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Area of Operation **I** - Task **G**

Risk Management

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Key References:
- Aviation Instructor's Handbook

Content

1. Introduction
2. Risk Management Process
3. Assessing & Mitigating Risks
4. Checklists
5. Aeronautical Decision Making

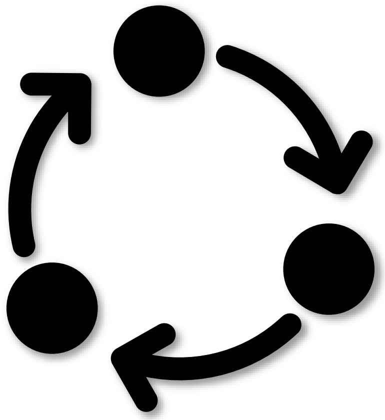
1. Introduction

- **What**: Risk management is a decision-making process designed to perceive hazards, systematically assess the risk associated with the hazard, and determine the best course of action
- **Why**: There is risk associated to flying and flight instructors must keep the risk to an acceptable minimum
- **Goal of Risk Management:** Proactively identify safety-related hazards and mitigate risks

- **Principles of Risk Management**
  - **Accept No Unnecessary risk**
  - **Make risk decisions at the Appropriate Level**
    - ✓ *During flight ➔ PIC makes decision*
    - ✓ *Maintenance ➔ escalate to higher level*
  - **Accept risk when benefits outweigh the costs**
  - **Integrate risk management into planning at all stages of flight**

2. Risk Management Process

- **Step 1: Identify the Hazard**
  - Potential for injury, death, damage or loss of property
- **Step 2: Assess the Risk**
  - Likelihood
    - ✓ ***Probable*** *– an event will occur several times*
    - ✓ ***Occasional*** *– an event will probably occur sometime*
    - ✓ ***Remote*** *– an event is unlikely but is possible*
    - ✓ ***Improbable*** *– an event is highly unlikely to occur*
  - Severity
    - ✓ ***Catastrophic*** *– results in fatalities, total loss*
    - ✓ ***Critical*** *– severe injury, major damage*
    - ✓ ***Marginal*** *– minor injury, minor damage*
    - ✓ ***Negligible*** *– less than minor injury, less than minor system damage*



- **Step 3: Mitigate the Risk**
  - Look for ways to reduce likelihood of occurring, minimize severity in case it does, or eliminate the risk
  - Use the cost vs benefit analysis

3. Assessing & Mitigating Risks

- **Assessing Risk**
  - Categorize risk into the Risk Assessment Matrix, and/or...
  - Use FRAT (Flight Risk Assessment Tool) to quantify risks before each flight →
- **Mitigating Risk**
  - After determining the risk levels, analyze options to mitigate
  - Focus on Moderate (Serious) or High risk
  - *Take action: fly with a CFI, change destination, postpone the flight, etc*

Risk Assessment Matrix

Likelihood	Severity: Catastrophic	Critical	Marginal	Negligible
Probable	High	High	Serious	
Occasional	High	Serious		
Remote	Serious	Medium		Low
Improbable				

Pilot		Yes	Your Value
	Less than 50 Hours in Aircraft or Avionics Type	0	0
	Less than 15 hours in last 90 days		3
	Flight will occur after work		0
	Less than 8 hours sleep prior to flight		0
	Dual Instruction Received in last 90 days		0
	WINGS Phase Completion in last 6 months		-3
	Instrument Rating current and proficient		0

Flight Conditions			
	Twilight or Night		0
	Surface wind greater than 15 Knots		4
	Cross wind greater than 7 Knots		0
	Mountainous Terrain		0

Airport			
	Non-towered Airport or tower closed at ETD or ETA		5
	Runway length less than 3,000 Feet		0
	Wet or soft field Runway		0
	Obstacles on Approach and/or departure		0

VFR Flight Plan			
	Ceiling less than 3,000 feet AGL		2
	Visibility less than 5 SM		0
	No Weather Reporting at destination		4
	Flight Plan filed and activated		0
	ATC Flight Following used		0

IFR Flight Plan			
	Ceiling less than 1000 feet AGL		0
	Visibility less than 3 SM		0
	No Weather Reporting at destination		0

Approaches - Instrument Pilots			
Best Available Approach			
	Precision Approach		0
	Non precision Approach		0
	No Instrument Approach		0
	Circling Approach		0

Total Risk Value 15

Pilot	Experience	Low Risk	Moderate Risk	High Risk
VFR	<100 In Type	5 to 15	15 to 20	> 20
VFR	>100 In Type	15 to 20	20 to 25	>25
IFR	<100 In Type	20 to 25	25 to 30	>30
IFR	>100 In Type	25 to 30	30 to 35	>35

4. Checklists

PAVE

*Assess the **broad risk elements** before the flight*

- **(P)** – Pilot
- **(A)** – Aircraft
- **(V)** – EnVironment
- **(E)** – External Pressures

IM SAFE

*Assess the specific risks **associated to the Pilot***

- **(I)** – Ilness
- **(M)** – Medication
- **(S)** – Stress
- **(A)** – Alcohol
- **(F)** – Fatigue
- **(E)** – Emotion

5P

*Similar to PAVE, but to be used in **all stages of the flight***

(Single-Pilot RM, Emergencies, etc)

- **(P)** – Plan
- **(P)** – Plane
- **(P)** – Pilot
- **(P)** – Passengers
- **(P)** – Programming

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5. Aeronautical Decision Making

- **ADM**: <u>Systematic approach</u> to determine the <u>best course of action</u> in response to a <u>given set of circumstances</u>

- **Instructor must develop student's ability to:**
  - <u>Make sound decisions, good judgment</u>, and <u>timely</u>
  - Identify and correct Hazardous Attitudes →
  - Manage stress (a certain amount is good and normal)
    - ✓ *Too much can be dangerous if person is not able to cope*

Hazardous Attitudes & Antidotes [AC 60-22 Chapter 3]

- <u>Antiauthority</u> (*Don't tell me*) → "Follow the rules, they are usually right"
- <u>Impulsivity</u> (*Do it quickly*) → "Not so fast, think first"
- <u>Invulnerability</u> (*It won't happen to me*) → "It could happen to me"
- <u>Macho</u> (*I can do it*) → "Taking changes is foolish"
- <u>Resignation</u> (*What's the use*) → "I'm not helpless"

3 types of stress →

Stressors

Physical Stress
Conditions associated with the environment, such as temperature and humidity extremes, noise, vibration, and lack of oxygen.

Physiological Stress
Physical conditions, such as fatigue, lack of physical fitness, sleep loss, missed meals (leading to low blood sugar levels), and illness.

Psychological Stress
Social or emotional factors, such as a death in the family, a divorce, a sick child, or a demotion at work. This type of stress may also be related to mental workload, such as analyzing a problem, navigating an aircraft, or making decisions.

- **Decision Making Process**
  1. Defining the Problem
     - ✓ *Recognize and identify*
  2. Choosing a Course of Action
     - ✓ *Determine what actions are proper for the time available*
  3. Implementing the Decision and Evaluating the Outcome
     - ✓ *Execute and continue monitoring the outcome*

- *<u>3P Model</u>: Perceive → Process → Perform*
- *<u>DECIDE</u>: Detect, Estimate, Choose outcome, Identify solution, Do, Evaluate*

Questions?