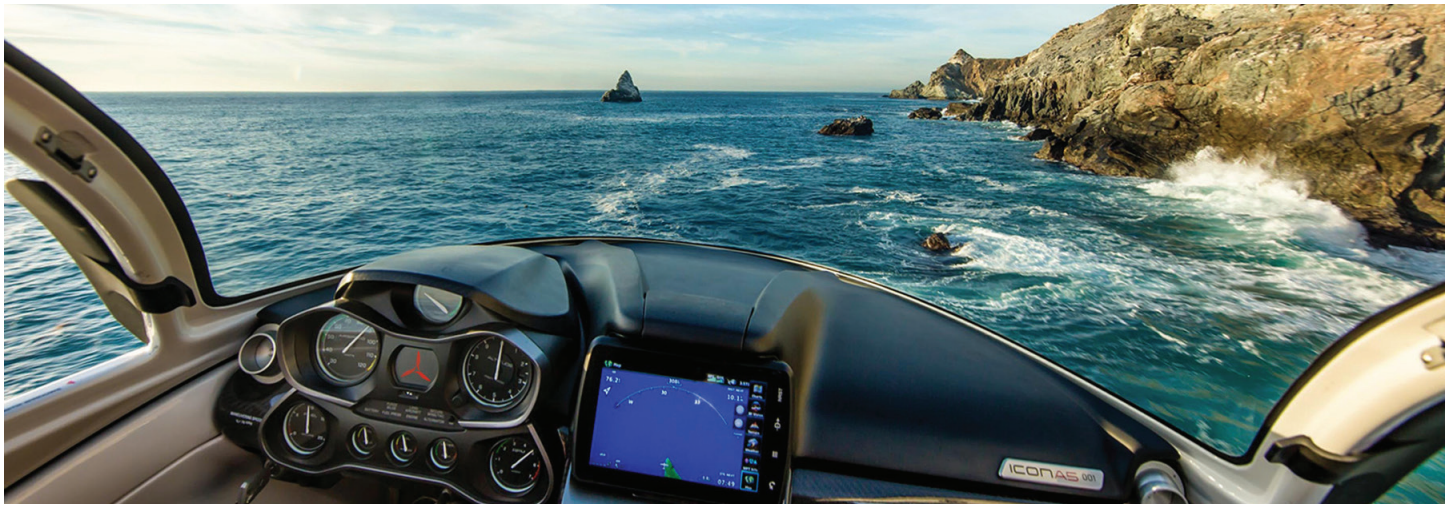


Low Altitude Flying Guidelines

ICON Aircraft

ICON Aircraft Founder and CEO Kirk Hawkins announced a new set of low altitude flying guidelines in an email to customers. Low altitude flying can be one of the most rewarding and exciting types of flying possible, but it also comes with an inherent set of additional risks that require additional considerations. These guidelines are intended to help raise awareness and provide some time-tested techniques for low altitude flying to help pilots cope with those additional challenges.

I wanted you to hear about this topic directly from me since A) it's near and dear to my heart for many reasons, and B) it's the essence of sport flying and the very reason the A5 was created in the first place. As those of you who have flown the A5 can attest, it is a truly special aircraft that will take you places and show you the planet in a way that few airplanes can. To fully appreciate the A5's capabilities and the amazing experiences it can offer, you will need some elements of low altitude flying. I want each one of you to be as prepared as you can for where this incredible machine can take you and the life adventures it will facilitate.

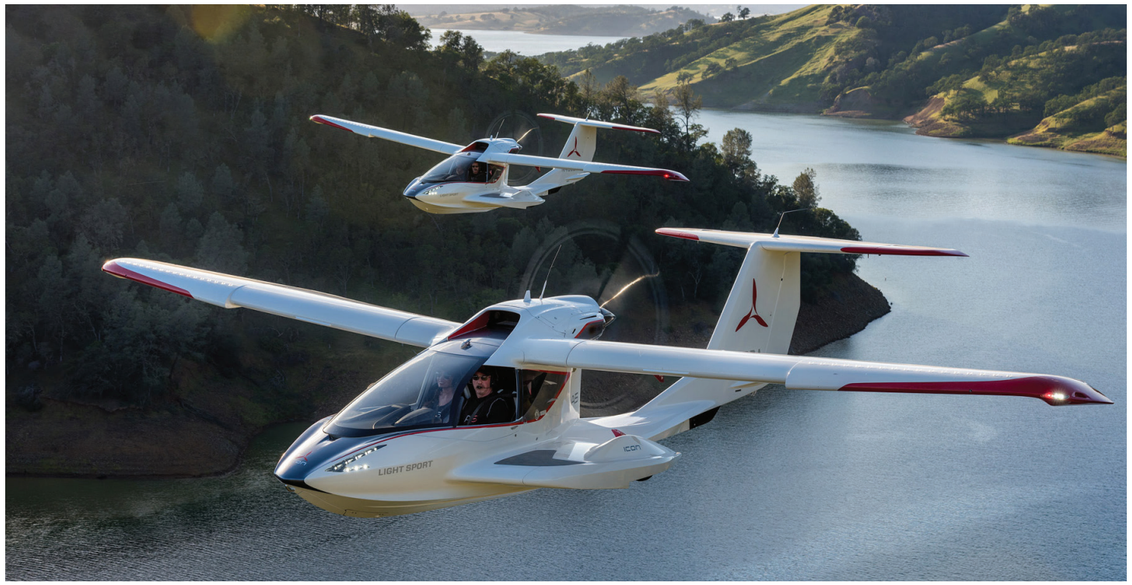
This week we are publishing ICON Low Altitude Guidelines. We have developed and tested them over the last few months and now they are incorporated in ICON Flight Training. Why is this important? There is little formal training required by the FAA or provided by traditional transportation-focused aviation training programs to adequately prepare you for low altitude flying.

Given this, our goal is to take a proactive, leadership role in the flight training process and we have developed our own low altitude guidelines from lessons learned over decades of military, seaplane, and bush flying. In addition to incorporating these guidelines into our current training programs, we will also be developing advanced low-altitude training courses for those who want even more skills in this unique environment.

I urge you to read these guidelines in the link below and welcome your feedback should you have any. As a part of ICON's commitment to continuously improve our practices, this will evolve over time. All of you who end up going through ICON training will be exposed to these as well. You're going to have the time of your life in the A5. I want you to also be at your best while doing it.

Kirk Hawkins

Founder / CEO



Preamble

Low altitude (Lowalt) flying while exploring the planet in seaplanes and bush planes can be one of the most rewarding and exciting types of flying possible. Low altitude flying also comes with an inherent set of additional risks that require additional considerations. Traditional general aviation training focused on higher-altitude transportation flying does little to prepare pilots for the unique challenges of low altitude flying. This document is intended to help raise awareness and provide some time-tested guidelines and techniques for low altitude flying to help pilots cope with those additional challenges. These are not a substitute for FAA regulations or good judgment or training. Many of the guidelines and philosophies here were adopted from military, seaplane, and bush-flying techniques.

Applicability

Use of these guidelines is required for all internal, company-related flight operations. However, the guidelines are suggestions for private flight operations of the ICON A5 outside of company business. ICON owners and operators are asked to learn and use these guidelines even when flying outside of an ICON-structured training program.

PIC Responsibility:

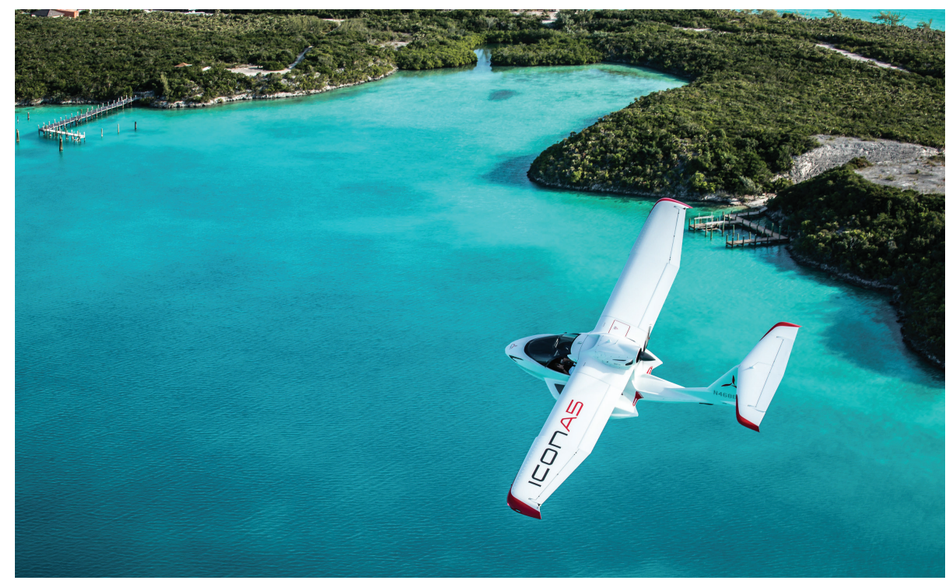
Even when following these guidelines, flying in general and Lowalt flying has inherent risks. that will always remain and cannot be completely mitigated. These guidelines are not a guarantee. The Pilot in Command (PIC) is ultimately solely responsible for their own safety and that of their passenger, as well as for operating their aircraft IAW FAR 91.3 and any local regulations.

FAA Minimum Safe Altitude (MSA)

Except for takeoffs and landings, FAR 91.119 requires the following minimum VFR altitudes:

Flights over congested areas:	1000′ over highest obstacle with 2000′ horizontal
Flights over non-congested areas:	500′ Above Ground Level (AGL)
Flights over sparsely populated or open water:	500′ from any person, vessel, vehicle, or structure
Emergency Landing:	Enough altitude for emergency landing if engines fails

There is no FAA minimum altitude over open areas with no people or structures other than good judgment that allows for an emergency landing should the engine fail. Seaplanes over water are usually in a position for an emergency landing if needed.



ICON Low Altitude Definition

ICON considers flights below 300′ AGL as operating in the "low altitude" environment for the ICON A5 aircraft. What is "low" is relative to an aircraft's speed, turning ability, climb performance, as well as each pilot's ability and reaction time. Given the A5's excellent handling qualities, Spin-Resistant Airframe, slow flying speeds, and tight turning radius, 300′ AGL provides a reasonable margin for a pilot to make decisions and maneuver the aircraft away from terrain or stationary hazards that are visibly detected based on environmental conditions, initial aircraft conditions, and proper pilot inputs. At 300′ AGL while level at normal flying speeds, the A5 is also able to execute an engine-out, 180-degree turn to a landing under normal conditions with proper pilot inputs. Pilots should always use their best judgement and fly in a way that is legal, within the aircraft's operating limitations, and within their own qualifications and comfort level.

Soft-Deck Maneuvering

The use of a soft deck is central to ICON's Lowalt flying philosophy. The idea is that when in the low altitude environment, the PIC should shift a significant portion of their attention to terrain and obstacle avoidance (like towers, power lines, etc.) while also maneuvering more benignly. This conscious shift should be observed below a prescribed altitude or "soft deck." While good judgment and airmanship always takes precedence over any guidelines, the following maneuvering limits should generally be observed:

- Above Soft Deck: Normal, non-aerobatic maneuvering (+/- 60° bank +/- 30° pitch)*
- Below Soft Deck: Benign maneuvering (+/- 45° bank +/- 10° pitch)
- 60/30 is a reference. The current FAA definition is ambiguous. In the past, the definition of aerobatic included these 60/30 limits. FAR 91.303 currently states "For the purposes of this section, aerobatic flight means an intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight." Today, parachute FAR 91.307(c) still states, "Unless each occupant of the aircraft is wearing an approved parachute, no pilot of a civil aircraft carrying any person (other than a crewmember) may execute any intentional maneuver that exceeds- (1) A bank of 60 degrees relative to the horizon; or (2) A nose-up or nose-down attitude of 30 degrees relative to the horizon."

ICON Soft-Deck Training Qualifications

- Standard (300′ AGL): Appropriate for all ICON graduates. ICON SPL, TXL, TXS, ICON IP, or higher
- Advanced (100′ AGL): Requires advanced ICON Lowalt training and ICON check ride

Confined-Area Operations

Confined-area operations (takeoffs, landings, approaches, and departures) are requisite skills for seaplane pilots in the FAA practical standards. Some bodies of water may require confined-area maneuvering for access. PICs should maintain enough lateral turning room to safely abort operations in any confined area. The A5 can execute a 180-degree turn in approximately 500′ in no wind conditions based on environmental conditions, initial aircraft profile, and proper pilot inputs. ICON recommends at least 1000′ of lateral turning room be maintained at all times to allow a course reversal in a confined area.

Box-Canyon Reversal (Emergency Terrain Escape)

There are dedicated books on mountain flying and this paragraph is not a substitute for advanced study and training should one choose to fly low in mountainous terrain. The term "box canyon" is frequently used to describe a situation where a pilot has inadvertently flown into narrowing, confined, and often rapidly rising terrain where the aircraft may not be capable of climbing over that terrain. Step one is to avoid these situations by appropriate knowledge and briefing of the areas being flown and to always preserve enough lateral turning room to easily reverse course if needed. However, should the conditions ever arise where a pilot is suddenly faced with the need for an immediate reversal of course in a box-canyon scenario, the following technique is recommended in the A5 to minimize the turn radius while simultaneously preserving altitude.

Box-Canyon Reversal:

1. Power – Full
2. Pitch – slightly up (~5-10° above horizon)
3. Immediately roll and pull (in most open direction)
4. AOA – pull mid yellow (or stall horn)
5. Keep nose above horizon (out of buffet)

Note: In no-wind conditions and properly flown, this maneuver can reverse the A5 direction at gross weight and at sea-level conditions in approximately 500′ diameter. However, ICON recommends maintaining at least 1000′ of lateral turning room to account for human error. Further, at high density altitudes and with adverse wind conditions, turn radius increases significantly. Bottom line: there are no absolutes. As PIC, you must always use your best judgement and immediately reverse course and exit any area where you are in doubt.

Low Altitude Briefing Items

For A5 flights below 300′ AGL, PICs should conduct a Lowalt briefing to include:

Planning Items

1. Proficiency: Assess pilot proficiency & comfort level
2. Weather: Lowalt weather effects (wind shear, boundary layer, density altitude, water conditions)
3. Review: Route, terrain, people, structures; known hazards (e.g., check if paragliders are present at Berryessa)

Inflight Actions

1. Soft Deck: (300′ standard/100′ advanced) acknowledge when below soft deck (“soft deck”)
2. Turning Room & Box-Canyon Reversal: Know procedures cold
3. Terminate: Cease Lowalt and climb or land in the event of any unusual, distracting, or dangerous situation

Note: To reduce redundancy, once items are understood, they can be briefed as “standard,” and only areas that are different and relevant to the flight may be called out specifically.

ICON Lowalt Limitations

Lowalt should only be flown in day, Visual Meteorological Conditions (VMC).

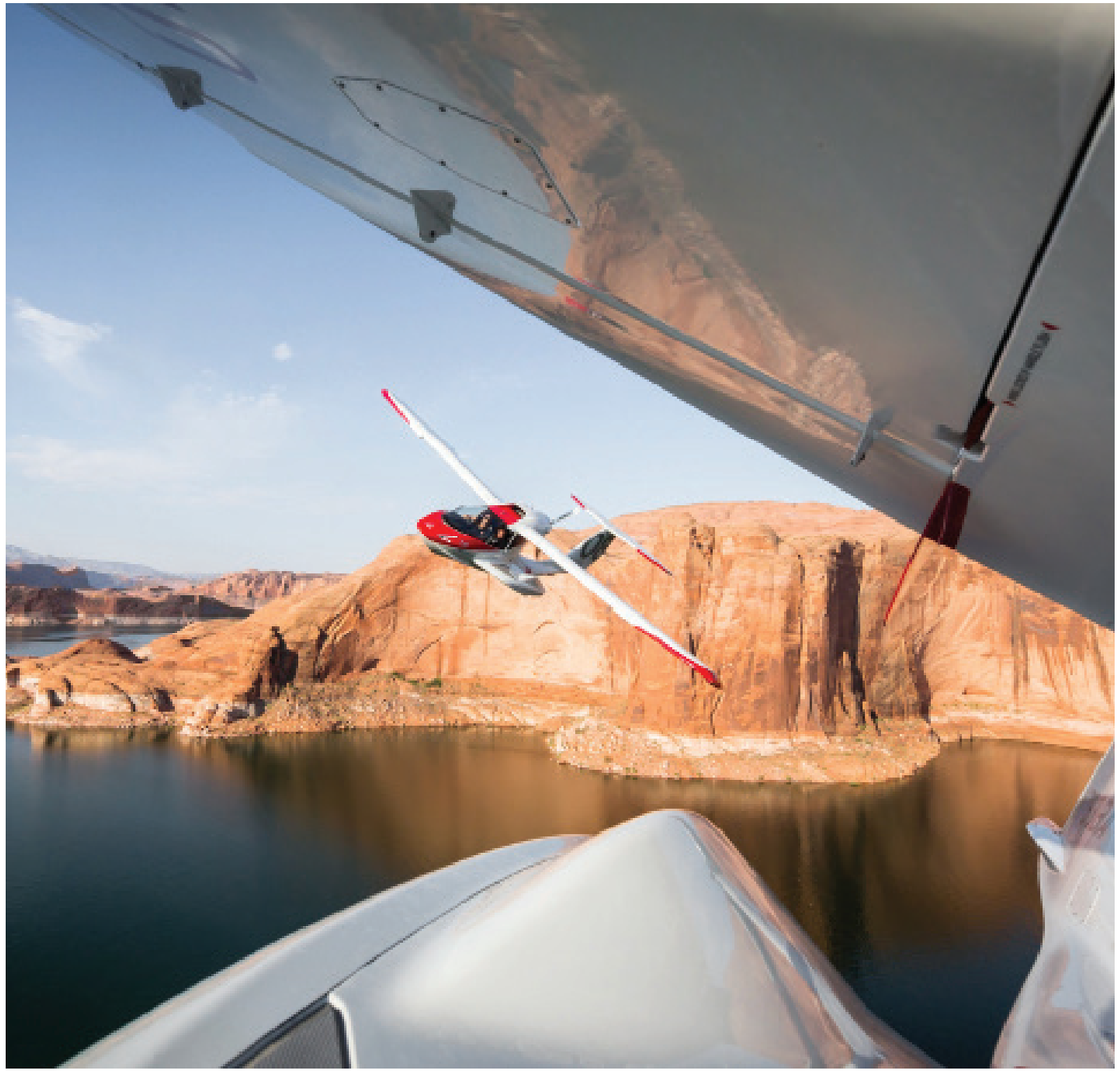
Unplanned Lowalt

If unplanned low altitude flying is desired during a flight, the PIC should overfly the area above 300′ AGL to identify hazards and assess risk before flying Lowalt.

Fly Politely

Represent yourself and the aviation community well. All pilots should maintain at least 500’ separation from boats, people, or structures, except when required for takeoffs and landings. Additionally, fly politely. While many may wave and like the A5 (waters skiers, jet skiers, etc.), others may not (most fishermen prefer quiet). Always maneuver your airplane away from others them to signal that you see them and are being respectful of them and their space. Do not show off. While flying, be aware of who is around you and empathize with how they may perceive your flying.

Bottom Line:



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