

Survival Kits

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We often get questions at COPA about what is required for survival equipment. In the good old Air Navigation Orders days before we had the CARs the problem was simple. If you flew over a line drawn across the country you were in a “Sparsely Settled Area” and had to carry a prescribed list of equipment. The fact that the Sparsely Settled line made no sense was irrelevant – at least the rules were straight forward, if hard to justify.

Since the introduction of the CARs on October 10, 1996 we have had a “performance based rule” instead, where the onus is on the aircraft owner to have the right equipment for the time of year and location. Believe it or not it is a better system!

The rule that tells you what you need is CAR [602.61](#) Survival Equipment - Flights over Land. It basically says two things: when you don't have to carry survival equipment and if you do, what it has to be capable of accomplishing.

You don't have to carry survival equipment if you are flying a balloon, a glider, a hang glider, a gyroplane or an ultra-light aeroplane or are flying “within 25 nautical miles of the aerodrome of departure and that has the capability of radiocommunication with a surface-based radio station for the duration of the flight”. You also don't have to carry survival equipment if you are flying a multi-engined aircraft that is operated south of 66° 30' north latitude in IFR flight within controlled airspace, or along designated air routes or an aircraft that is operated by an air operator, where the aircraft is equipped with equipment specified in the air operator's company operations manual, but not with the equipment required. There is no last instance where you don't have to carry survival equipment: if you are flying over “a geographical area where and at a time of year when the survival of the persons on board is not jeopardized”. That last clause may allow you to fly in some areas of southern Canada in the summertime without any survival gear.

As long as you don't qualify for one of those exceptions, you need to have survival gear. But what do you need?

CAR [602.61](#) is pretty clear on this. It says “no person shall operate an aircraft over land unless there is carried on board survival equipment, sufficient for the survival on the ground of each person on board, given the geographical area, the season of the year and anticipated seasonal climatic variations, that provides the means for starting a fire; providing shelter; providing or purifying water; and visually signalling distress.”

That is it – no other regulations or standards apply. Because it is a bit vague, the good folks who write the Aeronautical Information Manual (AIM) have added some guidance material to help pilots out in deciding what to carry and when.

In article [2.14](#) of the Airmanship section AIM it says:

Flight Operations in Sparsely Settled Areas of Canada

“Sparsely settled area” is no longer a defined area. As such, the pilot/operator must decide what survival equipment is to be carried on board the aircraft in accordance with the regulations.

CAR 602.61, “Survival Equipment—Flights Over Land”, regulates the survival equipment required for aircraft operations over land in Canada. The regulation requires a pilot to carry on board the aircraft survival equipment sufficient for the survival on the ground of each person on board, taking into consideration the geographical area, the season of the year, and anticipated seasonal climatic variations. The survival equipment must be sufficient to provide the means for starting a fire, providing shelter, providing or purifying water, and visually signalling distress. The AIR Annex contains a table that is a useful guide in helping pilots and operators choose equipment to ensure that they are operating within the regulations.

Experience has shown that pilots who are not familiar with the problems associated with navigating as well as other potential dangers of operating aircraft in sparsely settled areas of Canada tend to underestimate the difficulties involved.

Some pilots assume that operating in this area is no different than operating in the more populated areas. This leads to a lack of proper planning and preparation that can result in pilots exposing themselves, their crew, passengers and aircraft to unnecessary risks. This in turn can lead to considerable strain being placed on very limited local resources at stop-over or destination aerodromes. It has resulted in lengthy and expensive searches that could have been avoided with careful planning and preparation. Also, it has resulted in unnecessary loss of life.

The AIM goes further in explaining special considerations for flight planning, weather, navigation and emergencies when flying in sparsely settled areas and the refers to [AIR Annex A](#) Survival Advisory Information, where it lists various equipment for various areas and seasons. Specific to single-engine aircraft flying in the north, the AIM also recommends:

Emergency Equipment: In addition to the equipment suggested in the detailed in AIR Annex, it is strongly recommended that flares, a small stove or heating device and sleeping bags to accommodate all persons on board the aircraft, be carried at all times.

The above information does not provide a detailed list of what a survival kit should contain because there are many variations that can occur according to each circumstance. For example, you may be limited in useful load and have to decide what is most important to you. For example, during the summer the number one item may be insect repellent and the winter it may be arctic sleeping bags.

The choice of equipment is a personal one. Although the following suggestions are provided, they are not to be considered a definitive list of what should be carried.

Here is one suggestion for a [kit](#), developed by Douglas R. Ritter of Equipped to Survive www.equipped.com :

BASIC TWO PERSON AVIATION SURVIVAL KIT	
Qty.	Survival Equipment or Supplies
SIGNALING GROUP	
1	Signal Mirror, 3 x 5 inch
2	Whistles
EMERGENCY DEVICES GROUP	
1	Knife - fixed blade, 4 - 6 inch, drop point, plain edge, with sheath
1	Multi-Tool with locking blade(s) and tools
1	Knife Sharpener
1	Survival Saw
1	Compass
2	Windproof/Waterproof Matches
1	Flint style Fire Starter
-	Tinder (qty. sufficient to start min. 6 fires, may be included with fire

	starter)
1	Survival Candle
1	Fishing Kit (mostly for entertainment)
1	Lithium Battery Powered LED Flashlight w/ spare batteries *
SHELTER and PERSONAL PROTECTION GROUP	
1	Ripstop Nylon Tarp, 8 ft. x 10 ft. or 2-person Tube Tent
2	Poly (not Mylar) Emergency Blankets or Emergency Bivvy Saks
2	Lightweight Plastic Ponchos
1 pr.	Leather Work Gloves
2	Bandannas
1	Insect Repellant *
1	Sunscreen SPF-30+ *
1	Lip Balm SPF-30+ *
Optional (advisable for cold climates)	
-	Chemical Hand Warmers, 12-20 hour *
-	Cold Weather Gear incl. knit caps, socks, gloves, thermal underwear, sleeping bags, etc.
MEDICAL GROUP	
1	Wilderness First Aid Kit supplemented with extra supplies, bandages, and if desired, prescription drugs *
(The following quantities include those in the medical kit)	
2	Trauma Dressing
4	Gauze Compress
1	Elastic Bandage, 3"
1	Triangular Bandages
-	Essential Personal Medications (carry at least 1 week supply on person) *
WATER and FOOD GROUP	
2 qts.	Water in sealed container(s) (2 gals., or more, in arid climates) (If water in flex-paks, include at least one Canteen or Water Bag) *
-	Water Disinfectant Tablets or Water Purifier sufficient to disinfect at least 5 gallons of water*
Optional	

-	Hard Candy, Gum, etc. as desired (not a substitute for real survival rations, but good for quick energy and a morale booster)*
-	Coffee, tea, hot chocolate, flavored/sports drink mix, bouillon cubes, etc. as desired *
2	2400 Calorie Survival Rations per person *
MISCELLANEOUS / MULTI-PURPOSE GROUP	
1	Toilet Paper
50 ft.	550 lb. test mil-spec Parachute Cord
50 ft.	roll Utility Wire
10 sq.ft.	Heavy Duty Aluminum Foil
4	Zipper Lock Plastic Freezer Bags, gallon
8	Zipper Lock Plastic Freezer Bags, quart
4	Heavy Duty Garbage Bags, 30+ gal. size
1	metal pot or container suitable for use over a fire
1	Duct Tape
2	Sewing Kit including needles, medium & large and strong thread
10	Safety Pins, medium and large
1	Notebook (best if waterproof paper)
1	Pencil or Waterproof Pen
1	Survival Manual
1	Contents List
1	Container or Pack to hold kit contents (except extra water)
* Limited useful life. All medications and many medical supplies also have a limited useful life. Keep track of expiration dates and replace as required.	

The summer kit for the COPA aircraft, which flies primarily in southern and eastern Canada, is as follows:

yellow garbage bags
 waterproof matches
 magnesium fire starter
 3 space blankets
 Swiss army knife
 survival knife and sharpening stone
 hatchet
 pocket saw and hand saw
 4 hand warmers
 signal mirror
 aluminum pot and plastic cup
 tea and coffee

- 2 whistles
- 5 flares
- 2 sleeping bags (-5C)
- compass
- 3 pairs wool socks
- 2 candles
- bug repellent
- 4 'D' batteries
- aluminum foil
- lip balm
- fishing kit
- water purification tablets
- 4 soup packets
- poncho
- 4 head bug nets and elastic bands
- string

Here is a final word of advice. There has been much debate over the past number of years about the requirement for an Emergency Locator Transmitter and their reliability. Regardless of whether or not they are required for your aircraft, you should carry something else to provide a means of alerting people to your survival situation. There are a wide variety of Personal Locator Beacons, tracking devices, satellite phones and services that can provide extra alerting capability should your ELT fail. One of these devices may be the best survival investment you can make.