY



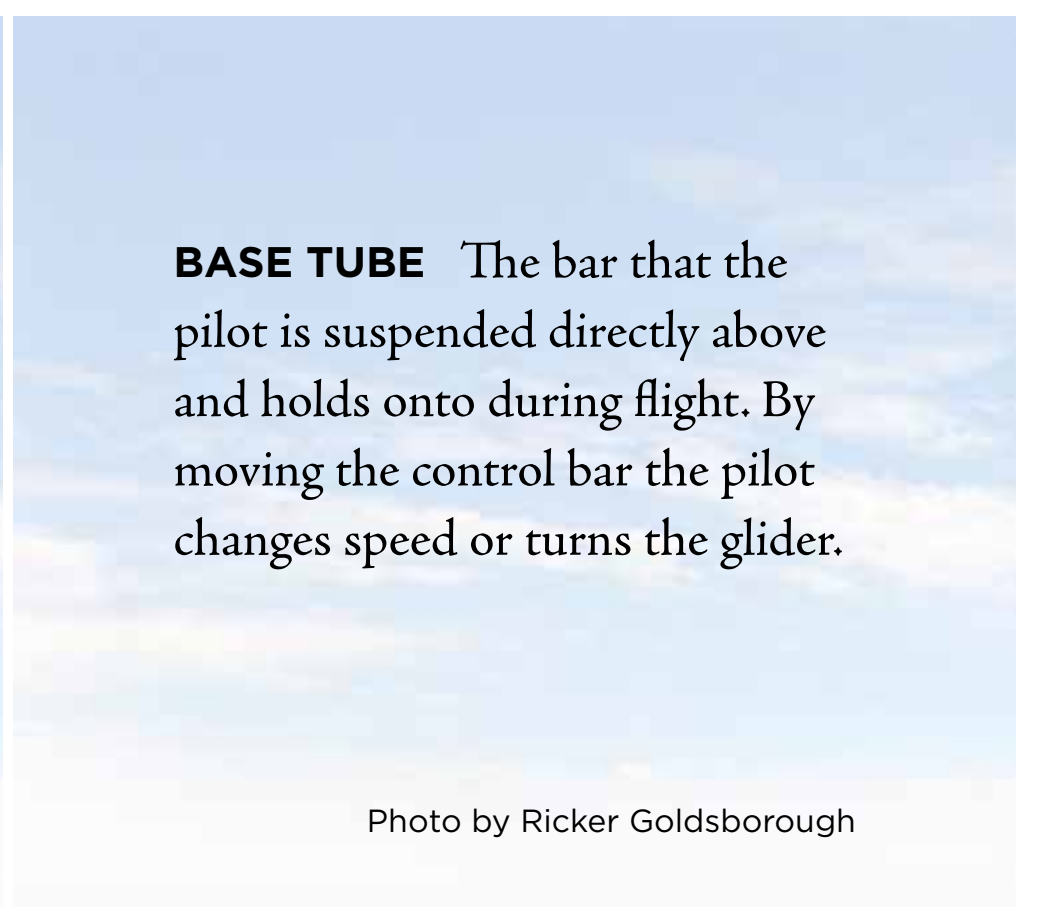
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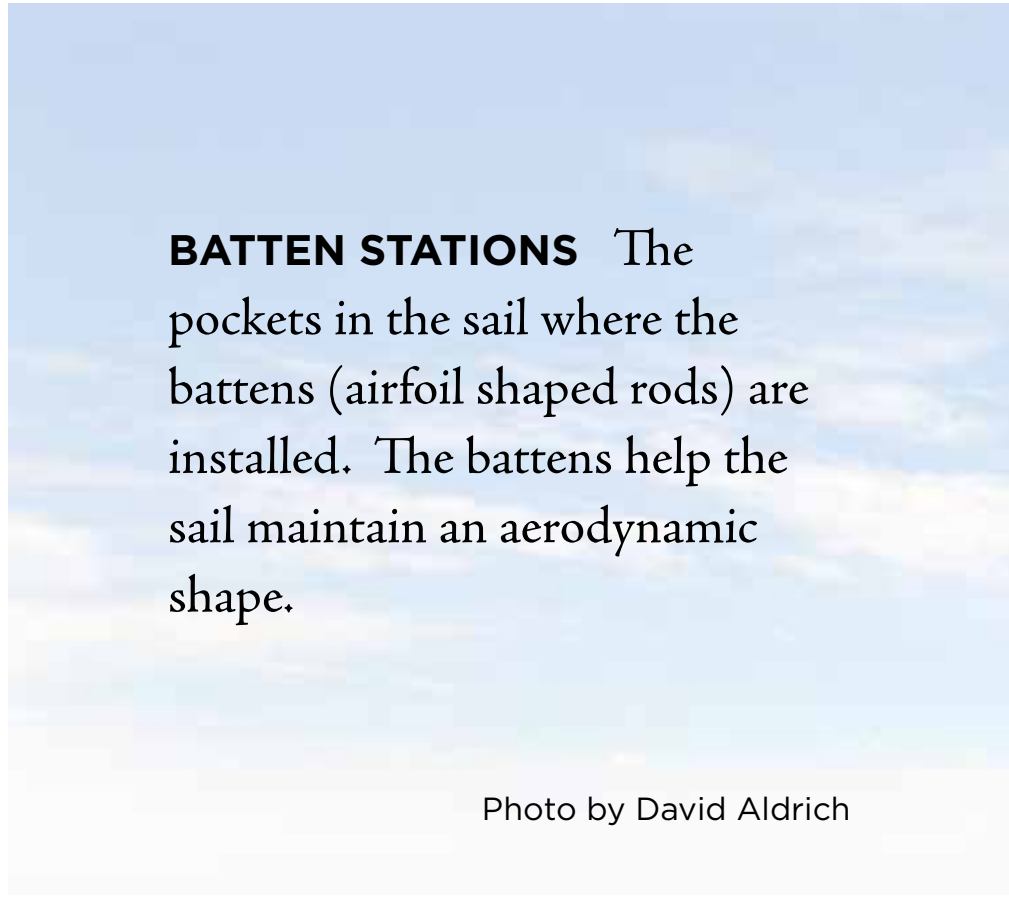
AEROBATICS Controlled in-flight maneuvers like loops, stalls and spins, that demand a high degree of expertise, specialized equipment, and a higher level of risk.

Photo by John Heiney



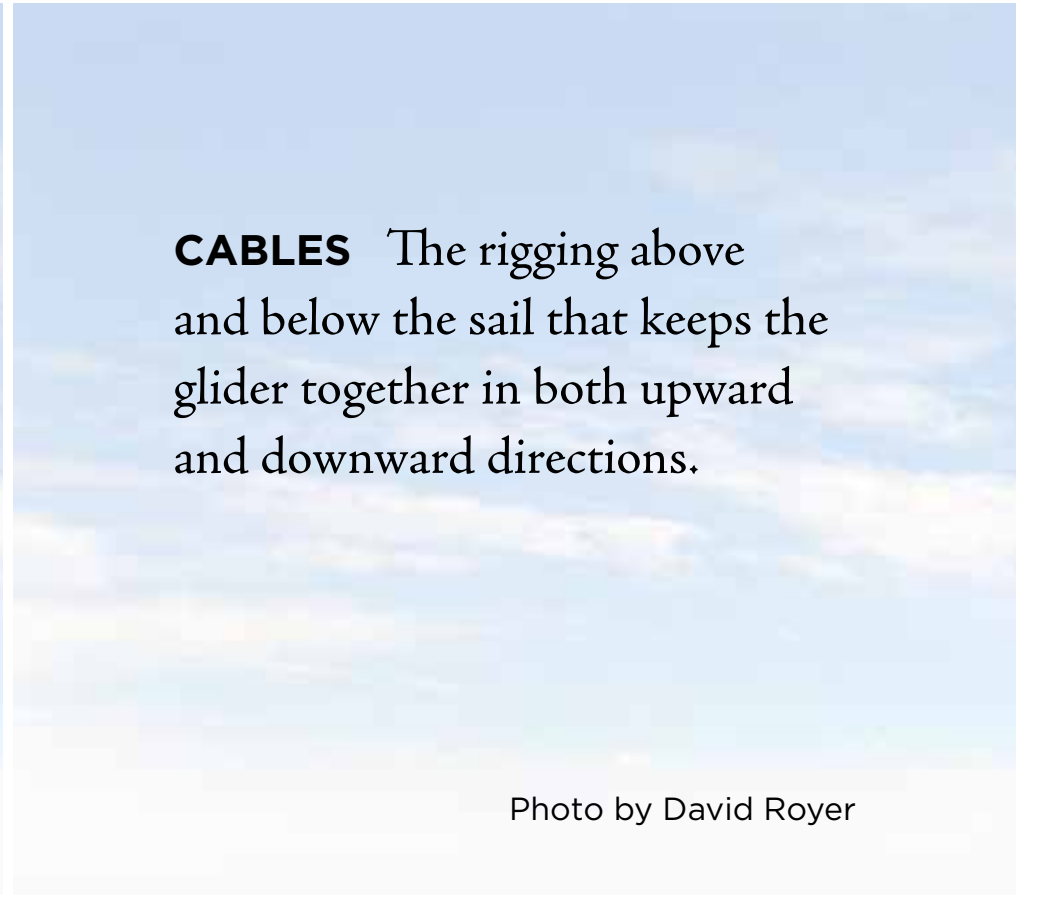
BASE TUBE The bar that the pilot is suspended directly above and holds onto during flight. By moving the control bar the pilot changes speed or turns the glider.

Photo by Ricker Goldsborough




BATTEN STATIONS The pockets in the sail where the battens (airfoil shaped rods) are installed. The battens help the sail maintain an aerodynamic shape.

Photo by David Aldrich




CABLES The rigging above and below the sail that keeps the glider together in both upward and downward directions.

Photo by David Royer




CANYON SUCK Canyons tend to collect cooler, sinking air that seeks low points in the landscape. This can create an area of descending air that may steal a significant amount of a pilot's altitude.

Photo by Jeff O'Brien



CARABINER The oval shaped metal clip that secures the harness to the glider. Most carabiners have a lock to prevent accidental opening.

Photo by Chris Cornbill



CHANGING WINDS While a site usually has an expected wind direction under certain conditions, weather patterns can cause winds to switch unexpectedly and repeatedly, changing the dynamics of a site.

Photo by Lisa Apsey

COASTAL SITE Sea cliffs, dunes and even small coastal hills act to push onshore airflow upward, creating a band of rising air that hang glider and paraglider pilots can use to stay aloft for hours at a time.

Photo by Chris Cornbill

CONDITIONS The weather and local atmospheric effects combine to create specific flying conditions. Understanding conditions is the key to making a good decision on whether or not to fly.

Photo by Greg Angsten

DOWNTUBE The tubes that run from the keel to the base tube or control bar. The downtubes along with the base tube form the lower triangle that the pilot uses to handle the glider.

Photo by Ian Theofilos

EMERGENCY LANDING When unable to glide all the way to a designated landing zone, or due to unforeseen circumstances, a pilot may have to look for other places to land.

Photo by Lisa Apsey

FINAL WEATHER CHECK Once the glider is set up, a pilot must re-check the weather to make sure conditions have not become too strong or trending in a bad direction.

Photo by Jeff Annetts



FUN What it's all about.

Photo by Jeff O'Brien

HANG CHECK (TEST HANG)

After hooking in it is critical that the pilot suspends from the glider as it sits on the ground to check distance above the control bar and confirm that they are actually hooked in.

Photo by Lauren Tjaden

HARNESS Pilots strap themselves into the harness and the harness is then hooked into the glider. Harnesses vary from basic training models to sleek, cocoon types for competition.

Photo by John Wright

HEAD CHECK Making sure you're mentally ready to fly.

Photo by Jamie Sheldon

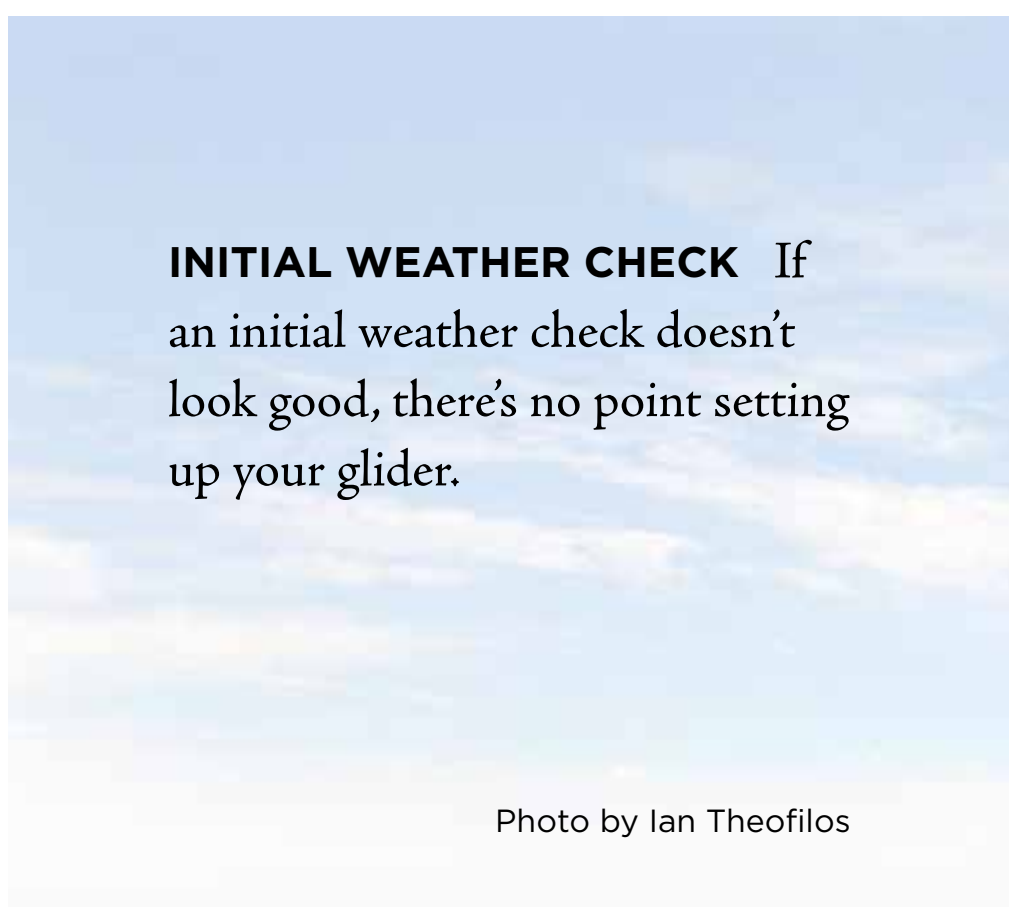
HOOKED IN When the pilot is in the harness and connected to the glider via the carabiner, he or she is "hooked in".

Photo by Jonathan Dietch

HOOK-IN CHECK Just prior to launch, but after the hang check, some pilots do a hook-in check—a visual confirmation that they are still hooked in, just to make sure. Highly recommended.


Photo by Dean Stratton






INITIAL WEATHER CHECK If an initial weather check doesn't look good, there's no point setting up your glider.

Photo by Ian Theofilos




INSTRUMENTS Hang glider and paraglider pilots fly with variometers and GPS units which allow them to know how fast they are going up or down and where they are on a map.

Photo by Jamie Sheldon




LAUNCH RAMP Some developed sites have wooden or concrete ramps built specifically to make a hang glider launching safer and easier.

Photo by Paul Tjaden




LAUNCH ROUTINE The steps a pilot follows after setting up the glider and prior to launching.

Photo by Gerry Pesavento



LANDING ZONE (LZ) An open area designated for landing. Most sites have one or more established landing zones.


Photo courtesy Wallaby Ranch Flight Park



LEG LOOPS While a harness may appear to be a bag the pilot lays in, it is actually an aerodynamic shell that houses a system of straps—or loops—that secure the pilot to the glider.


Photo by Lauren Tjaden






MOUNTAIN SITE A mountain site usually involves more demanding conditions and thermal activity than a coastal site. As such, pilots often progress from training sites to mountain sites.

Photo by Bruce Bousfield




PREFLIGHTING The process of checking equipment in all details before flying.

Photo by Scott Barrett



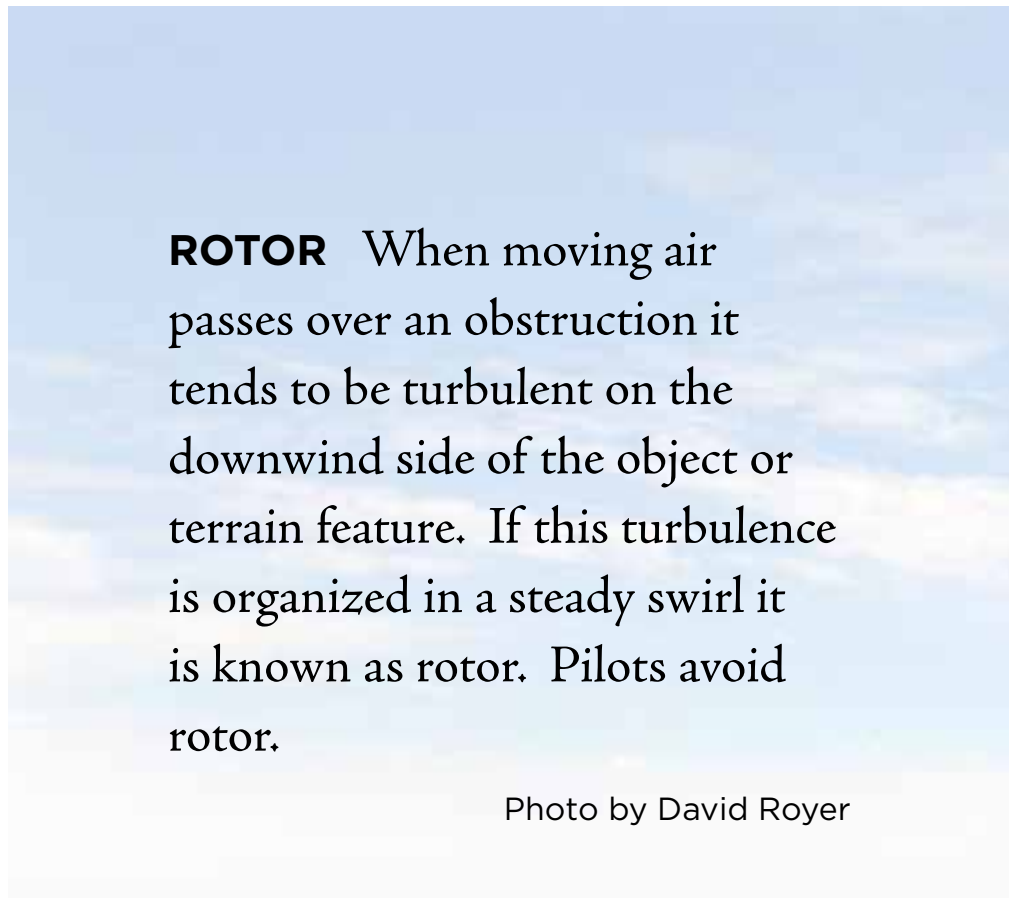
PREVAILING WINDS Due to weather patterns and terrain, sites usually have an expected direction the wind comes from at certain times of the day and year.

Photo by Mary Doyal



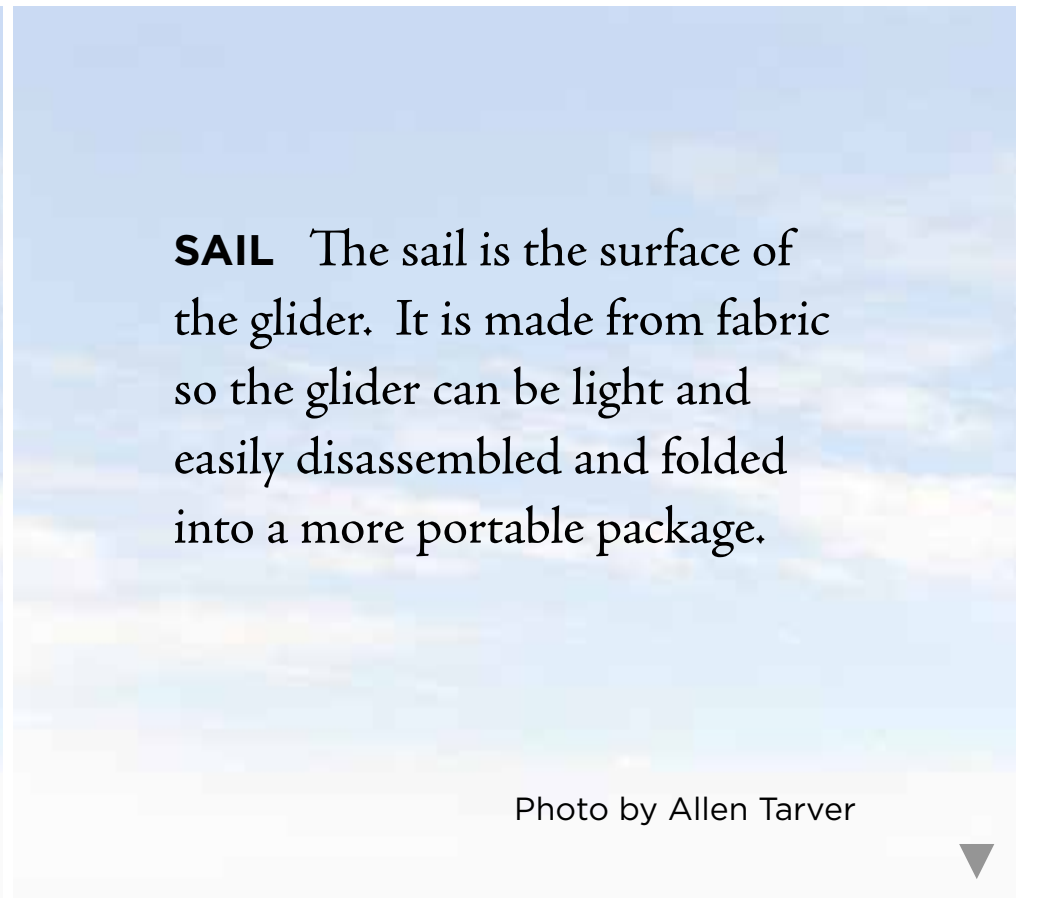
RATING Pilots are rated by the United States Hang Gliding & Paragliding Association as beginner, novice, intermediate, advanced or master. Pilots can also obtain instructor and tandem instructor ratings.

Photo by Angela Galbreath



ROTOR When moving air passes over an obstruction it tends to be turbulent on the downwind side of the object or terrain feature. If this turbulence is organized in a steady swirl it is known as rotor. Pilots avoid rotor.


Photo by David Royer



SAIL The sail is the surface of the glider. It is made from fabric so the glider can be light and easily disassembled and folded into a more portable package.

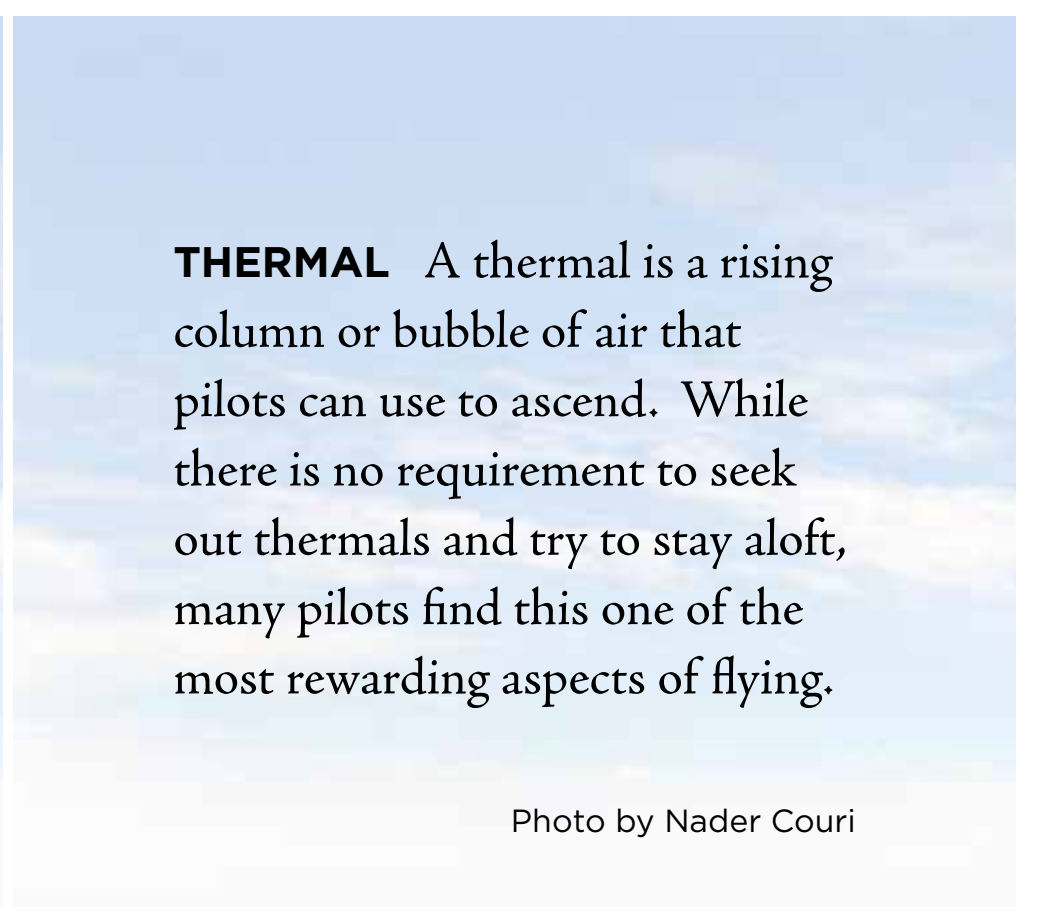
Photo by Allen Tarver






TERRAIN EFFECTS The shape of the land affects the airflow over it. Every site has a combination of various terrain effects that can affect launching, flying and landing.

Photo by Darren Darsey



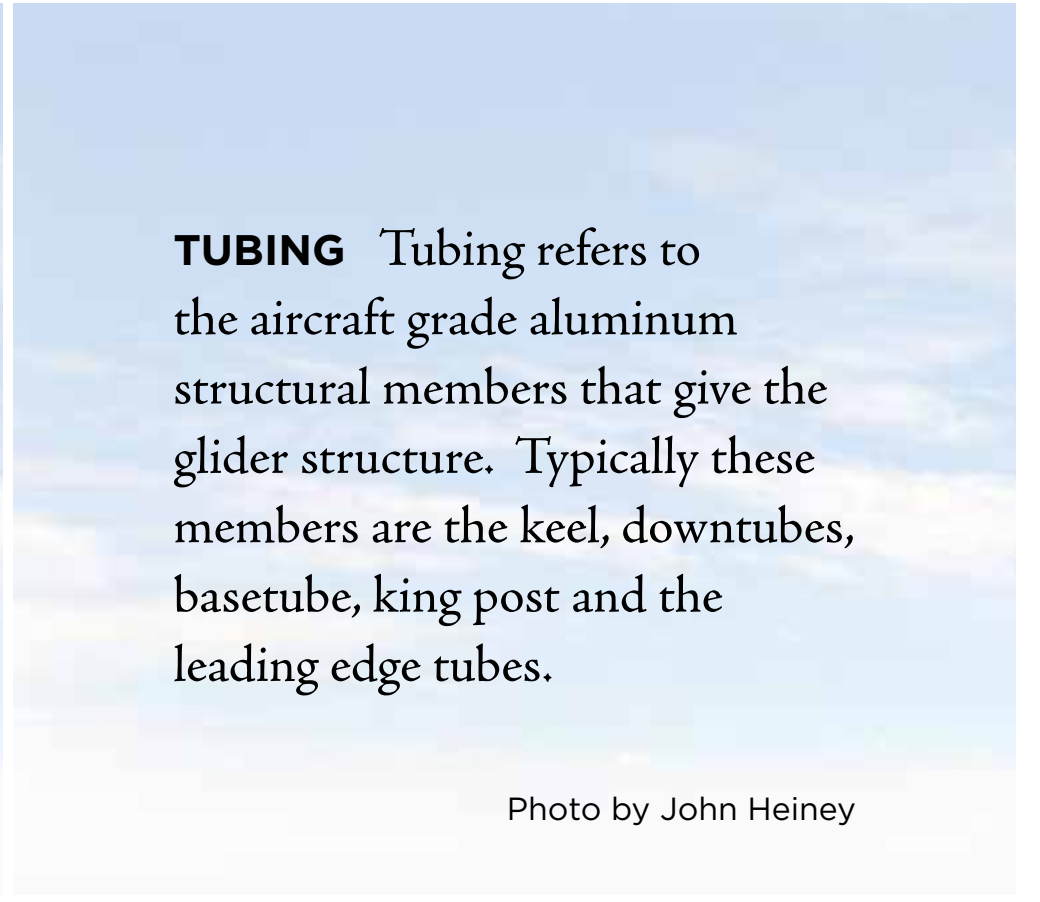
THERMAL A thermal is a rising column or bubble of air that pilots can use to ascend. While there is no requirement to seek out thermals and try to stay aloft, many pilots find this one of the most rewarding aspects of flying.

Photo by Nader Couri



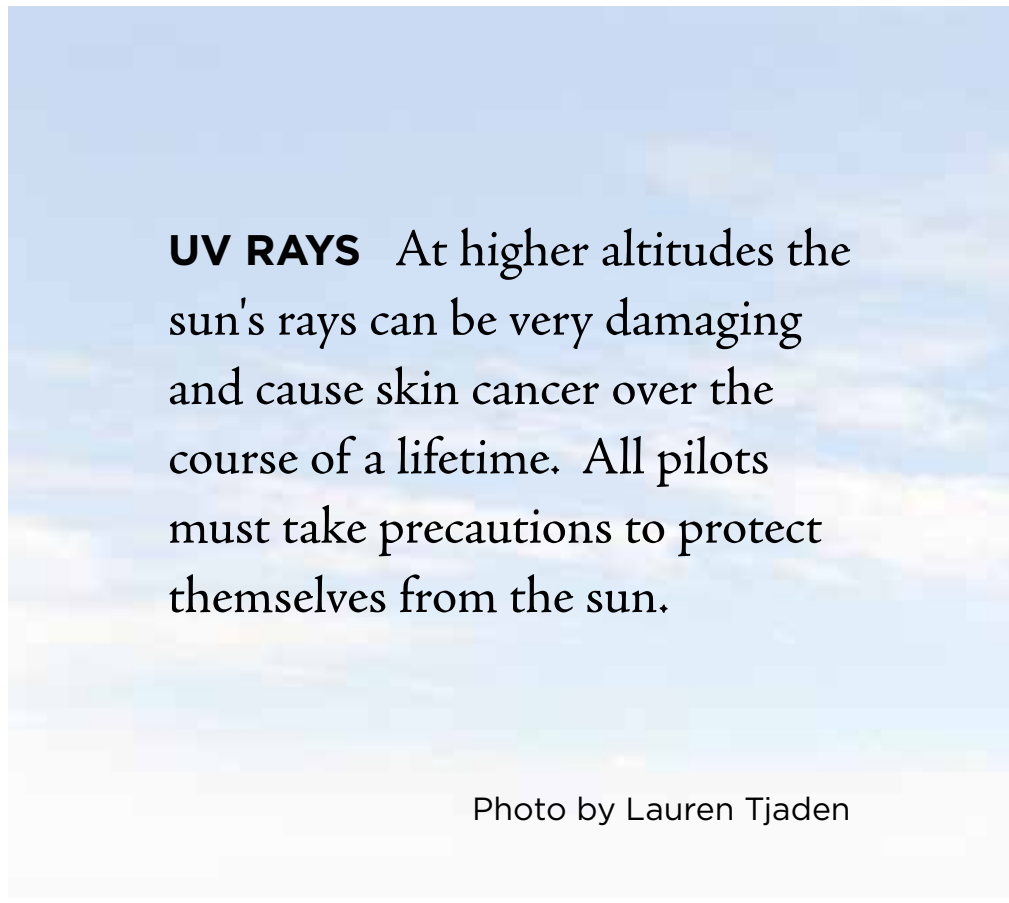
TOW SITE A tow site is usually a flatland site where the only way to gain initial altitude is by being towed up behind an ultralight aircraft or a special winch.

Photo by Bob Grant




TUBING Tubing refers to the aircraft grade aluminum structural members that give the glider structure. Typically these members are the keel, downtubes, basetube, king post and the leading edge tubes.

Photo by John Heiney




UV RAYS At higher altitudes the sun's rays can be very damaging and cause skin cancer over the course of a lifetime. All pilots must take precautions to protect themselves from the sun.

Photo by Lauren Tjaden



WAIT What pilots do when the conditions aren't quite right.

Photo by Paul Voight



THIS IS FLYING.
THIS IS FREEDOM.



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the latest from the
United States
Hang Gliding and Paragliding
Association

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Hosted by Paul Voight

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Beach Cast

Student | Erika Klein

Instructor | Greg DeWolf

Thonged Man | Lyndon Vasquez

Guy with Hangover | Mike Collins

Girl on Bike | Stacy Marks

Friendly Pilot | Kevin Kernuhan

Mountain Cast

Novice Pilot | Chris Armenta

Comp Pilot 1 | Jonathan Dietch

Comp Pilot 2 | Jeff Chipman



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