Photos courtesy of FAA Office of Accident Investigation and Prevention

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HANDLE WITH CARE

Avoiding Accidents at an Accident Scene

We hope you will never have reason to use the information in this article, but life has a way of presenting us with unlikely situations. As several bystanders in the tragic Tucson shootings discovered, knowing a few basics can make a big difference in such situations. We present this article in that spirit.

– Susan Parson, Editor

Fortunately, the likelihood of encountering an aircraft accident is slim. Still, there are enough aircraft accidents to make it a good idea for anyone engaged in aviation to be aware of hazards that can exist at an accident scene.

Pilots learn that their priorities are to aviate, navigate, and communicate. Professional first responders have their own set of priorities, which can also guide the actions of an aviator who witnesses or happens upon an aircraft accident. The three priorities for professional first responders are: Remove persons who are injured or trapped, protect the wreckage from further damage, and protect the public from injury. Let us look at a modified version of these priorities as they apply to someone who witnesses or happens upon an aircraft accident.

Summon Help

Before you consider plunging into the scene, call 911 and summon qualified first responders. Then, give first responders as much information as you can about the accident and the site, recognizing that each airplane accident is different. Here are a few basic tips on the kind of information that first responders might need.

Is it burning? Even if the wreckage is not burning right now, the possibility of fire is high and you have to assume there was fuel on board.

What kind of airplane? Was it fixed-wing or rotorcraft? Single-engine or twin? Could it have been equipped with a ballistic parachute system? If so, did the parachute deploy?

What was it doing? Pilots use aircraft for different jobs. The kind of operation, if known, provides important information on how to safely approach the accident site. It also lets first responders know what equipment they might need. For example, an agricultural aircraft may carry hundreds of pounds of pesticide. An EMS helicopter may have large oxygen bottles on board. Weapons and ammunition may be aboard a law enforcement aircraft.

An air bag inflator canister could be a danger to first responders if the air bag has not been deployed. In this case the canister was located in the seat back.

A deployed air bag from a four-point harness air bag system.

The launch tube for a ballistic parachute system. This one was deployed on ground impact. In other cases the parachute can deploy well after impact, posing a real danger to first responders.

Evaluate the Site

A person who witnesses an accident will naturally be anxious to aid its victims. However, any accident scene is fraught with peril. The safest course of action is to await the arrival of first responders, but if you choose to enter the site in order to render aid, here are a few of the hazards to evaluate and mitigate before you proceed.

Fire. The possibility of fire presents a definite risk. Witnesses to an accident are unlikely to have the kind of protective gear firefighters use, but even basic leather gloves and a particle mask will reduce the hazard. In addition to fire itself, there may be combustion byproducts, chemicals (fumes from burning resin in composite structures), and biohazards. Because of these hazards, your shoes, clothing, and anything else you take with you may be contaminated when you leave the scene. Be aware that you are taking a risk if you approach the scene and, if you decide to do so, approach from the upwind side.

Stability. Before you plunge in, look at how the aircraft is positioned. Given its orientation or the terrain beneath it, will it move or collapse if you put your weight on it? Fire (if present) and impact have likely affected the structure. Composite airframe structures may look intact, but if the resin has burned away it will feel like stepping on cloth and give way under your weight. Broken composites can snap into sharp shards that can easily penetrate a boot or other personal protective equipment—not to mention the more ordinary clothing a bystander is likely to be wearing.

Ballistic Parachute Systems. An increasing number of light aircraft have rocket-deployed ballistic parachute systems (BPS) installed with the assembly usually located near the point where the wing and fuselage meet. If the BPS deployed, stay clear until the chute collapses. If there is no sign of parachute deployment, approach with caution. If the rocket were to deploy on the ground with someone in the way, the result would likely be fatal. Many BPS-equipped aircraft have a triangular warning label that indicates where the rocket leaves the aircraft and additional labels, usually near the door, indicating installation of such a system.

Help—But Be Careful

Once on the site, there are still many hazards to consider as you try to help.

Accessibility. The first thing you are likely to do is look for a way to reach the occupants. Doors and escape hatches are the obvious way in, but

aircraft have a wide range of latching mechanisms. Aircraft handles that lay flat (flush) on the aircraft skin may be more complicated to find and operate. Attempting access through the windshield is not a good idea, because many are built to withstand significant impact.

Biohazards. Remember that biohazards may be present from occupants or from cargo, and the accident impact could spread these hazards over a large area. Take self protection seriously. Investigators wear impermeable suits with hoods, goggles, rubber gloves under leather gloves, and rubber boots. Professional first responders also take recurrent blood-borne pathogen awareness courses.

Cabin. Use caution in the cabin. Limit contact with all aircraft controls and switches, and be sure not to pull or disturb any big red T-handles for BPS. When you reach the occupants, follow basic first aid guidance. Unless there is an imminent threat, like fire, do not attempt to move an injured person on your own.

Stored-Energy Components. There are a number of stored-energy components on aircraft that can injure you. Most newer aircraft and many retrofitted older aircraft are equipped with air bags installed in the seatbelt straps. You can identify them by the very thick straps. If the air bags were not deployed in the accident, keep in mind that they are powered by compressed gas of at least 6,000 psi. There could also be energy remaining in hydraulic systems, pneumatic systems, suspension struts, wheels, and batteries. If components in these systems were compromised in an accident, they could fracture or explode if disturbed. Finally, stay clear of engine components such as propellers, inlets, exhausts, and the area directly perpendicular to the rotating parts.

Protect the Wreckage

The next priority is to protect the wreckage. An aircraft accident attracts attention; attention brings crowds. Law enforcement is responsible for securing the accident scene, but you can assist before they arrive by doing what you can to keep bystanders out after initial aid and/or rescue.

Every aircraft accident is subject to federal investigation. Do whatever is necessary to aid survivors, but do not touch, disturb, or move anything beyond what is necessary for rescue. Wreckage and ground scarring may be spread out over a large area. If you (or others) drive to the scene for rescue purposes, try to minimize the impact of your presence to avoid disturbing vital evidence. If possible, you should photograph or document any disturbance to the scene.

The red pull-handle of a ballistic parachute system.

Make sure to share any safety-related information from the accident with the first responders or investigators. Specifically, be prepared to debrief the investigators when they arrive about what you saw. Include location(s) and condition(s) of wreckage, as well as noted hazards, such as air bags, BPS, or spilled fuel. When you leave, try to use the same path that you took on entry to minimize compromising the scene.

Set the example: If you cannot render aid, back away and do your best to keep other bystanders out.

Protect the Public

It should be clear that many serious hazards exist at an accident scene. Protecting the wreckage from disturbance or further damage, one of the first responders' top priorities, also helps protect the public. As a member of the aviation community, part of your responsibility if you cannot render aid is to set the example: Back away, stay away, and do your best to keep other bystanders out.

Before you consider plunging into the scene, call 911 and summon qualified first responders.

I hope you never witness an accident and that you never become involved in one. If you do, however, a little knowledge, awareness, and common sense will help you help others without harming yourself.

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For More Information

For more in-depth exploration of safety at an accident scene, access the FAA's "First Responder Safety at a Small Aircraft or Helicopter Accident" training modules
www.faa.gov/aircraft/gen_av/first_responders/

Developed by the FAA's Small Airplane and Rotorcraft directorates, each module focuses on a different aspect of aircraft accident hazards.