(Aircraft) CASE STUDY

TITLE:

FOCUS SKILL: Mission Analysis

SOURCE:

TERMINAL OBJECTIVE: Upon completion of this case study the aircrew will understand the importance of Mission Analysis in aircraft operations.

ENABLING OBJECTIVES: 1.

2.
DESCRIPTION:

INTRODUCTORY TEACHING POINTS:

What is Mission Analysis?

Mission analysis refers to the ability to make short-term, long-term, and contingency plans and to coordinate, allocate, and monitor crew and aircraft resources. This includes:

- Organizing and planning for what will occur during the mission.
- Monitoring the current situation.
- Reviewing and providing feedback on what has occurred.

Failure to develop a good plan, or to revise a plan when the situation changes, can result in a failed mission or a mishap.

The three stages of mission analysis:

Mission analysis occurs before, during, and after a mission and consists of:

- Pre-mission organizing and planning.
- In-flight monitoring and updating.
- Post-mission review.

Preflight and debrief characteristics

A good preflight brief:

- Is comprehensive
- Sets expectations for all crew members
- Is interactive
- Is valued by all crew members

A good debrief:

- Is interactive
- Is valuable to all crew members
- Is a selective review
- Is timely

Pre-mission analysis:

- Establishes mission requirements and constraints.
- Specifies both long term and short term plans.
- Advises the crew of what to expect.
In-flight analysis:

- Critiques and updates existing plans
- Evaluates results of previous decisions
- Informs the crew of changes to flight concept

Post-mission analysis:

- Critiques entire mission.
- Determines areas of future improvement.

Remember:

- Mission analysis is a crew effort - how well you coordinate actions can make a difference!
- Each stage of mission analysis has an impact on the overall mission.
- Failure to develop a good plan, or to revise a plan when the situation changes, can result in a failed mission or a mishap

INSTRUCTOR DIRECTIONS: Divide the class into seven small groups to discuss the case study. Present the case study using the following steps:

1. Describe the goal of the case study exercise and present the focus questions. Ask if anyone has questions about the exercise or the focus questions.
2. Allow time to read and discuss the case study in relation to the focus questions.
3. Lead a discussion or have groups present their findings in relationship to the focus questions. Highlight key points on board or other medium as discussion develops.

DESCRIPTIVE SYNOPSIS:

1. (Synopsis with annotations)
2. Possible Synopsis Additions.
   a.
   b.
   c.
3. List of focus and support CRM skills.
   a. Decision Making: The ability to choose a course of action using logical and sound judgment based on the available information.
b. **Assertiveness:** The willingness to actively participate, state, and maintain a position until convinced by the facts that other options are better.

c. **Mission Analysis:** The ability to develop short-term, long-term, and contingency plans and to coordinate, allocate, and monitor crew and aircraft resources.

d. **Communication:** The ability to clearly and accurately send and receive information, instructions, or commands; and provide useful feedback.

e. **Leadership:** The ability to direct and coordinate the activities of crew members and to encourage the crew to work together as a team.

f. **Adaptability/Flexibility:** The ability to alter a course of action based on new information, maintain constructive behavior under pressure, and adapt to internal and external environmental changes.

g. **Situational Awareness:** The degree of accuracy by which one’s perception of the current environment mirrors reality.

**FOCUS QUESTIONS AND ANSWERS**

1. What THREATS came “at” the crew and what Strategies were used to Prepare for Threats and initially deal with them?

2. What ERRORS came “from” the crew and how did they use MA to Repair the Errors?

3. What Undesired Aircraft State was achieved and how did the crew use MA to Recover?

4. What could have been done to avoid this situation?

**SUMMARY TEACHING POINTS**

1.

2.

3.
(Aircraft) CASE STUDY

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SOURCE:

SYNOPSIS:

FOCUS QUESTIONS:

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Case Study Title

CRM CASE STUDY
Name

- Personal Info
- Etc.
Question Policy
Overview

• Objectives
• Critical Skills Review
• Case Study Focus Skill
• Synopsis
• Focus Questions
Objectives

- Terminal Objective
- Enabling Objective
Crew Resource Management

• Allows a crew to interact effectively while performing mission tasks
• A program to effect behavior modifications in order to prevent human factor and crew preventable errors
• To improve mission effectiveness through increased awareness of associated behavioral skills
CRM Critical Skills Review

- Decision Making (DM)
- Assertiveness (AS)
- Mission Analysis (MA)
- Communication (CM)
- Leadership (LD)
- Adaptability/Flexibility (AF)
- Situational Awareness (SA)
Case Study Focus Skill

MISSION ANALYSIS

• The ability to make short-term, long-term, and contingency plans and to coordinate, allocate, and monitor crew and aircraft resources
Mission Analysis Includes

• Organizing and planning for what will occur during the mission

• Monitoring the current situation

• Reviewing and providing feedback on what has occurred
Three stages of Mission Analysis

• Pre-mission organizing and planning

• In-flight monitoring and updating

• Post-mission review
Pre-mission analysis

• Establishes mission requirements and constraints

• Specifies both long and short term plans

• Advises the crew of what to expect
In-flight analysis

- Critiques and updates existing plans
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Post-mission analysis

• Critiques entire mission

• Determines areas of future improvement
Synopsis
Identify:
- Threats
- Strategies
- Errors
- Resist/Resolve

MISSION EFFECTIVENESS

Safe Operations

CRM 7 Critical Skills
- Decision Making
- Assertiveness
- Mission Analysis
- Communication
- Leadership
- Adaptability / Flexibility
- Situational Awareness

Incident/Accident

Prepare

Repair

Recover

Strategies

Errors

Threats

Resist / Resolve

Undesired Aircraft State
Focus Questions

1. What THREATS came “at” the crew and what Strategies were used to Prepare for Threats and initially deal with them?

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4. What could have been done to avoid this situation?
Focus Question #1

• What THREATS came “at” the crew and what Strategies were used to Prepare for Threats and initially deal with them?

Strategies to Prepare:
• CRM
• ORM
• TEM
• Clearly defined roles of aircrew members
• Complete briefing and effective communication
• NATOPS / System Knowledge

Identify and PREPARE
Focus Question #2

• What ERRORS came “from” the crew and how did they use MA to Repair the Errors?

↓Errors↓

TCAS
Windshear Detection
Autopilot
Professionalism
Health

GPWS
GPS Warning Systems
Map Display
WX Radar

FMC

Resist

Map Display
WX Radar

Human-ware
What Tools Are You Bringing To The Fight?

Hardware
What Are Your Systems Doing For You?

Resolve

Systems Knowledge Experience

Challenging Warning Systems

TEM Model 2015
Focus Question #3

• What Undesired Aircraft State was achieved and how did the crew Recover?

Identify and RECOVER

Undesired Aircraft State: A position, speed, attitude, condition, or configuration of an aircraft that reduces safety margins.
Focus Question #4

• What could have been done to avoid this situation?
Remember

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Questions?