



WHAT WOULD MACGYVER DO?

A Look into Aviation Survival Equipment

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Growing up, I had a passion for action television shows. *Knight Rider*, *The A-Team*, *Quantum Leap*, and my favorite, *MacGyver*, were on my weekly list of “must-sees,” even if I had to sneak to stay up and watch, unbeknownst to my parents. The excitement, the adventure, and the quick-thinking and problem-solving skills of the shows’ protagonists became a foundation for how I wanted to be when I became an adult. Plus, the liberal use of pyrotechnics, high-speed car chases, and bad guys getting their comeuppance always left me eager for more.

I can remember one episode of *MacGyver* in particular, when the title character — just your run-of-the-mill secret agent/scientist/bomb technician/hockey playing super genius — had to lead a group of rebellious teens on a trip into the mountainous wilderness. The intent was to teach the kids some basic survival and teamwork skills, but instead their airplane crashed and the skills they learned would become a matter of life or death.

This brings up the concept of survival and just what it takes to remain alive when things go awry. MacGyver (Mac) always seemed to make it look easy. With his trusty Swiss Army knife, a conveniently placed roll of duct tape, a few household items, and some ingenuity, Mac could fix

a blown fuse, manufacture a harpoon, or thwart an enemy advance.

Alas, I have come to face the fact that as an adult, and despite having passed high school chemistry with a “B” average and owning at least four rolls of duct tape, I am no MacGyver. It is entirely likely you aren’t either — but even though you may not be a MacGyver, it certainly doesn’t hurt to try and *think* like him should a flying mishap occur. So here are a few tips on how to unleash your inner MacGyver.

MacGyver Prepares

MacGyver always prepares for every adventure by gathering information and carefully planning out his route. You should, too. Weather applications, tower personnel, pilot cross-tell, and a good pre-flight can help ready you for what you might encounter while cruising around out there.

Keeping people informed about your plans is always a good idea, too. Does someone know where you are going, when you should be arriving, and the general route you intend to fly? This seems excessive on an ordinary good flying day, but what if something goes wrong and you crash land? The information you have gathered (and left) can become a difference maker.

MacGyver Carries a Pocket Knife

Mac's number one go-to gadget in case of a crisis was his pocket knife. You might want to consider expanding your survival equipment inventory a bit, but having a good sturdy knife is always a great start.

Several companies offer different aviation-specific survival kits, but what you really need to focus on is acquiring equipment pertinent to the environment you typically fly in. For example, having life vests might not be necessary over the deserts of southern Arizona, but over the Florida Everglades it's an excellent idea. Just recently, life vests were credited for helping to save the lives of a couple who had to ditch their craft in the frigid waters of the Hudson River.

And while on the subject of cold climates, the colder the weather, the more likely you are to succumb to hypothermia should you land in it. Flying in these conditions should encourage you to keep some sort of fire-producing equipment onboard (e.g., waterproof matches or a flint). Thermal blankets and heat packs can help keep the body warm, and the former can function as a shelter if required.

Conversely, if flying in dry, arid climates, having water and sunscreen is paramount and even something as simple as a ball cap or sunglasses can go a long way in providing protection from the elements.

If you fly in heavily vegetated areas, a good bug repellent or a bit of mosquito netting could be useful in keeping the critters — particularly those whose bites can be venomous or lead to infection — at bay.

Some basic, all-weather gear to have include: a good flashlight, a first aid kit, a small cache of non-perishable food, water, a crash axe, and some nylon parachute cord. And then there is that duct tape. Mentioned with humor earlier, this wonderfully sticky, fairly waterproof, and deceptively strong stuff is actually a really great tool to have onboard in case of emergency. Check out the sidebar for a more comprehensive list of what you might want to consider packing in when you fly.

Having the equipment is one thing. However Mark Spencer, Vice President of the Arizona Pilots Association and a state liaison to the Recreational Aviation Foundation, admits that "many a pilot has been left stranded with all his or her emergency equipment stuck in a burning or sinking aircraft." He suggests being prepared to make it out with only what you have on your person, and to consider wearing a fishing vest — the type with lots of pockets — and load it up with some survival items every time you fly.

MacGyver Gets Rescued

The whole point of surviving is to get rescued and get back home. There are a number of items that can help immensely with this goal. Easy-to-use, low-

tech gadgets such as signal mirrors, flares, or a signal whistle come standard in most kits. Triangulation and global positioning satellite (GPS) devices have also become pretty commonplace, and having a piece of equipment with this capability can be a real lifesaver.

An emergency locator transmitter (ELT) in your aircraft is designed to transmit a distress signal in the event of an accident. You can learn more about this technology from the article on page 19 of this edition of *FAA Safety Briefing*. This works well unless extenuating circumstances separate you from your aircraft. In that case, a personal locator beacon might serve you better as it is far more portable and can be taken with you should you need to vacate the premises. It works much the same as the ELT and emits a distress signal for potential rescuers to pick up.

Lastly, your cell phone can prove to be an invaluable source for tracking you down, and not just in the obvious way by calling for help. Rescuers can narrow down a search area by using either multilateration — finding a "fix" on the cell phone signal by measuring the distances between two towers that are picking it up — or by the GPS that often comes standard with smartphone technology.

Whether you choose low-tech or the higher end stuff to outfit your survival gear, the best chance of getting back home is by giving search and rescue personnel an idea of where to start. Even when on the most covert missions, someone — usually his boss, Pete — would know where MacGyver was heading, so if he went off the radar for too long, his buddies had a good idea of where to look. You should give yourself this advantage as well. While filing a flight plan is not compulsory, it is a darn good idea. As mentioned earlier, it gives someone an idea of where you were going, when you should arrive, and the path you intended to travel. This information, combined with a locator device of some sort, dramatically increases your chances of being found.

MacGyver Has a Good Attitude and is Trained

Although fictional, the character MacGyver, and the optimism and tenacity he exuded, likely ensured his own survival even more than the fancy gadgets and pyrotechnics. His seemingly never-ending ability to make the best of bad situations embodies the American fighting spirit. So much so that words like "MacGyvering" or "to MacGyver" have become an integral part of our pop culture lexicon. They mean to

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A thermal blanket can help to reduce heat loss in emergencies.

use ingenuity to fix or remedy a problem using only the available tools at hand.

Throughout the course of the show, whenever MacGyver was cheerfully jury-rigging a catapult or making a smoke screen out of vinegar and baking soda, he always took the time to narrate how he learned the trick or explain his rationale for attempting it. The bottom line here is that there is no substitute for experience and training.

The Civil Aerospace Medical Institute (CAMI), the FAA's medical certification, research, and education wing in the Office of Aerospace Medicine, maintains a host of airman education programs dealing in everything from aviation physiology to post-crash survival courses. In addition, CAMI offers a free one-day survival course. This course is very hands-on and will address all the checklist items above, as well as give guidance and suggestions for packing a personal survival kit. If you are interested in attending, please contact the Airman Education Program staff at (405) 954-4837, or you can learn more at http://www.faa.gov/pilots/training/airman_education/aerospace_physiology/. Consider investing some time in one (or

more) of the courses because the more knowledge you gain, the better equipped you'll be during an emergency.

While you might not be a multi-lingual, globe-trotting, physicist/engineer, with a good attitude, some training, a little preparedness, and a few specialty pieces of equipment, you can certainly survive like one. ✈️

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A Comprehensive List of Aviation Survival Equipment

The Essentials

- signal mirror/whistle
- knife (fixed, 4+ inches)
- compass
- waterproof matches/flint
- tinder
- battery flashlight with extra batteries
- insect repellent
- first aid kit:
 - gauze, bandages, hemostatic agent, ibuprofen, disinfectant, prescriptions
- sealed water/non-perishable food
- duct tape
- nylon rope
- water purification tablets
- crash axe
- heavy duty backpack (waterproof)
- work gloves
- survival manual
- cell phone

Cold/Wet Weather Care

- Mylar (thermal) blanket
- light poncho
- chemical hand/foot warmer
- life vests/raft
- warm gloves/hat
- water-activated strobe lights
- dye marker

Hot Weather Health

- sunscreen
- cap/visor
- sunglasses
- WATER!

Nice to Have

- waterproof pen/paper
- sewing kit
- survival candle
- toilet paper
- personal locator device
- glow sticks
- flares
- mosquito netting
- fishing set
- safety pins
- pocket chain saw
- multi-tool
- zip ties
- fire gel

