Decision Making
by Harry Kraemer

The crew of a Lear 23 was on the second approach going into George Bush Intercontinental Airport (IAH) in Houston, Texas killing the two crew members on board. A Cessna 402 crashes after the 3rd missed at Spencer Municipal Airport, Spencer, Iowa. The pilot (the only occupant) survived. These accidents have one thing in common. The pilots decided to try again after one or more missed approaches. When arriving at the MDA and the MAP or the DH and you don't see anything, you have many options. You may decide to try it again and again. How safe is that after several tries? Are you using up fuel that may be necessary to get you to a good alternate? Does your company have anything written in it's operation manual about this? How does stress affect your *decision-making* after a few missed approaches?

Making a decision under stress is not easy. Sometimes your decision may be clearly right but difficult to carry out. This kind of stress may be put upon the pilot who has passengers on board that are on a schedule. If the weather is bad or below minimums he knows it is safer to go to another airport, however he feels pressure from the passengers. He may feel pressured to keep trying to get in, to go a little lower or just one more try. This type of behavior can cause accidents. You may get away with it once or twice. *AC 60-22 Aeronautical Decision Making* addresses this under *Definitions: Poor Judgement (PJ) Chain is a series of mistakes that may lead to an accident or incident. 1. One bad decision often leads to another; and 2. As a string of bad decisions grows, it reduces the number of subsequent alternatives for continued safe flight.* He may make it in today. As his experience grows and the more he is successful in cases like this, he may fall into an **Operational Pitfall** (A behavioral trap that pilots may fall into). From *AC 60-22: Pilots, particularly those with considerable experience, as a rule always try to complete a flight as planned, please passengers, meet schedules, and generally demonstrate that they have the "right stuff". These tendencies ultimately may lead to practices that are dangerous and often illegal, and may lead to a mishap.* We all may experience this at one time or another. Don't fall prey to *Get-There-Itis* or *Duck-Under-Syndrome. Get-There-Itis* will certainly affect your decision-making skills. The *Duck-Under-Syndrome* is when pilots go below minimums based on a belief that there is a "fudge" factor built in. **Not true!**

I have reviewed the NTSB database of accidents, specifically those that occurred on the *missed approach.* The data included everything from small aircraft in a single pilot operation, to airliner operations. Over 90% of them occurred after the 2nd missed. Some were after the 3rd and 4th missed. One such accident happened on the 2nd missed. At the time of the accident the PIC had been up for over 21 hours without sleep. Lack of sleep may also affect your decision-making ability. This pilot fell into several pitfalls; one bad decision leads into another and it just gets worst, get-there-itis, and or duck-under-syndrome. The weather at the airport was ¼ mile with fog and it was night. Going to an alternate may have been a better choice. This evidence shows that there is decision-making problems occurring during and after the missed.

Executing a missed (when the weather is below minimums) is a matter of discipline. During our preflight planning, we should select at least one reasonable alternate. This could be something close to your original destination or you may chose to return to where you departed from (if fuel permits). When doing this you must consider any movement of fronts or other weather systems that can cause airports to go below minimums. If we do this type of planning before we launch into IMC, it will make our decision-making a little easier.

While enroute talk to flight watch to get the current weather at your destination. If the flight is long enough, you may do this several times, and by doing this you can see the trend of the weather (is it getting better or worst). If it is below minimums and or getting lower, this is a good time to consider your alternates, from our preflight planning. Check the weather at your alternates. I recommend doing this as early as possible enroute while the workload is light (you are flying straight and level, the autopilot may be on). This gives us plenty of time to look at our options. If the weather is at or below minimums, check the weather at your alternate or alternates. If the alternates are still good, trying an approach at your original destination may be reasonable, if fuel permits, and it is still above minimums when you arrive. You may find that the weather is coming down at your alternate, if this is the case, and it is still above minimums, you may decide to go

there, or look at other alternates. By doing this early enroute, we have plenty of time to look at the big picture and have a good, safe plan.

If the weather is below minimums when we arrive and we are operating under part 91, we may "take a look". Before you do this, keep in mind that 135 operators cannot begin the final approach segment of an instrument approach procedure to an airport unless the latest weather conditions are at or above the authorized IFR landing minimums for that procedure. Part 121 operators may not make an instrument approach at an airport except in accordance with IFR weather minimums and instrument approach procedures set forth in the certificate holder's operations specifications (as stated in the FARs). Both 135 and 121 have a much more structured and precise training syllabus. They normally have two pilots. Maybe it would be a good idea to follow their procedures or have your own similar to theirs. When doing this, consider your experience level and the equipment that you have. Autopilots, radar altimeters, GPS, etc can lighten your workload. If you have an autopilot that is coupled, you work load is not as high compared to hand flying. I follow part 135 rules when it comes to the approach.

If you do miss the approach, consider the weather before you try again. One of the accidents in the NTSB database, happened in December of 1997. A private pilot with an instrument rating was attempting a second approach into the Hastings Airport, Hastings, Nebraska. The weather was 100 foot overcast with light winds. If the weather is that low and with light winds, it probably will not change much in the time it takes you to come around for another try. This is what I would consider *Poor Judgement* or *Get-There-Itis.* Considering the weather, he should not have attempted the approach the first time. Always consider the weather the missed may take you into. There can be a big difference in the weather at the airport and where the missed may take you. For example, if there are thunder storms in the area, a missed for a particular runway may put you into them, and if there is a chance that you may have to fly the published missed, maybe it would be better to chose a different runway, where the missed will not put you into any storms.

Going from IMC to VFR and then back into IMC can be very demanding on you. It takes time to get back on the instruments. *AC 60-4A Pilot's Spatial Disorientation* says *(Test conducted with qualified instrument pilots indicate that it can take as much as 35 seconds to establish full control by instruments after the loss of visual reference with the surface.* You can lose your orientation in less than **20 seconds**. Vertigo, disorientation, or loss of control. All of this can give the pilot the urge to get the airplane on the ground. This can cause *bad decisions*. You may want to go lower or keep trying at the same airport, instead of going on to a good alternate. Visual illusions may affect us during a missed. From the AIM, *Somatogravic illusion: A rapid acceleration during takeoff (or a missed) can create the illusion of being in a nose up attitude. The disoriented pilot will push the aircraft into a nose low, or dive attitude.* With all that is going on during a missed, you may not catch this. You must scan your instrument panel and rely on them for aircraft attitude.

When you must make a quick decision (after a missed), you have to call upon whatever knowledge and information you have at the moment. You must realize that you may not make good decisions under stress, emotionally upset, or pressured for a quick action. Decisions made flying deserve more of your consideration (sometimes more than we have to give at the moment), since they can affect other people with you and on the ground. This is why I recommend doing this during your preflight planning. If you or your company does not have any procedures written about this, maybe you should. I have a personal rule that I will try two approaches to an airport or runway and if weather or wind (strong cross winds) keeps me from landing, then I go somewhere else. I selected my alternates on the ground, where I had time to make a good decision. Decisions are generally based on five elements: facts, knowledge, experience, analysis, and judgment. Notice I didn't say anything about passengers or schedules. If passengers or a schedule put pressure on you and you make a decision that causes an accident, remember you are PIC (directly responsible for, and is **the final authority** as to, the operation of that aircraft). Fly within **your** limits and **your** comfort level.