



Managing the Unexpected

Fatal general aviation accidents often result from inappropriate responses to unexpected events. Humans are subject to a “startle response” when they are faced with unexpected emergency situations and may delay action or initiate inappropriate action in response to the emergency. Training and preparation can reduce startle response time and promote more effective and timely responses to emergencies.

Don't Get Caught By Surprise

Loss of aircraft control is a common factor in accidents that would have been survivable if control had been maintained throughout the emergency. In some cases, pilot skill and knowledge have not been sufficiently developed to prepare for the emergency, but in others it would seem that an initial inappropriate reaction began a chain of events that led to disaster.

Some examples of unexpected events during flight that could crop up and cause an emergency (or an accident if it is not managed properly) include:

- Partial/full loss of power on takeoff
- Landing gear extension/retraction failure
- Bird strike
- Cabin door opening
- Control problem/failure

In many cases, pilots don't revisit and practice how they will handle these and many other abnormal and emergency situations, except during flight reviews or other recurrent training, *if then!*

Chair Flying

These unexpected events also often occur while close to the ground, leaving little to no time to think, let alone use a checklist. Your chances of a safe outcome are greatly improved if your response to an unexpected event is planned out ahead of time. Try practicing in your head what you would immediately do should a certain event take you by surprise. Better yet, after visualizing the onset of a problem, say out loud what you will do and then reach out and touch the control or instrument you just mentioned. Mental drills like this in a non-stressful environment (like your favorite chair at home!) will help you develop a pre-planned course of action and test your mastery of your abnormal



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and emergency checklists. Of course, for added realism, you can also try these same exercises while sitting in your airplane. And if you're ready to test out your new and/or revised procedures, consider getting together with a CFI and practice them on a training flight. If you sign up for the WINGS proficiency program, you can even have those hours count towards a WINGS level.

Simulate to Stimulate

Flight simulation is another great tool for planning and preparing yourself to handle unexpected events. Today's flight training devices for general aviation offer a tremendous range of possibilities. With the assistance of a qualified instructor, you can experience an engine failure after takeoff, or practice your reaction to a primary or multi-function flight display failure. Your instructor can also give you practice with electrical failures, control-system failures, and more.

Flight simulation software on your home computer or personal electronic device can also help you practice handling a variety of malfunctions and failures. Some of these programs will let you set up random failures during a flight and let you experience them as you would in real-world flying.

One of the biggest benefits of such practice is the ability to experience both sudden and subtle failures, become familiar with their early indications, and practice overcoming the natural human tendency toward denial ("this can't be happening to me") and rationalization ("it's probably just a gauge problem").

The Right Stuff

As any test pilot could tell you, the discipline of planning for both positive and adverse outcomes is one of the most essential elements in the mysterious mix that makes up the "right stuff" to be a pilot. For a good pilot, that right stuff includes solid training, regular practice, and the discipline to strive for proficiency and perfection on every flight. It includes understanding your aircraft's systems — how they work, how they fail, and how those failures could affect other systems or controls.

The right stuff also includes mastery of single pilot crew resource management (CRM). A pilot with good CRM skills is one who has strong situational awareness of the aircraft and its flight path, and also the range of resources (e.g., air traffic control) that can assist. Finally, the right stuff includes planning which can make all the difference when encountering an unexpected event.

Resources

FAA Safety Briefing — "When the Best Made Plans Go Awry," November/December 2010

www.faa.gov/news/safety_briefing/2010/media/NovDec2010.pdf

FAA Safety Briefing — "Between a Rock and Hard Spot—Handling a Partial-Power Takeoff," November/December 2010

www.faa.gov/news/safety_briefing/2010/media/NovDec2010.pdf

FAA Safety Briefing — "When the Lights Go Out—What You Should Know About Aircraft Electrical Systems," November/December 2010

www.faa.gov/news/safety_briefing/2010/media/NovDec2010.pdf

FAA Risk Management Handbook (FAA-H-8082-3), Chapter 6, Single Pilot Resource Management

www.faa.gov/regulations_policies/handbooks_manuals/aviation/risk_management_handbook/

