EASA
European Union Aviation Safety Agency

Hazards and risks in CAMO environment

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Contents

- → Brief Introduction to Hazard Identification;
- → Risks in CAMO
- → Examples
- → Detailed Example
- → Discussions

Management System three core Processes:

- Hazard Identification
- Risk Assessment
- Mitigation Actions

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Hazard Identification

What do we mean by Hazards in CAMO environment?

→ Anything which **impacts the role and responsibility of the CAMO** which has the potential to **cause harm** (consequences).

primary job of the safety board function

Hazard Identification (*CAMO.A.200 (a) (3) and AMC1 CAMO.A.200(a)(3)*)

→ Three complementary approaches:

→ *Historic* (reactive) approach – based on accident and incident investigation and analysis;

→ *Diagnostic* (proactive) approach – analysis of existing situations using internal reporting ;

→ *Prognostic* (predictive) approach – analysis of DATA. Depends on time and sufficient DATA available.

Description of the consequences

→ It is important to develop a comprehensive list of all likely or projected consequences for each identified hazard and accurately describe them.

Risks in CAMO (1)

What do we mean by a Risk in CAMO environment?

→ A **risk** in CAMO is the chance, high or low, that any **identified hazard in CAMO** will actually **cause harm.**

How do we measure the Risk?

→ Risk is measured in terms of a combination of the **probability** of the identified harm occurring and the **severity of the consequences** it does.

Risk management

→ The **risk management** process is strongly dependent of a sound hazard identification and associated description of the **consequences**.

→ Risk management process ensures (*CAMO.A.200 (a) (3) and AMC1 CAMO.A.200(a)(3)*):

(i) analysis (e.g. in terms of the probability and severity of the consequences of hazards and occurrences);

(ii) assessment (in terms of tolerability); and

(iii) control (in terms of mitigation) of risks to an acceptable level.

Risk in CAMO (2)

Three basic questions will help to identify hazards:

1. What are the sources/conditions for hazards?
2. What can go wrong?
3. What would be the possible consequences?

Examples

Hazards in CAMO - examples:

→ (Deficient or innefective) maintenance planning management;

→ (Rapid and large number of A/C) ‘Return to Service’ after Storage;

→ Changes:

  → Significant changes in personnel (e.g. due to CoViD-19);

  → Changes in the economic situation (e.g. financial pressure due to CoViD-19)

Projected consequences description:

→ Missing an Airworthiness Directive;

→ Steps missed in de-storage procedures or procedures not adequate.

→ Not enough personnel with CAW expertise.

→ Availability of resources, e.g. updated approved data, ICA, IT.

Risk in CAMO: Risk Assessment Matrix

Risk probablility		Risk severity				
		A	B	C	D	E
		Catastrophic	Hazardous	Moderate	Minor	Negligible
5	Frequent	5A	5B	5C	5D	5E
4	Occasional	4A	4B	4C	4D	4E
3	Remote	3A	3B	3C	3D	3E
2	Improbable	2A	2B	2C	2D	2E
1	Extremely improbable	1A	1B	1C	1D	1E

- Determination of risk level based on hazards probability and its consequences severity is an important task and is the basis of constructing the Risk Assessment Matrix;
- Conditions might change, e.g. CoViD-19 pandemic, leading to new hazards or changing exposition to known hazards;
- If risk assessment is not revised increased level of resulting risks might not be captured;

Detailed Example:

Rapid and large number of A/C ‘Return to Service’ after Storage

Rapid and large number of A/C ‘Return to Service’ after Storage

Return to Service of aircraft after Storage: Key issues that need attention

- → TC holder instructions considered, current and applied?
- → **Determine minimum inspection content before RtoS and first flight.**
- → Dedicated inspection of long parked aircraft determined?
- → Have dedicated procedures been followed to spot **improper storage**, or
- → Have steps been missed during storage?
- → Have key systems been identified that require specific focus?
- → Focus on addressing repetitive defects and **critical maintenance tasks**.
- → Unavailability of parts: **cannibalisation, use of unserviceable or unapproved parts**

Source of Hazards: Rapid and large number of A/C 'Return to Service' after Storage **Undesired Event: Aircraft not safe for flight**				
Hazards (conditions leading to undesired event)	*Consequences (risks)*	*Initial Risk level*	*Actions to mitigate the risk*	*Residual acceptable risk*
Lack of sufficient staff	Failing to determine minimum inspection content due to workload before RtoS and first flight.	3C		
Lack of required parts and materials	Cannibalisation, use of unserviceable or unapproved parts	3B		
Lack of appropriate procedures and TCH instructions	Improper strorage of the aircraft	4B		
Procedures and/or instructions are not followed	Critical maintenance tasks not accomplished	4B		

Discussions