

I.G. Risk Management

References: [Aviation Instructor's Handbook \(FAA-H-8083-9\)](#)

Objectives	The learner should develop knowledge of the elements related to managing and mitigating risk.
Elements	<ol style="list-style-type: none">1. Principles of Risk Management2. Risk Management Process3. Level of Risk4. Assessing Risk5. Mitigating Risk6. IMSAFE Checklist7. PAVE Checklist8. 5P Checklist
Schedule	<ol style="list-style-type: none">1. Discuss Objectives2. Review material3. Development4. Conclusion
Equipment	<ol style="list-style-type: none">1. White board and markers2. References
IP's Actions	<ol style="list-style-type: none">1. Discuss lesson objectives2. Present Lecture3. Ask and Answer Questions4. Assign homework
SP's Actions	<ol style="list-style-type: none">1. Participate in discussion2. Take notes3. Ask and respond to questions
Completion Standards	The learner can recognize potentially hazardous situations and effectively mitigate risk using the concepts and procedures listed here.

Instructor Notes:

Introduction:

Attention

We're pilots, we like the rush of flight and the sense of danger. All FAA operations in the United States involve risk; don't let the risk and danger get out of control.

Overview

Review Objectives and Elements/Key ideas

What

Risk management is a decision-making process designed to perceive hazards systematically, assess the degree of risk associated with a hazard, and determine the best course of action.

Why

Flying is inherently dangerous, but there are ways to keep the danger to a minimum. This lesson will describe ways to recognize and mitigate the risk involved with flying.

How:

1. Principles of Risk Management

- A. The goal of risk management is to proactively identify safety-related hazards and mitigate the associated risks
- B. Accept no Unnecessary Risk
 - i. Only accept the necessary risk
 - a. Flying is impossible without risk, do not make a situation more dangerous than necessary
- C. Make Risk Decisions at the Appropriate Level
 - i. In single pilot situations, the pilot makes decisions (not ATC, or passengers)
 - ii. In other situations, it may be beneficial to "go up the ladder" for a decision
 - a. i.e. Talk to the chief pilot or experienced CFI about a potentially risky situation
- D. Accept Risk When Benefits Outweigh the Costs
 - i. Analyze costs and benefits, make an informed decision
- E. Integrate Risk Management into Planning at All Levels
 - i. Safety requires risk management planning in all stages of flight
 - a. Plan early and throughout to avoid unnecessary, amplified risk

2. Risk Management Process

- A. Step 1: Identify the Hazard
 - i. A hazard is any real or potential condition that can cause degradation, injury, illness, death, damage to or loss of equipment or property
- B. Step 2: Assess the Risk
 - i. Determine the level of risk associated with the identified hazards
 - a. Assess in terms of its likelihood (probability) and its severity (consequences)
 - ii. Develop a method to tangibly measure risk (Risk Assessment Matrix, below)
- C. Step 3: Mitigate the Risk
 - i. Look into ways to reduce, mitigate, or eliminate the risk
 - ii. All risks have 2 components: Probability of occurrence & Severity of the hazard
 - a. Try to reduce or eliminate at least one component
 - iii. Use the Cost/Benefit analysis to decide if it is worth accepting the risk

3. Level of Risk

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- A. The level of risk posed by a given hazard is measured in terms of:
 - i. Severity (extent of possible loss)
 - ii. Probability (likelihood that a hazard will cause a loss)

4. Assessing Risk

- A. Pilots must differentiate *in advance* between a low-risk flight and a high-risk flight
- B. Establish a review process and develop strategies to minimize risk on the high and low risk flights
- C. The Risk Matrix is a helpful risk assessment model
 - i. Assesses the likelihood of an event occurring and the consequences of that event
 - a. Likelihood (probability of occurrence): Probable, Occasional, Remote, Improbable
 - i.e. Likelihood of a pilot flying MVFR to encounter IFR conditions
 - b. Severity: Catastrophic, Critical, Marginal, Negligible
 - i.e. If pilot is not IFR rated how severe could the consequences be
 - ii. High Probability/Severity is bad and vice versa:

Risk Assessment Matrix					
Likelihood		Severity			
		Catastrophic	Critical	Marginal	Negligible
Probable	High	High	Serious		
Occasional	High	Serious			
Remote	Serious	Medium		Low	
Improbable					

5. Mitigating Risk

- A. After determining the level of risk, the pilot needs to reduce the risk
 - i. Analyze options that can reduce unnecessary risk
 - a. i.e. Cancel/delay flight, bring CFI or more experienced pilot, etc.
- B. By effectively mitigating known risks to acceptable levels, pilots can complete their planned flights safely or ensure alternate options are selected for those rare occasions when the planned or ongoing flight cannot be accomplished

6. IMSAFE Checklist

- A. Mitigate risk by determining your own physical and mental readiness for flight
 - i. Illness – Symptoms?
 - ii. Medication – Taking any?
 - iii. Stress – Family, money, relationships, work, etc.
 - iv. Alcohol – Been drinking?
 - v. Fatigue – Well rested?
 - vi. Eating – Properly nourished?

7. PAVE Checklist

- A. Another way to mitigate risk
- B. The risks of flight are divided into 4 categories
 - i. Once the risks have been identified, decide whether the risk or combination of risks can be managed safely and successfully. If not, the flight should be cancelled
- C. Pilot in Command: Am I ready? (IMSAFE Checklist, proficiency, recency, currency, etc.)
- D. Aircraft: Is the aircraft appropriate for the trip?
 - i. Maintenance, Landing Distance, Performance Capabilities, Equipment, Fuel load, Altitude, etc.

- E. EnVironment: Weather, Terrain, Airports, Airspace, Day/Night, etc.
- F. External Pressures: Influences outside of the flight that create pressure to complete the flight, often at the expense of safety
 - i. This is the most important key to risk management because it is the one risk factor category that can cause a pilot to ignore all the other risk factors
 - ii. Follow your own personal operating procedures (don't bend the rules for anyone), plan for delays, and manage passenger's expectations to reduce external pressure

8. 5P Checklist

- A. The 5 Ps are used to evaluate the pilot's current situation at key decision points during the flight, or when an emergency arises
 - i. This is a very helpful portion of Single Pilot Resource Management (SRM)
 - ii. Based on the idea that the pilot has five variables that impact the environment and can cause the pilot to make a single critical decision, or several less critical decisions, that when added together can create a critical outcome
 - iii. The process is simple; at least 5 times before/during the flight, review and consider the 5 P's and make the appropriate decision required by the current situation
 - a. The decision points include preflight, pre-takeoff, hourly or at the midpoint of flight, pre-descent, and just prior to the final approach fix or entering the traffic pattern
- B. The 5 P's:
 - i. The Plan
 - a. The mission. It contains: planning, weather, route, fuel, publication currency, etc.
 - b. The plan is always changing (weather changes, delays, restrictions, etc.), adjust with it
 - ii. The Plane
 - a. Condition, abilities (performance, but also automation, database currency, etc.), equipment, systems, etc.
 - iii. The Pilot
 - a. IMSAFE
 - b. Allows the pilot to recognize and review his/her physiological situation
 - iv. The Passengers
 - a. Passenger's desires can have an influence on decision making and risk management
 - Plan ahead as much as possible
 - b. Ensure passengers are involved in decision making process
 - Ensure they understand risk involved in situations
 - a i.e., IFR approach below minimums or takeoff with IFR below landing minimums
 - c. Understand what passengers want to do
 - They may be more risk averse than you
 - v. The Programming
 - a. Plan in advance when and where programming approaches/route changes, and airport information gathering should be accomplished, as well as when it should not be accomplished
 - b. Pilot familiarity with the equipment, the route, the local air traffic control environment, and personal capabilities should drive when, where, how the automation is programmed and used
 - c. Always consider pilot capabilities in relation to programming

Conclusion:

Brief review of the main points

It is extremely important that a pilot (especially a learner pilot) has the ability to recognize and effectively mitigate risk in order to provide a safe flight for him/herself as well as the passengers. This chapter provided many factors to consider and ways to reduce the inherent risk associated with flying.

PTS Requirements:

To determine that the applicant exhibits instructional knowledge of risk management by describing:

1. Principles of risk management.
2. Risk management process.
3. Level of risk.
4. Assessing risk.
5. Mitigating risk.
6. IMSAFE checklist.
7. PAVE checklist.
8. 5P checklist.

