

Accident Prevention Program

Introduction to Pilot Judgment

A safe pilot consistently makes good judgments. What is good judgment? It's the ability to make an "instant" decision, which assures the safest possible continuation of the flight. But judgment may often be a series of evaluations, made over a period of minutes, hours, or even longer, that keeps you out of danger.

Good judgment guarantees the positive aspects of flying-the freedom to walk to your aircraft, go flying, and return home safely. Good judgment is an intangible component of flying which enhances safety. Good judgment can be the lifesaving edge in the midst of an unforeseen situation.

While general aviation flying is a safe mode of transportation, accident statistics indicate that the vast majority of accidents involve pilot error. In fact, most pilots who enjoy the adventure of flying recognize that certain risks are involved. Airmen who are either unaware of the potential hazards or who actually relish the opportunity to take unnecessary risks are those likely to be involved in judgment-error accidents.

Through education and experience, pilots and pilots-to-be can learn good judgment just as thoroughly as they learn the mechanical concepts and basic skills of flying. In fact, learning judgment is just as much an important part of flying as learning to make good takeoffs and landings.

PILOT RESPONSIBILITY

When the government certifies a pilot, it is granting that pilot the privilege to use public airspace and air navigation facilities. In accepting this privilege, the pilot is expected to adhere to the rules without engaging in any activities which might infringe on the rights and safety of others. At all times it's the pilot's responsibility to, operate an aircraft safely, legally, and carefully.

Further, the pilot in command always has direct responsibility for the operation of his aircraft, a responsibility not shared with anyone else-not with controllers, passengers, or flight instructors. Awesome as these responsibilities are, they are not spelled out in detail in any official document. When certificated, a pilot is expected to use his "good judgment" to understand and interpret the rules in individual situations and in the most responsible manner. However, accident statistics seem to indicate that pilots unfortunately fail to live up to that expectation. Nearly 90 percent of general aviation accidents may be attributed in part or in whole to pilot error-including poor judgment. We can see, then, why the exercise of good judgment is so critical to flying safely.

WHAT IS JUDGMENT?

Judgment is not easily defined. One definition is that judgment is good, common "sense" as applied to the making of decisions, especially correct decisions. "Sense" relates to an intense awareness, realization, and understanding of all the factors which are involved in making a correct decision. Sense is generally applied to a person's ability to act effectively and positively in any given situation.

A most significant aspect of pilot judgment is an outcome. Judgment is not an end in itself but involves both a decision to act and a response—be it an action or even an inaction. In making a decision, pilots must consider all relevant intrapersonal, aircraft, and environmental factors which have, or may have, an influence upon his or her decision making process. Pilot judgment is thus a process which produces a thoughtful, considered decision relating to the aircraft's operation along with an inseparable response (i.e., action/inaction) to that decision.

Taking the viewpoint, then, that good pilot judgment is a process which involves thoughtful consideration and an outcome, a definition emerges:

Pilot judgment is the process of recognizing and analyzing all available information about oneself, the (aircraft, and the flying environment followed by the rational evaluation of alternatives to implement a timely decision which maximizes safety. Pilot judgment thus involves one's attitudes toward risk-taking and one's ability to evaluate risks and make decisions based upon one's knowledge, skills, and experience. A judgment decision always involves a problem or choice, an unknown element, usually a time constraint, and stress.

JUDGMENT CONCEPTS

The following material contains concepts and terms which are used throughout this text. They have been especially designed to lead you to think more carefully about your flight activities and to guide you toward exercising better pilot judgment.

Three Subject Areas

There is no need to memorize a lot of material in order to improve your judgment. However, you must learn the meanings of a few terms. The first is **SUBJECT AREA**. Subject area refers to the subject about which a judgment is made. In aviation there are three judgment subject areas:

- Pilot - "P"
- Aircraft - "A"
- Environment - "E"



Pilots are continually making judgments about their own competency, state of health, level of fatigue, and many other variables. Any time the problem focuses on the pilot, we include it under the subject area **PILOT**. Example:

The pilot had only 4 hours of sleep the night before. A friend then asked the pilot to fly him to a meeting in a town 700 miles away. Using good judgment about his fatigue. The pilot said no.

A Aircraft

Decisions are frequently based on judgments about the aircraft, such as its power, equipment, or airworthiness. Any judgment about the airplane and its equipment is lumped into the subject area **AIRCRAFT**. Example:

During preflight, the pilot noticed the fuel cap did not seem to lock securely. The pilot decided to delay takeoff while a mechanic checked the situation. The pilot's good judgment was confirmed when the mechanic had to install a new cap.

E Environment

Although the aircraft subject area is really part of the pilot's environment, we separate it because it is such a critical and frequent focus of judgment. Everything else besides the aircraft is the subject area **ENVIRONMENT**. Example:

The pilot was landing a small, single-engine plane just after a helicopter had departed. The pilot assumed that turbulence would not be a problem, but the plane slammed into the runway due to vortices from the helicopter.

Judgment decisions often combine pilot-aircraft-environment. Example:

Pilot/Environment P/E

With a 90-degree, 30-knot left crosswind (E), the pilot attempted to make a landing. The pilot's left leg was in a cast (P). and he had trouble using the rudder. Upon touchdown, the aircraft veered sharply to the right and collided with an embankment.

The Poor Judgment (PJ) Behavior Chain...an Introduction

Most aircraft accidents result from a combination of circumstances rather than from a single cause. In reality, accidents are the result of a chain of causes, involving a variety of pilot-aircraft-environment factors and occurring as a series of errors in judgment, called the **POOR JUDGMENT BEHAVIOR CHAIN** or **PJ CHAIN**.

For example:

A noninstrument rated pilot, with limited experience flying in adverse weather, was to arrive at his destination by a certain time, and he is already 30 minutes late. In spite of his weather inexperience, he decides to fly through an area of possible thunderstorms and will reach this area just before dark. Arriving in the thunderstorm area, he encounters lightning, turbulence, and heavy clouds. Night is approaching, and the thick cloud cover makes it very dark. In the darkness and turbulence, the pilot became spatially disoriented because he failed to trust his instruments.

This pilot has made several errors in judgment. First, he let his desire to arrive at his destination on time override his concern for a safe flight. Then, he overestimated his flying abilities and decided to use a route that took him through a potential area of thunderstorm activity. Next, the pilot pressed on into obviously deteriorating conditions instead of changing course or landing prior to his destination.

The disastrous results, however, need not have been a foregone conclusion. The pilot could have broken the PJ Chain at any time, but he did not. Good judgment would have meant flying around the adverse weather and accepting the fact that he might be late. Even once in the bad weather, good judgment could have led the pilot to decide to avoid flying into clouds and turbulence. And, finally before becoming disoriented in the dark, the pilot could have used good judgment to calm himself and rely on his instruments.

Principles of the PJ Chain

- One poor judgment increases the probability that another will follow. Judgments are based on information the pilot has about himself, the aircraft, and the environment, and the pilot is less likely to make a poor judgment if this information is accurate. Thus, one poor judgment increases the availability of false information which may then negatively influence judgments that follow.
- As the PJ Chain grows, the alternatives for safe flight decrease. If a pilot selects only one alternative among several, the option to select the remaining alternatives may be lost. For example, if a pilot makes a poor judgment and flies into hazardous weather, the alternative to circumnavigate the weather is automatically lost.

Breaking the PJ Chain

Since pilot judgment is a mental process, pilots can be trained-or even retrained if necessary-to use good judgment in the first place or to stop the influence of poor judgment. Breaking PJ Chain in itself is an act of good pilot judgment.

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