

Best Practices for Alaska Aviation Survival and Rescue Gear

Alaska is a large state, with widely differing climates, terrain, and seasons. Our vast uninhabited areas, with little or no road access, make aviation an essential form of transportation. The nature of the state also necessitates that aircraft operators, whether engaged in private recreation, industrial, business, or commercial transportation, carry appropriate survival equipment to accommodate a variety of *unplanned* circumstances. These range from something as simple as not being able to re-start an engine at a remote airstrip or gravel bar, to surviving an aircraft accident in bad weather, where it may take days for help to arrive—even after the location of the survivors is known to rescuers.

While the State of Alaska has a statute requiring carriage of “emergency rations and equipment” (Alaska Statute 02.35.110), the basic list of items included (i.e. one axe or hatchet, one first aid kit, etc.) falls far short of expressing the thought that should be given to this topic. The following are recommendations for consideration by pilots and aircraft owners operating in the state. These are broadly stated, recognizing that the specific equipment carried will vary depending on the areas of operation, season, and skill level of the parties involved. It is also recognized there will be a trade-off between the volume and weight of survival equipment versus the payload for the aircraft to accomplish its mission. These factors should be considered when compiling appropriate equipment to carry inflight. The recommendations are made with the assumption that the aircraft is already equipped to meet the appropriate equipment required by the Federal Aviation Regulations, such as an Emergency Locator Transmitter (ELT).

Time is a factor in survival. Many search and rescue events are resolved within a few days, or even hours when aided by a good ELT or satellite tracking device signal. It may take longer if conventional air route searches are required. Weather conditions that might have contributed to the initial survival situation can further delay the initiation of a search. During several recent events, although the location of the downed aircraft was known, inclement weather delayed rescue efforts for multiple days. Equipment and rations to survive a **five-day** time period prior to rescue is a good target to use for planning purposes.

The following sections address different elements of equipment that should be considered.

Shelter: While awaiting rescue, adequate shelter should provide protection from the elements. Provisions for shelter start with the clothing worn by occupants inflight, and extend to additional items (rain gear, winter insulated pants and jacket, etc.) appropriate for the season and location. During arctic winter operations, it is desirable for crew and passengers to wear clothing suitable to function in ambient conditions, in the event of a rapid evacuation of the aircraft. Shelter should also include equipment such as tents, tarps, or other materials that may be used to fabricate protection from weather while awaiting rescue.

Tools that may be used to construct shelter, should be considered. These may vary widely by season. For example, carrying a shovel to build a snow cave in winter or an axe or saw and nylon cord or rope to build a shelter in forested regions may be prudent.

Sustenance: Food to sustain life while waiting for rescue should be carried. Freeze dried rations are effective from a space and weight perspective. Consideration should be given to including supplies that may be eaten without preparation, if injuries limit mobility or access to food requiring preparation. In the event of a longer survival situation, equipment such as fishing tackle, or nets may provide means to subsist.

Water is a critical element in survival. The amount of water needed to support life and health in an emergency varies with climate, a person's general state of health, and their level of physical fitness. A minimum of approximately 2.5 to 3 liters of water per day per person is required for survival. Some drinking water should be carried in the aircraft. Containers for carrying and storing water and filtration systems or disinfection methods should also be considered. Water obtained from streams should be filtered, boiled, or treated to decrease risk of bacterial or viral contamination.

Visual Signaling: Spotting an aircraft or individual survivors from the air can be difficult, depending on terrain and weather conditions. Carrying one or more devices to visually attract attention is highly recommended. Typical signaling equipment includes signal mirrors, flares, laser emergency signaling devices, and electronic strobes. A signal mirror isn't effective without suitable sunlight, but it doesn't run out of energy. Flares, strobes, lasers, and signal fires are generally more effective at night. Tools to build signals from local materials also support this need, such as building a fire for smoke or spelling SOS on a beach with logs.

Electronic Signaling: While this document assumes the aircraft has an appropriate ELT for the operation, it is highly recommended that aircraft owners consider using a satellite tracking device. These are commercially available and use GPS to report location periodically via satellite communication links. Most of these devices also provide a distress signaling capability, which may require a crew member to activate the notice in the event of an emergency. Some devices also have two-way texting capability, which further increases the ability to identify specific help needed in a survival situation.

Aircraft operating in Alaska may be registered for Enhanced Special Reporting Service (eSRS) with an FAA Flight Service Station (FSS). For participants in the program, a distress signal is forwarded to FSS and matched with a flight plan, which expedites rescue operations. See reference section below.

First Aid/Medical Equipment: As with other choices regarding survival equipment, medical supplies should be appropriate to the skills of the pilot, crew, and passengers. A basic first aid kit with pain killers, bandages, antiseptics, and related supplies is a bare minimum to carry, since injury is often associated with aircraft accidents. If the occupants use specific essential medications, a supply of those should be included. In contrast to an accident in a community with emergency response capabilities and medical facilities nearby, aviation accidents in remote parts of the state may take multiple days for help to arrive. Consequently, treating minor injuries such as cuts and bruises is important, to avoid infection or other complications while awaiting rescue. Stocking supplies of cold tablets, or other over-the-counter medications should be considered with the possible time delay before help arrives. Given the climate conditions in Alaska, medicines that will withstand freeze/thaw cycles should be considered.

Seasonal Considerations: The summer flying season sees the majority of flight hours, and the number of flying pests. Insect repellent spray, netting, or hats with head nets can limit exposure to bites from mosquitoes, midges, no-see-ums and other pests. Winter operations also require consideration of additional equipment. Protective clothing appropriate for the region of the state should be carried, including sleeping bags or suitable blankets. Snow shoes are highly recommended for snow covered parts of the state to facilitate travel on foot, and for ski plane operations, to prepare surfaces for takeoff.

Firearms: Firearms are both a source of protection, important in some parts of the state, and a means to hunt for food. Large caliber handguns and short barrel shotguns with slugs are popular firearms for bear protection. It is highly desirable that flight crews have experience with the type of firearm selected and are comfortable using them if included in a survival kit. Pilots planning flights in Canada should be aware of their more restrictive laws involving possession and transportation of firearms.

How survival gear is carried: In compiling survival equipment for an aviation operation one should consider where the equipment will be stowed. In some situations, flight crews and passengers must evacuate the aircraft immediately. If the craft sinks or burns, survivors may not have access to equipment carried in cargo areas. In those cases, the equipment physically on the passenger or flight crew may be the only equipment remaining. Consequently, survival vests, fanny packs, or pockets in flight suits are popular ways to carry essential equipment, while bulkier equipment and supplies are typically stored in less accessible locations. This strategy wouldn't generally work with passengers on routine commercial passenger flights, but should be considered by flight crews, air workers (such as game survey teams), and pilots flying with friends and family.

Training: Years of experience have shown that the best piece of survival equipment is the human brain. Participating in training classes to build survival shelters in a variety of Alaskan landscapes, wilderness first aid, underwater egress training, and similar training is highly recommended for pilots and crew. Familiarity with the equipment carried on board the aircraft greatly improves the outcome of a true survival situation. Commercial firms in Alaska offer this type of training and aviation safety seminars are periodically offered for pilots. Flight crews, people who are air workers or who frequently use air travel, as well as individuals who use aircraft for private business or recreational purposes are encouraged to take more in-depth training to develop their skills. Modern first aid training often covers short term triage, expecting that trained emergency medical personnel will soon arrive on scene. It is highly desirable for pilots and flight crews to receive training in survival medicine which emphasizes treating injuries where rapid response by emergency personnel is not realistic and medical equipment is limited.

Summary: This document is intended to encourage thought into the equipment carried while flying in Alaska. It touches on the different factors that should be considered, each of which is worth far more exploration. The reference section below provides links to other documents that provide additional depth in many of these topics. You are encouraged to explore these when considering how to equip yourself and your aircraft to travel and enjoy the vast expanses of Alaska.

References:

Survive: Beyond the Forced Landing, AOPA Safety Advisor.

http://download.aopa.org/asf/sa31.pdf?_ga=2.210839574.2087384111.1549401709-1402536282.1542229949

Basic Survival Skills for Aviation, FAA Office of Aerospace Medicine, Civil Aerospace Medical Institute, Aerospace Medical Education Division.

https://www.faa.gov/pilots/training/airman_education/media/CAMISurvivalManual.pdf

Alaska Flight Service Enhanced Special Reporting Service.

https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/systemops/fs/alaskan/alaska/esrs-ak/

Emergency disinfection of drinking water.

https://www.cdc.gov/healthywater/drinking/travel/emergency_disinfection.html

FAA Safety Briefing: *Be Prepared.*

https://www.faa.gov/news/safety_briefing/2013/media/JulAug2013.pdf

Alaska Statute on Emergency Equipment. <http://www.legis.state.ak.us/basis/statutes.asp#02.35.110>

From Alaskan Aviation Safety Foundations Safety Briefings:

Assembling a Survival Kit. https://www.aasfonline.org/wp-content/uploads/assembling_a_survival_kit.pdf

Aviation Survival Kit. https://www.aasfonline.org/wp-content/uploads/aviation_survival_kit.pdf

Post-crash Care. https://www.aasfonline.org/wp-content/uploads/post_crash_care.pdf

Stocked for Survival. https://www.aasfonline.org/wp-content/uploads/stocked_for_survival.pdf

This document provided by:

Aircraft Owners and
Pilots Association



Alaska Airmens
Association



Alaskan Aviation
Safety Foundation



Aircraft Owners and Pilots
Association
Air Safety Institute



Issued: February 9, 2019