Task IG: Risk Management

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Lesson Overview

Overview

The student should develop knowledge of the elements related to managing and mitigating risk.

References

- *FAA-H-8083-9A.*
- AIH, Chapter 10: Teaching Practical Risk Management during Flight Instruction
- AIH, Chapter 1: Risk Management and Single-Pilot Resource Management
- PDF Version

Elements

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

Schedule

1. Discuss lesson objectives
2. Present Lecture
3. Ask and Answer Questions
4. Assign homework

Equipment

1. White board and markers
2. References
3. iPad / Projection Device

IP Actions

1. Discuss lesson objectives
2. Present Lecture
3. Ask and Answer Questions
4. Assign homework

SP Actions

1. Participate in discussion
2. Take notes

3. Ask and respond to questions

Completion Standards

The student can recognize potentially hazardous situations and effectively mitigate risk using the concepts and procedures listed here.

Instructor Notes

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.
- Examination of accident data often tells that many aviation accidents involve poor risk management decisions.
- Effective risk management is one of **the most important skills** a pilot needs to learn, understand, and practice as a habit.

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.

Lesson Details

Flying is inherently risky (but so is life). It is impossible to fly with zero risk, and risk management is the practice of assessing risk and insuring that no unnecessary risk is assumed. Part of that practice includes assessing risk at the appropriate level: by the individual pilot in single-pilot operations, or "going up the ladder" (i.e. to a CFI, or chief pilot) for decision making assistance if those resources are available. Make informed decisions and accept risk when the benefits outweigh the costs, and integrate risk management planning at all levels and in all phases of aviating.

Principles of risk management

- Risk management is a logical process of weighing the potential costs of risks against the possible benefits of allowing those risks to stand uncontrolled.
- It is a decision making process designed to identify hazards systematically, assess the degree of risk, and determine the best course of action.
- Can be determined with a simple question of, "What if I don't do anything about it?"

Difference between ADM and Risk Management

- *ADM*: Right now
- *Risk Management*: In the future

A M A I - What four basic principles of risk management

1. **A** ccept no unnecessary risk — Unnecessary risk is that which carries no commensurate return in terms of benefits or opportunities.
2. **M** ake risk decisions at the appropriate level - The decision-maker must be authorized to accept levels of risk typical of the planned operation.
    - **Ultimately it's the pilot who is responsible** - They are the person who is living with the concequences of the bad decision.
    - The pilot, not the passengers or operators need to determine risk.
3. **A** ccept risk when benefits outweigh the costs - All identified benefits should be compared against all identified costs.
4. **I** ntegrate risk management into planning at all levels - *Risks are more manageable in planning phase.*

Risk management process

Risk management is a simple process which identifies operational hazards and takes reasonable measures to reduce risk to personnel, equipment, and the mission.

> ***"Risk management is a more realistic term than safety. It implies that hazards are ever-present, that they must be identified, analyzed,***

> ***evaluated and controlled or rationally accepted."***
>
> **-Jerome Lederer**
>
> - Director of the Flight Safety Foundation for 20 years and NASA's first director of Manned Flight Safety
> - Quoted in his obituary, The New York Times, 9 February 2004.

Level of risk

- **Improbable** — an event is highly unlikely to occur.
- **Remote** — an event is unlikely to occur, but is possible.
- **Occasional** — an event will probably occur sometime.
- **Probable** — an event will occur several times.

Assessing risk

> **"There are no new types of aircrashes — only people with short memories. Every accident has its own forerunners, and every one happens either because somebody did not know where to draw the vital dividing line between the unforeseen and the unforeseeable or because well-meaning people deemed the risk acceptable. If politics is the art of the possible, and flying is the art of the seemingly impossible, then air safety must be the art of the economically viable. At a time of crowded skies and sharpening competition, it is a daunting task not to let the art of the acceptable deteriorate into the dodgers' art of what you can get away with."**
>
> **-Stephen Barlay**
>
> *The Final Call: Why Airline Disasters Continue to Happen, March 1990.*

- **Risk assessment is the most difficult part of the risk management process.** Assessing risk severity (consequences) and likelihood (probability) can be subjective during flight operations.
- Instructors should initially lead learners through the assessment phase of each risk identified and provide examples that will help the learner gain confidence in risk assessment.
- Use the Risk Chart

Mitigating risk

- To mitigate is to manage the risk.
- Scenario: a Non-Instrument rated pilot wanting to fly on a marginal day.

    - Wait for weather to improve
    - Take an instrument rated pilot
    - Cancel the trip.
    - DRIVE A CAR
- Mitigation process should begin days before a flight.
- The final and most improtant step of mitigation is to determine if you're going to accept a flight or not.
    - Vigilence is maintained even after the decision to go is made.
    - Departure is option, landing isn't.

IMSAFE checklist

- **I** llness — Do I have any symptoms?
    - A student might want to fly regardless of the above issues, because yuo're in the plane with them. Go back to the FOI, they won't learn because their physical needs aren't being met. *Practice IMSAFE decision making early on in the learning process.*
- **M** edication — Have I been taking prescription or over-the-counter drugs?
    - Use the AOPA site for Medication, it's better organized than the FAA's.
- **S** tress — Am I under psychological pressure from the job?
- **A** lcohol — Have I been drinking within 8 hours? Within 24 hours?
    - 8 Hours is simply not enough, be smart with this.
- **F** atigue — Am I tired and not adequately rested?
    - Incidious - This should focus not only on student, but the instructor too.
- **E** ating — Am I adequately nourished? (dehydration as well)
    - Also, it might be a good idea to avoid eating a 7/11 chili-dog before spin-training.

PAVE checklist

- **PAVE** - divides the risks of flight into four categories:
    - **P** ilot
    - **A** ircraft
    - en **V** ironment
    - **E** xternal Pressures.
- Personal Minimums Worksheet - Fill this out with the pilot, repeatedly as their skills improve. This teaches the basis of risk management and establishes practice early on.

5P checklist

- The **5Ps** - used to assess risk in each of the five categories:
  - the **P**lan
  - the **P**lane
  - the **P**ilot
  - the **P**assengers
  - the **P**rogramming.

Conclusion

It is extremely important that a pilot (especially a student 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.

ACS 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.

Memory Sheet

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.
    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 □ight and a high-risk □ight
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
    ii. High Probability/Severity is bad and vice versa:

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.
    - **I** llness — Do I have any symptoms?
    - **M** edication — Have I been taking prescription or over-the-counter drugs?
    - **S** tress — Am I under psychological pressure from the job?
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7. PAVE checklist.
    - the **P**lan
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    - the **P**assengers
    - the **P**rogramming.
8. 5P checklist.
    - the **P**lan
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