

Sofema Aviation Services` Considerations related to Part-CAMO and Part M and the transition from Part M Subpart G

Sofema Aviation Services (SAS) www.sassofia.com is please to present a consolidated review of multiple elements related to the management of continuing Airworthiness from a Continuing Airworthiness Management Organizations (CAMO) Perspective.

This Paper considers also the the Challenges to Introduce an SMS within an EASA Part CAMO Compliant Organisation

Introduction

Part M Subpart G has now entered the realm of history having been replaced by Part CAMO. As an industry, we have anticipated the need for the development of Part M, in particular, to better address the needs of the General Aviation Community for some time. Part M Light (Part ML), which essentially replaced Part M Subpart F has met this objective.

EASA Part M is a core element of the Continuing Airworthiness Regulation (EU No 1321/2014) which establishes the regulation involving the continuing airworthiness of the aircraft, its parts and appliances as well as the organisations and personnel involved.

Part M is annex 1 to the regulation and Part CAMO is Annex Vc.

Availability of Training Support

[Sofema Aviation Services \(SAS\)](#) and [Sofema Online \(SOL\)](#) offer multiple training courses as either Classroom, Webinar, or Online training the following courses:

- a) EASA Part ML – 1 Day
- b) EASA Part CAO – 2 Days
- c) EASA Part CAMO – 1 Day
- d) SMS for Part CAMO – 1 Day
- e) HF&SMS Initial course for Continuing Airworthiness Staff – 3 Days
- f) Part M 2020 – 2 Days

All Continuing Airworthiness Management Organisation (CAMO) Staff will be interested in SAS & SOL Classroom, Webinar & Online Training as well as Aircraft Owners & Operators, and members of the European CAA's.

Please see a complete list of available courses with Sofema Online here <https://sofemaonline.com/43-marketing/108-a-to-z>

Managing the Development of Competence in your CAMO Organization.

To establish an appropriate level of competence and knowledge within the CAMO group and to answer the following questions:

- 1/ Are you fully briefed and aware of the new EASA rules and Regulatory Requirements as well as your organizational obligations?
- 2/ Do your transition plan fully address all training requirements – how is your Safety Management System (SMS) implementation developing?
- 3/ Are you familiar with the impact of all changes as well as the need for Initial and Recurrent Training?
- 4/ Are you familiar with both the need for SMS and enhanced reporting requirements that your organisation will need to comply with?

Note - Part-CAMO is applicable for both aircraft used by licensed air carriers as well as Complex Motor Powered Aircraft CMPA.

- Part-CAMO has superseded the existing Subpart-G of Annex I (Part-M)
- Part-CAMO includes provision for SMS.
 - SMS guidance may be found in the following document:
 - Opinion 06/2016 (NPA/CRD 2013-01A/B, RMT.0251/MDM.055) – Embodiment of safety management system (SMS) requirements into Commission Regulation (EU) No 1321/2014.

Considering the Potential for HF Error within the CAMO Roles

The Primary Roles of the CAMO are

- Maintenance Planning,
- Technical Records,
- Reliability &
- Engineering.

Each “Role” brings the challenges of how we can ensure enough attention to both personal and organisational responsibility when we consider the potential for HF error.

HF Example – Stress Caused by Pressure from “Poor Planning”.

We are not considering here that it could be the Maintenance Planning Worker who is stressed – however, this is, of course, a possibility, and we should always make sure that our team members have the appropriate level of “Competence” for the role

Note – When we talk about “Competence” we are considering a combination of knowledge, skills and attitude towards the work that needs to be performed. (Consider the Organisational Role in the management of Competence)

So how does this work then how can bad planning cause stress, well simply it goes like this (and remember that almost all HF events are a composite – where several factors conspire together to lead to a negative outcome.

- Within Maintenance Planning we have an obligation to provide the “Work Package” in the most effective way. Each time we leave a gap we create an exposure
- New Task loaded as an AD Hoc on the check – not researched – tooling required which is not available – AOG for tooling leading to time constraints.
- Excessive work loaded onto the check when considered against the time and manpower available.
- Tasks loaded without consideration for HF exposure – for example perform a dual borescope at 1500 HRS when it would be possible to perform 1 borescope at each 750 Hrs
- Poor layout of the work instruction or task card.

In the case of the first two we are creating an environment which applies pressure to the worker, the natural outcome of any pressure is to feel stress and it is in relation to this stress that the worker can make human error mistakes.

In the case of the dual borescope above we are setting up the process to increase the exposure to “Fail” Multiple exposures raises the possibility of simultaneous mistakes being made, in this example by creating a problem on both engines –

On 23 February 1995, a British Midland Boeing 737-400 made an emergency landing at Luton airport UK after losing most of the oil from both engines during initial climb out from East Midlands airport UK, attributed to failures in the quality of maintenance work and procedures during routine inspections of both engines prior to the flight.

In the case of d) above we are failing to provide information in a user-friendly way which acknowledges the potential for HF error by carefully identifying Warnings, Cautions and Actions and Notes.

EASA CAMO / AMO Technical Library & Documentation Requirements

Applicable Maintenance data is:

- Any applicable requirement, procedure, standard, or information issued by the competent authority or the Agency,
- Any applicable airworthiness directive,
- Applicable instructions for continuing airworthiness, issued by type certificate holders (TCH), Supplementary type certificate holders (STCH).
- Other data in accordance with Annex I (Part-21) to Regulation (EU) No 748/2012.
- Any applicable data issued in accordance with point 145.A.45(d).

Availability of Technical Data

The organization shall ensure that all applicable maintenance data is current and readily available for use when required including:

- All applicable maintenance requirements;
- All applicable ADs;
- The appropriate sections of the:
 - o Aircraft maintenance programme,
 - o Aircraft maintenance manual,
 - o Repair manual,
 - o Supplementary structural inspection document,
 - o Corrosion control document,
 - o Service bulletins,
 - o Service sheets modification leaflets,
 - o Non-destructive inspection manual,
 - o Parts catalogue,
 - o Type certificate data sheets,
 - o Vendor maintenance and repair manual, service bulletins, and service letters,
 - o Any document issued by the type certificate holder as maintenance data.

Note: In the case of operator or customer-provided maintenance data it is not necessary to hold such provided data when the work order is completed.

Engine / APU Maintenance Supporting Data

Applicable maintenance data typically includes

- Engine maintenance and/or overhaul manual
- Airworthiness limitations related to Engines if applicable
- Eng. Wiring diagrams
- Eng. Parts catalogue
- Eng. Troubleshooting manual (TSM)

o Issued by the engine TCH (or aircraft TCH if the engine is certified as part of the aircraft) or by

o The DAH.

- APU maintenance and/or overhaul manual
- APU wiring diagrams
- APU parts catalogue
- APU TSM troubleshooting

o Issued by the aircraft TCH, or

o Issued by the APU manufacturer and acceptable to the TCH of the aircraft on which it is installed or to the DAH.

145.A.45 Maintenance data Requirement's Ref (EU) No 1321/2014 & (EU) 2021/700

The organisation shall hold and use applicable current maintenance data in the performance of maintenance, including modifications and repairs.

- 'Applicable' means relevant to any aircraft, component or process specified in the organisation's approval class rating schedule and in any associated capability list.
- In the case of maintenance data provided by an operator or customer, the organisation shall hold such data when the work is in progress, with the exception of the need to comply with point 145.A.55(c).

Applicable maintenance data shall be any of the following:

- Any requirement, procedure, operational directive or information issued by the authority responsible for the oversight of the aircraft or component;
- Any AD;
- Instructions for continuing airworthiness (ICAW), issued by Data I.A.W Annex I:

o Type certificate holders,

o Supplementary type certificate holders,

o Data I.A.W Annex I (Part-21) to Regulation (EU) No 748/2012,

o (In the case of aircraft or components from third countries the airworthiness data mandated by the authority responsible for the oversight of the aircraft or component).

- Any applicable standard, such as but not limited to, maintenance standard practices recognised by the Agency as a good standard for maintenance;

Note 1: The organisation shall establish procedures to ensure that if found, any inaccurate, incomplete, or ambiguous procedure, practice, information, or maintenance instruction contained in the maintenance data used by maintenance personnel is recorded and notified to the author of the maintenance data.

Note 2: The organisation may only modify maintenance instructions in accordance with a procedure specified in the maintenance organisation's exposition.

- Shall demonstrate result in equivalent or improved maintenance standards and shall inform the type-certificate holder of such changes. (exclude the engineering design of repairs and modifications.)

Hazards within an EASA Part CAMO Organisation

For the purpose of aviation safety risk management, hazards should be focused on those conditions that could cause or contribute to unsafe operation of aircraft or aviation safety-related equipment, product, and services.

An important mechanism for proactive hazard identification is a voluntary hazard/incident reporting system.

- (Information collected through such reporting systems may be supplemented by observations or findings recorded during routine site inspections or organization audits)
- Hazards can also be identified or extracted from a review of any in-process documentation or from investigation reports, especially those which are deemed to have indirect contributing factors and which may not have been adequately addressed by corrective actions resulting from the investigation process.
- Thus, a systematic procedure to review accident/incident investigation reports for outstanding hazards is a good mechanism to enhance an organization's hazard identification system.

What Do We Mean by Hazards?

Well in simple terms it is potentially anything which impacts the role and responsibility of the CAMO which has the potential to cause harm – so could affect People / Equipment / The organisation or Financial Exposure, primarily in respect of safety with secondary exposure to support the “well-being” of the organisation.

- A **hazard** is something that can cause harm, e.g. electricity, chemicals, working up a ladder, noise, a keyboard, a bully at work, stress, etc. A **risk** is a chance, high or low, that any **hazard** will actually cause somebody harm.
- Hazard identification is a prerequisite to the safety risk management process. Any incorrect differentiation between hazards and safety risks can be a source of confusion.

Understanding our Exposure (Understanding Hazards and Consequences)

- A clear understanding of hazards and their related consequences is essential to the implementation of sound safety risk management.
- Any hazard that can have an impact (whether directly or indirectly) on the operational safety of aircraft or aviation safety-related equipment, products, and services should be deemed to be pertinent to an aviation SMS.
- To be Clear a Hazard in itself is not necessarily a bad thing, in fact, it is a normal component of everyday aviation life.
- Our goal, therefore, has to be to capture all hazards in such a way that they can be analyzed and assessed, this is one of if not the most challenging part of the organization process.
- Whilst Hazards are an inevitable part of aviation activities, their manifestation, and possible consequences can be addressed through various mitigation strategies to contain the hazard's potential from resulting in unsafe aircraft or aviation equipment operations.
- There is a common tendency to confuse hazards with their consequences or outcomes.

Note 1 – A consequence is an outcome that could be triggered by a hazard. For example, a runway excursion (overrun) is a projected consequence in relation to the hazard of a contaminated runway.

By first defining the hazard clearly, one can then project the proper consequence or outcome.

Note 2 – It may be noted that the consequences of a particular Hazard can be multi-layered, including as an intermediate unsafe event, before an ultimate consequence (accident).

Whilst the ultimate consequence could be an accident, the damaging potential of a hazard in fact materializes through one or many consequences.

How to Describe Consequences

- It is therefore important for safety assessments to include a comprehensive account of all likely consequences described accurately and in practical terms.
- The most extreme consequence, loss of human life, should be differentiated from those that involve the potential for lesser consequences such as

increased flight crew workload, passenger discomfort, or reduction in safety margins.

- The description of consequences according to their plausible outcomes will facilitate the development and implementation of effective mitigation strategies through proper prioritization and allocation of limited resources.

Hazard Identification

- Proper hazard identification leads to an appropriate evaluation of their potential outcomes.
- Hazards should be differentiated from error, a normal and unavoidable component of human performance, which must be managed.
- Hazards exist at all levels in the organization and should be detectable through the use of reporting systems, inspections, or audits.
- Mishaps may occur when hazards interact with certain triggering factors. As a result, hazards should be identified before they lead to accidents, incidents, or other safety-related occurrences.

Examples of Hazards within a CAMO Environment

- Incorrect assessment of the airworthiness status of the aircraft
- Changes to Operations (Routes)
- Inadequate Process & Procedures
- A/C introduction
- New approvals (e.g. ETOPS, PBN)
- Incorrect application of the MEL
- Missed maintenance task
- Incorrectly evaluated AD or SB
- Poor Communication with Maintenance, Flight Ops, Ground Ops
- Roles and responsibilities between CAMO and groups not sufficiently defined
- Sub-Contractor Management & Control
- Incorrect assessment of defect In-Adequate Defect Control / Task management
- Safety culture and ability to deliver positive change
- Shifts / Handover
- Manpower Job Description / Competence
- Poor Competence Assessment / Training
- Unqualified staff working without appropriate supervision

Considering the Challenges to Introduce an SMS within an EASA Part CAMO Compliant Organisation

Typical questions which we are asked by clients related to the introduction of SMS within an EASA Part CAMO compliant organisation:

- Provide examples of aviation safety hazards entailed by the activities of an organisation, how to evaluate them and the management of associated risks.
- Provide examples of how to mitigate the risks associated with activities and verify their effectiveness;
- How should we identify, evaluate and document all management system key processes of the organisation.
- Explanation of the internal safety reporting scheme and examples
- Hazard identification and reporting
- Examples of aviation hazards that might be encountered by a CAMO organisation
- When EASA talks about management system key processes, can you explain what they mean
- In an EASA Part CAMO environment discuss examples for the following points:
 - Safety Risk Management
 - Safety Assurance
 - Safety Policy and Objectives
 - Safety Promotion
- Special focus on Part 2, Management System Procedure
- Practical examples of SMS in a Part CAMO Organisation
- Management of Internal Safety Reporting
- Mandatory Occurrence Reporting
- Safety Performance Monitoring
- How to use HIRA forms (Hazard Identification and Risk Assessment) in a Part CAMO Organisation – some examples for discussion
- In a small organisation where the Quality Manager also acts as the Safety Manager – how are the responsibilities best kept independent of each other

What does Sofema Aviation Services offer?

All of the above questions are answered during our 1-day webinar, in addition, provided free of is a template for an SMS Manual in word format.

Please see [here](#)

EASA Part CAMO – Safety Management Systems - Introducing SMS in EASA Part CAMO

See here for all SMS courses available with Sofema Aviation Services
(www.sassofia.com)

<https://sassofia.com/course-search/?search=SMS>

A fully compliant Safety Management System provides a mechanism to proactively seek, identify, quantify as well as mitigate risks and potential hazards which exist in the business.

- Moreover, it provides for a mechanism to deliver a safer working process and environment in every facet of your day to day business activities.

A Course provided by Sofema Aviation Services delivers a practical pathway to implement Safety Management System (SMS) within your Part-CAMO organisation.

- During the course we will consider the challenges and issues which need to be overcome and successfully addressed:
- Gain a detailed awareness of the philosophy of safety management
- Be able to fully engage with the needs and benefits of SMS with a Part CAMO Environment
- Be able to deliver a continuous oversight of your organisations SMS
- Understand Roles and Responsibilities related to the Effective Implementation of your SMS
- Understand the impact of safety culture human and organizational factors in SMS implementation
- Be able to acquire and manage Data within the Organisational Environment

EASA Part CAMO Compliance Audit – Considering the Potential Exposures

Within the following areas may be found a number of exposures – however please note that while these are potential issues, many CAMOs operate at a high standard and may not have these problems.

The goal of any Compliance Audit is to identify areas of non-compliance and ensure that the organization takes corrective actions to meet EASA standards.

Specific Areas of Potential Exposure

Documentation and Records:

- Missing, incomplete, or outdated Continuing Airworthiness Management Exposition (CAME).
- Inadequate record-keeping of aircraft maintenance and airworthiness reviews.
- Absence of required manuals or outdated versions in use.

Personnel Qualifications and Training:

- Lack of evidence of required training for CAMO personnel.
- Absence of job descriptions or evidence of competency for key personnel.
- Inadequate or missing recurrent training records.

Airworthiness Review Procedures:

- Non-compliance with airworthiness review procedures.
- Inadequate tracking or follow-up on airworthiness review findings.

Contracted Services:

- Lack of oversight or audits of contracted services.
- Missing or inadequate contracts with service providers.
- Service providers not meeting EASA standards.

Quality Management System:

- Non-compliance with internal audit schedules.
- Inadequate corrective actions following internal or external audits.
- Absence or inadequacy of a feedback system for continuous improvement.

Safety Management System (SMS):

- Inadequate hazard identification or risk assessment processes.
- Missing or ineffective safety reporting system.
- Lack of safety training or awareness among staff.

Technical Data and Documentation:

- Use of outdated or unapproved technical data.
- Missing or incomplete aircraft technical logs.

Aircraft Maintenance Program:

- Non-compliance with the approved maintenance program.
- Inadequate monitoring or updating of the maintenance program based on aircraft usage or OEM recommendations.

Communication with Authorities:

- Failure to report significant incidents or accidents to the relevant authorities.
- Inadequate communication or delayed responses to airworthiness directives or other mandatory requirements.

Facilities and Equipment:

- Inadequate facilities for the storage of aircraft components or documentation.
- Use of uncalibrated or outdated equipment.

Performance Reviews:

- Absence of periodic performance reviews or evaluations of the CAMO's effectiveness.
- Lack of metrics or key performance indicators to measure CAMO performance.
- Situations where personal or financial interests might compromise airworthiness decisions.

Emergency Response Planning:

- Absence or inadequacy of an emergency response plan.
- Lack of training or drills related to emergency scenarios.

Tags: [Aviation regulatory training](#), [EASA Part CAMO Organisation](#), [Part CAMO](#), [Part CAMO training](#), [Regulatory Obligations](#), [Safety Management System](#), [SAS training](#), [SMS for Part CAMO](#), [Aviation Industry](#), [EASA Part M](#), [EASA Training](#), [Part CAMO](#), [Part CAO](#)

Next Steps:

Follow [this link](#) to our Library to find & Download related documents for Free.

Sofema Aviation Services www.sassofia.com & Sofema Online www.sofemaonline.com provide classroom, webinar & online training. For additional information please email team@sassofia.com