



Assembling A survival Kit

Doing it yourself can save money and ensure that you have what you really need
by Douglas S. Ritter

Not too long after I started flying, as I winged my way above some pretty forbidding terrain, the question of whether I ought to be carrying a survival kit began to intrude upon my thoughts. So I started looking around for one. Like many pilots, my quest was limited to the most readily available sources: Backpacking outlets and general aviation catalogs.

Based upon my research, it seemed that the available survival kits were deficient in equipment, supplies or quality. Certainly, any one of the kits would be better than nothing. But, why should I have to settle for that, particularly if my life and the lives of my passengers might depend on it?

Do it yourself

I decided to assemble my own kit and thereby ensure that it was properly stocked. Since I started the project five years ago, I have found that the quality of some commercially prepared survival kits has improved considerably. But I believe that assembling your own kit is still a viable way to go and, potentially, more economical.

In most cases, any standard kit you might purchase will likely need to be supplemented in some manner or other. Whether you start from scratch, supplement a purchased kit or have a kit custom-assembled is simply a matter of personal preference and perhaps, budget.

Based on the recommendations of survival experts, my kit was assembled on the principle that in the event of an emergency, probably accompanied by injuries of some sort, a survival kit should be able to provide you with sustenance, shelter, medical care and a means to summon help.

Most importantly, *it should do this without a great deal of effort or improvisation on your part.* The last thing you want in a survival situation is to have to struggle or expend precious energy while you are injured and, possibly, in a state of shock. This is why I believe that minimally equipped kits should be avoided.

Mix and Match

Any complete survival kit should contain a basic core of survival supplies. Around this core, you can assemble the additional items that are appropriate to the terrain and weather you would have to deal with in an emergency. A little forethought coupled with a bit of common sense will help you adjust the contents to your needs. Weight is almost always a significant concern for most of us. Balancing the need to leave as much load capacity as possible, while still carrying adequate survival supplies, is the most difficult compromise. This is a decision your life may depend upon. So, you should err on the side of prudence.

My own four-person kit weighs 29 pounds and includes a comprehensive first-aid kit, ELT and six liters (about 6.3 quarts) of water. Let's examine its contents and some alternatives and possible additions. This will give you a foundation for choosing what you want and need in your own kit. (But, first, don't forget that the best thing a pilot can do to aid his or her survival is to file and activate a flight plan. Time is always your

enemy in any survival situation. If you don't file, you had better carry a lot more survival supplies; you'll be there a lot longer).

My kit is divided into seven broad groups: signaling; emergency devices; shelter and personal protection; water and food; medical; personal supplies; and "miscellaneous". Many items have multiple uses.

Attracting Attention

When search and rescue personnel come looking, or if you want to attract the attention of a passing aircraft, car or person, you need the means to signal.

The most important item is a signaling mirror. Many experts recommend carrying two.

A strobe light is very effective at night; don't forget an extra battery. A whistle, preferable two, will be handy, not only to signal ground searchers, but for communication between survivors while one is reconnoitering the area. It's bad enough to be down; becoming separated from your fellow survivors would really ruin your day.

Lt. Col. Jim Marie of the Civil Air Patrol (CAP) recommends a roll of fluorescent orange surveyor's tape. Laid out in a large grid or draped over trees, it is highly visible from the air. Aerial flares can be useful if you carry enough. Experts recommend at least six. I chose the ubiquitous "Skyblazer" penguin flares that are readily available at low cost.

Smoke signals can be effective but are of lower priority. Since we cannot depend on the aircraft's ELT, it's good insurance to carry a personal ELT, such as Emergency Beacon Corp.'s EBC-102, or a hand-held comm. radio. According to Col. Marie, search-and-rescue satellites can pick up the signal from a comm. radio on 121.5 MHz, even just the carrier without voice. But, make sure to put lots of extra batteries in your kit, since battery life in hand-held radios is very limited.

Emergency Devices

A good, functional sheath knife is essential. I chose the basic, unsophisticated "USAF" Survival Knife".

You can get a lot fancier and spend a lot more, but it's not necessary. Avoid the giant "Rambo" style survival knives. They are heavy, expensive and potentially dangerous in inexperienced hands.

A machete would be appropriate in the tropics. A sharpening device is a must.

I also carry a "Leatherman Pocked Survival Tool". It gives me a small knife blade and, more importantly, a variety of tools, including screwdrivers, file, pliers and a wire cutter. Your aircraft can be an important survival resource, and this tool can facilitate its use.

Fiskar "Super Snips" will cut through almost anything, including aircraft sheet aluminum. Small needle-nose Vise-Grip pliers are very versatile. A lightweight survival saw can be very handy.

A compass is a necessity if you should have to leave the crash site. (Experts strongly recommend staying with the aircraft except in very unusual circumstances). Choose a high quality compass that is easy to use. My choice was the Sylva Ranger".

Light and Heat

I carry a number of flashlights and lighting devices. I chose the Tekna "Splash-Lite" because it is small, waterproof, uses a lithium battery (10-year shelf life) and cannot be

turned on accidentally. I attach one to the outside of my kit, where it can easily be found. Another flashlight and spare batteries are inside the kit.

Various "Cyalume" chemical light sticks provide reliable general illumination for longer periods, as well as high-intensity light to work under or for signaling. For fire-starting, I carry three different types of equipment to provide redundancy and to cover any situation: wind-and waterproof "Lifeboat" matches; a magnesium fire-starter; and a "Spark-Lite" kit with tinder.

Perhaps this is a bit of overkill. But my fire-starters, together, with less than four ounces.

If you are flying over areas where firewood is scarce, a small multi-fuel stove that will burn avgas, such as the MSR X-GK, and a small container of fuel (in case there is no gas left to use) are recommended. A candle is always useful.

Lures and Snares

Fishing equipment and fame snares are generally not critical. But, since they don't weigh hardly anything and could be very valuable in some circumstances, why not bring them along?

Of course, if you're flying over water, a comprehensive fishing kit is essential. And don't forget bait or lures of some sort. Anyone who has tried fishing with a bare hook will tell you that it is a lot like trying to win an argument with the FAA -frustrating, at best, and futile, at worst.

A lightweight fishing spear can also be mighty effective.

Shelter and Protection

More than any other, this category is dependent upon where and when you will be flying. The basic kit should contain at least one metalized emergency "Space" blanket and either additional blankets or similar emergency sleeping bags for each person.

A lightweight tarp or tube tent for shade and shelter (or more than one if necessary for the size of your party) is important. Lightweight metalized survival suits or ponchos, or large heavy-duty garbage bags (if you are on a severe price or weight budget) can really make a difference in poor weather.

In a desert environment or on the water, headgear for shade and dark glasses (also useful in snow country) are a good idea.

In a tropical environment, plenty of bug netting will be much appreciated. I also carry waterproof "Bullfrog" SPF-36 sun block, Vaseline SPF-15 sunblock lip balm and 100 percent DEET insect repellent.

In frigid environments, the requirements increase significantly. If it is likely to get much colder than freezing, you really should have sleeping bags for everyone aboard. The sleeping bags should be appropriately rated for the temperatures expected. Additional cold-weather clothing and protection for extremities should also be carried. In extremely cold weather, a good tent or survival shelter is invaluable.

The importance of this equipment cannot be over emphasized. Exposure is a real threat to survival in cold weather. Much of this equipment can be compressed into relatively small packages for easier carriage. Exploration Products, Inc. (<http://www.explorationproducts.com> or 1-800-448-7312) specializes in this sort of

equipment. Their survival kits and equipment are of very high quality, compressed and vacuum-packaged. Putting this cold weather gear in a separate kit will allow you to carry it only when needed.

Medical Equipment

Suffice to say that many commercial kits are seriously deficient. Most include little more than a few Band Aids and bandages to cope with minor cuts or scrapes.

Dr. Ken Isserson, a leading authority on wilderness medicine and SAR operations, stresses the importance of carrying a comprehensive kit with plenty of extra compresses and large capacity bandages to cope with the sort of traumatic injuries often associated with an aircraft crash. Also, carry a comprehensive field medical guide.

Water and Food

Every survival expert and resource emphasizes the critical importance of carrying adequate supplies of water. It may weigh a lot (2.8 pounds per quart), but nothing is more vital for your body.

You can survive for weeks without food but only days (hours, in some circumstances) without water. The more arid the region in which you fly, the more water you should carry. The minimum recommended is one quart per person. You should carry more possible. During the summer months in my desert area, I carry an extra gallon of water. You can buy pre-packaged water in cans and bags, or you can use canteens, as I have done. I also pack a solar still for desert use.

You should also carry the means to purify water that you find or produce. You should never drink water from any natural source, except rain water, without treatment.

Many kits include chemical water treatments. But you should never rely on chemical means, alone, to safely purify water.

After considerable research, I settled on two complementary treatment methods. My primary protection is a General Ecology "First Need" purifier. It offers the best combination of ease of use, safety and filtering ability along with a modest price (about \$45) and weight (15 ounces).

I also carry "Portable-Aqua" iodine tablets to pre treat water for virus-type infection before filtering (which is thorough enough to remove the awful taste of the iodine). This equipment will not desalinate sea water. Never, ever, drink untreated sea water. Traditional chemical desalinating kits have very limited capacity and are really inadequate. The best choice for desalinating sea water is Recovery Engineering's "Survivor" series of hand-operated reverse-osmosis units. The smallest unit weighs only two pounds and has virtually unlimited capacity at the rate of more than a liter per hour.

While food is generally not nearly as important as water, it can make a survival situation considerably more bearable. Food will help keep you alert and in a much better state of mind to deal with your predicament.

In cold weather, rations become much more important because your body needs extra calories to stay warm.

I decided to pack the minimum requirements for two man-days' survival rations per person. I chose "S.O.S. Survival Food Rations/Aircraft", manufactured by S.O.S. Food Labs, Inc., Passaic, N.J. (There are a number of other sources for survival rations).

These highly concentrated rations are not tasty, but they do provide substantially more nourishment (1,200 kilocalories/person/day) than the typical granola or chocolate bars most kits contain.

Electrolyte-replacement drink mix, bouillon, coffee, tea, hard candy, etc., are nice to have but are not absolutely necessary and certainly are no substitute for real rations.

Personal Supplies

Don't leave home without a small roll of toilet paper. If you must deal with special medical needs, be sure to pack at least a week's supply, preferably more, of what you need. Personal medications are a special concern. One must be aware that there are no drugstores in the wilderness.

A small tube of toothpaste and bar of soap can provide welcome relief and improve hygiene. If appropriate, a contact lens care kit or spare set of glasses is a good idea.

Personal supplies should also cover your passengers, if possible. If you pack these supplies in the kit, be sure to keep expiration dates in mind and rotate your supplies.

Miscellaneous

For cooking and other uses, I carry a Coleman "Peak-1" aluminum case which converts to quart and half-quart containers with a detachable handle. Forty feet of five-millimeter sheathed nylon rope is long and strong enough (1.275 pound test) to be useful (along with a pair of carabiners for climbing) in many situations. It also is not much heavier than the less robust (550-pound) parachute cord normally found in kits.

A sewing kit with extra safety pins allows for repairs of clothing and equipment. A lightweight magnifying lens has numerous uses, as do: 20 square feet of heavy-duty aluminum foil; 20 feet of wire; a sponge; a small roll of duct tape; paper and pen; a comprehensive survival manual.

Last but not least, a critical part of any personal survival kit is a positive mental attitude. It weights nothing, is invaluable and develops courtesy of these preparations at no extra cost.

To contain all this stuff (except the attitude, of course), I selected a bright red backpack. Give some thought to where you carry the kit in your aircraft. The kit will do you no good if you bury it where it isn't accessible when you need it. It should be within easy reach, so it can go out the door with you as soon as you land.

While having a survival kit aboard almost invites questions concerning the safety of flying, let's not kid ourselves. An accident can happen to any of us.

Being prepared is a whole lot better than not being prepared.