

Aircraft Emergency and Abnormal Event Management

by Jerry E. Tobias

Suppose, for a moment, that you are strapped in the left seat of the aircraft mentioned in each of the following scenarios: (1) You are descending your single-engine classic into very marginal VFR conditions on an IFR flight plan, twenty miles out of your unfamiliar destination, when - for whatever reason - you lose all communication and navigation ability. (2) You have just rotated your twin turboprop on takeoff into IMC conditions when you experience a catastrophic failure of the left engine. (3) Your military transport is at FL390, halfway across the Atlantic, when you begin to lose cabin pressurization.

What would you do? How would you respond? Right. “It depends.” However, even though the airplanes and scenarios in these three examples are totally different, they all share one basic set of required responses: *fly the airplane, make decisions and take appropriate actions*. Doing that correctly and successfully, of course, is the challenge.

It is a fact that aircraft emergency and abnormal events are accompanied by significant pressure and confusion. It is also true that no two events are ever identical, that they are frequently dynamic and unpredictable, and that they are often unlike anything you’ve seen during training. Having a general plan or guide in mind that could be applied when *anything* goes awry is, therefore, a very good idea.

Much has been written about the best way to handle aircraft emergency and abnormal events. As far back as the 1960s, most US Air Force checklists reminded us to “STOP – THINK – COLLECT YOUR WITS.” That was good advice, and so was the variation years later that told us to “MAINTAIN AIRCRAFT CONTROL, ANALYZE THE SITUATION, TAKE PROPER ACTION.” As an update to those and other similar memory aids, I would suggest the use of a simple mnemonic, **S-A-F-E-T-Y**.

S - SAFELY FLY the airplane. The first and most critical priority during any situation that occurs during any phase of flight is always to acquire and maintain positive control of the aircraft and, simultaneously, to ensure terrain and/or obstacle clearance.

A - ASSESS the situation. This phase presents a question: What is the problem? Verify the situation by all means possible, but begin this process only after reaching a safe altitude. Understand, too, that the real problem may not be as readily apparent as you might first think, as airplanes and onboard systems don’t always fail or respond in “textbook” fashion.

F - FIX the problem, if possible. Here’s the next question: Which checklist or procedure should be used? Ensure that the correct steps are initiated for the correctly diagnosed event. The goal is

to correct, improve or stabilize the situation, using all available resources inside and - if necessary and if conditions permit - outside of the aircraft.

E - EVALUATE all options. This leads to what is usually the most complicated question: What should be done next? Usually, only four options are probable: *land as soon as possible* at the nearest suitable airport, *land as soon as practical* at the nearest suitable airport, proceed to and *land at an alternate airport*, or proceed to and *land at the original destination*. The best option should be selected after considering, in this order of priority:

- Safety of flight issues and aircraft flight manual (AFM) directives,
- Other significant controlling factors, such as the stability of the aircraft and the problem, weather, distance to suitable airports, runway lengths and conditions, landing weight or other operational limitations, and any other major considerations,
- Maintenance requirements and availability, and
- Passenger needs and convenience.

T - TAKE appropriate action. After determining your best option, communicate your plan with all who need to know (if and when possible), then proceed with your chosen course of action.

Y - YET another look. *This review is critical.* You must maintain situational awareness and frequently re-evaluate everything! As mentioned earlier, emergency situations are often very dynamic, and you may be faced with both internal and external conditions that are changing rapidly (or maybe even worse, *changing subtly*). Remember, too, that one of the greatest challenges during abnormal situations is the potential for distraction. So, what about minimum altitudes, weather, fuel on board, etc.? Has anything significant changed? Are there now additional options? Constantly reviewing the situation and reconsidering all the known factors will present you with two good options: the opportunity to *change* your decision, or *confirmation* that your present course of action is still best.

There it is, **S-A-F-E-T-Y**. Fortunately, the likelihood of your facing an emergency or abnormal situation soon is not great. However, you should understand that such a scenario will always be unique, and that it will also present some degree of threat to your safety - even if it only appears to be a minor anomaly. You must, therefore, give very careful and serious attention to any such occurrence. Remembering and applying the guidance represented by this simple mnemonic will help you respond to, manage, and recover from *any* aircraft emergency or abnormal event in *any* airplane.

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