



# Terms of Reference

for Rulemaking Task RMT.0724

## Improvement of operating information provided to rotorcraft flight crew

ISSUE 1

### Issue/rationale

Contrary to the practice in the fixed-wing domain, the current practice in the rotorcraft domain is to concentrate the flight crew instructions in the rotorcraft flight manuals (RFMs). However, an RFM is essentially intended to be a certification document, and it is not, therefore, designed to address all operational needs.

The current means of compliance for the preparation of rotorcraft flight manuals is based on an FAA advisory circular (AC) that was last amended in 1999. That material was developed when the level of complexity of rotorcraft and their types of operations were much simpler than those of the current generation of rotorcraft. That material is no longer adequate, given the technological evolution observed during the last decade, which has resulted in more complex rotorcraft and systems.

This situation has had a negative impact on the safety of rotorcraft operations, and analysis of the occurrences in the EASA database shows that it has caused or contributed to a significant number of rotorcraft incidents and accidents.

The intention behind this RMT is, therefore, to improve the operating information that rotorcraft manufacturers provide to rotorcraft flight crew.

<b>Action area:</b>	Rotorcraft		
<b>Related rules:</b>	CS-27; CS-29; CS-VLR		
<b>Affected stakeholders:</b>	DOA holders; Rotorcraft operators		
<b>Driver:</b>	Safety	<b>Rulemaking group:</b>	Yes
<b>Impact assessment:</b>	Yes	<b>Rulemaking Procedure:</b>	Standard

### ● EASA rulemaking process milestones



# 1. Why we need to amend the rules — issue/rationale

## 1.1 Background

In the large aeroplane domain, there has been EASA guidance regarding flight crew operating manuals (FCOMs) since the initial issue of CS-25 in October 2003.

In particular, AMC 25.1581 recognises that, given the complexity of the equipment and systems installed on aeroplanes, manufacturers might find it useful to develop separate operating manuals for use by flight crews.

Moving information such as cockpit checklists, system descriptions and detailed procedures into FCOMs has kept the bulk and complexity of aircraft flight manuals (AFMs) manageable. As a result, the AFMs for many transport aeroplanes are nowadays regarded more as reference documents than as documents regularly used by flight crews. In recognition of the usefulness and convenience provided by these FCOMs, the normal operating procedure information in the AFMs for these transport category aeroplanes is generally limited to those procedures considered peculiar to the operation of each specific aeroplane type.

In the large aeroplane domain, the FCOM has become an industry-wide reference for the operations recommended by the original equipment manufacturers (OEMs), helping to standardise procedures across all large aeroplane operators.

Additionally, operators of large aeroplanes greatly rely on the FCOM as a reliable guideline for developing their own standard operating procedures, in accordance with the applicable requirements (refer to ORO.MLR.100 and the related AMC3 ORO.MLR.100).

Although in recent years, some rotorcraft manufacturers have voluntarily developed FCOMs for their products, often limited to a specific type of operation (i.e. offshore), the current practice is to concentrate flight crew instructions in rotorcraft flight manuals (RFMs).

The current EASA means of compliance for the preparation of rotorcraft flight manuals (RFM) is based on FAA Advisory Circulars (ACs) AC 27-1B and AC 29-2C, of which the parts relevant to RFMs were last amended in 1999. This material was developed when rotorcraft were less complex and their operations were much simpler than with the current generation of rotorcraft.

The concept of an FCOM is not mentioned in those ACs, and it is recognised within the industry that the AC material does not reflect the current state of the art of rotorcraft.

As per EU-OPS Regulation ORO.MLR.100, rotorcraft operators who perform commercial operations have to produce an operations manual that also contains the standard operational procedures to be followed by the crew. The workload that these organisations are facing is increasing due to the increased complexity of rotorcraft designs. This makes it even more difficult to draft detailed and precise operational procedures based on the information provided in RFMs and their supplements.

As rotorcraft operators may have a limited understanding of rotorcraft design philosophies, and modern rotorcraft are highly complex, this additional work may result in suboptimal procedures that could impair the safety of operations. Providing the crew with additional procedural information from the OEM (in the RFM or the FCOM) would mitigate this risk and would alleviate the workload for operators in preparing their operations manuals in accordance with the applicable requirements.

## 1.2 Description of the safety issues



As described above, the existing AMCs related to producing information that needs to be presented in the RFM were developed at a time when rotorcraft avionic systems were simpler and less integrated, with limited technology, and rotorcraft took part in simpler operations (usually day VFR). Those AMCs are not, therefore, in line with today's generation of complex and versatile rotorcraft, and they do not even consider the concept of an FCOM.

The current level of integration and the complexity of the equipment, as well as the kinds and complexity of current operations, require the information (for the crew) to be more comprehensive. The information required may change from moment to moment, depending on:

- the flight rules (visual flight rules (VFR)/instrument flight rules (IFR)) and weather conditions (visual meteorological conditions (VMC)/instrument meteorological conditions (IMC)) in which the operation is executed;
- day versus night operations, including night vision imaging system (NVIS);
- the atmospheric environment in which the rotorcraft is being flown at that moment (temperature/pressure), known icing conditions, limited icing conditions;
- the surface being overflown at that time (land or water);
- the height (above ground level, above obstacles);
- the airspeed;
- if conducting hovering operations, whether they are in or out of ground effect;
- the configuration of the rotorcraft (i.e. with or without a hoist; doors off; doors open; etc.);
- the kind of operation (e.g. sling, helicopter hoist operations (HHO), etc.);
- the number of crew;
- the autopilot modes engaged;
- the additional (safety) systems used (active and interacting with each other and other systems), e.g. airborne collision avoidance system (ACAS), helicopter terrain awareness warning system (HTAWS), ground proximity warning system (GPWS), enhanced vision system (EVS).

Additionally, while the current complexity and level of automation of rotorcraft necessitate easier (more flexible, more user-friendly) ways to provide and retrieve information, the current formats of RFM/pilot operating handbooks and flight operational instructions/briefing notices are still based on the principle of consulting hardcopy manuals, including those stored in electronic formats such as PDFs on electronic flight bags (EFBs).

The direct consequence of the situation described above is a lack of detailed information available to the crew, which, in turn, results in less standardisation and less than optimal procedures on the operator side, and reduced feedback from the end users to the OEM on the quality and applicability of the procedures and the design. This clearly reduces the sharing of information by the OEMs with training organisations and operators regarding the procedures that were used to design and evaluate the human factors aspects, and that should be taught or used when developing the applicable training/operations manuals.

Considering all this, it is clear that the way in which information is presented to the crew is no longer adequate for the current or future generations of rotorcraft, or for the types of operations that they carry out.

This situation has had a negative impact on the safety of rotorcraft operations, and analysis of the occurrences in the EASA database shows that it has caused or contributed to a significant number of rotorcraft incidents and accidents.



### 1.3 Related safety recommendations to EASA

During the last 10 years, EASA has received some safety recommendations (SR) directly addressing the need for new and improved operational information in rotorcraft manuals, plus other SRs indirectly addressing this issue. According to the originators of these SRs, the introduction or improvement of operational information in rotorcraft manuals would have potentially prevented, or mitigated, the outcomes of the related events.

Table 1 below provides a list of the SRs addressed to EASA from aircraft accident investigation report(s) published by the designated safety investigation authority<sup>1</sup> that will be considered during the development of this RMT.

Reference	Safety Recommendations
UNKG-2014-013 (AAIB)	It is recommended that the European Aviation Safety Agency provide Acceptable Means of Compliance (AMC) material for Certification Specification (CS) 29.1585, in relation to Rotorcraft Flight Manuals, similar to that provided for Aeroplane Flight Manuals in the AMC for CS 25.1585 to include cockpit checklists and systems descriptions and associated procedures.
UNKG-2016-005 (AAIB)	It is recommended that the European Aviation Safety Agency amends the Certification Specifications for Large Rotorcraft (CS 29) to align them with the Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes (CS 25), with regard to the provision of operational information in Flight Manuals.
UNKG-2016-006 (AAIB)	It is recommended that the European Aviation Safety Agency requires manufacturers of large rotorcraft to develop Flight Crew Operating Manuals for public transport types already in service.
CAP 1864 (Recommendation 8)	It is recommended that EASA encourage the Original Equipment Manufacturers (OEM) to produce Flight Crew Operating Manuals (FCOM) and Flight Crew Training Manuals (FCTM) for all current and future helicopter types.

Table 1

New SRs related to this task may be considered after the publication of this ToR, where appropriate.

## 2. What we want to achieve — objective

The overall objectives of the EASA system are defined in Article 1 of Regulation (EU) 2018/1139<sup>2</sup>. This project will contribute to the achievement of the overall objectives by addressing the issues outlined in Chapter 1.

<sup>1</sup> Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC (OJ L 295, 12.11.2010, p. 35) (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1479716039678&uri=CELEX:32010R0996>).

<sup>2</sup> Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament

The specific objective of this RMT is to increase the safety of rotorcraft operations by improving the operating information provided to rotorcraft flight crew.

### 3. How we want to achieve it

To ensure the achievement of the objectives identified in Chapter 2, the following activities will be conducted:

- A gap analysis will be conducted to identify the elements to be improved in the existing acceptable means of compliance for the preparation of RFMs;
- The results of the gap analysis will be used to identify the points to be addressed by new AMCs, elements that could be relevant for flight crew operating manuals (FCOMs), and elements that cannot be addressed by this rulemaking task.
- A new AMC will be drafted in order to develop guidance for a more comprehensive rotorcraft flight manual, with the objective of filling the gaps in the current material;
- This new AMC should ensure that OEMs will provide more details regarding the procedures to be followed for rotorcraft operations, both for normal and emergency procedures, which take into account the number of crew members, the configuration and the operational environment. As a result, these additional details should help to clarify which elements belong to the airworthiness domain and which elements are related to the operational domain;
- The overall structure and the minimum contents of an FCOM will be defined, allowing type certificate holders (TCHs) to introduce it on a voluntary basis if they decide to publish part of the operational information in this manual;
- The applicability of the proposed material will be assessed, and simplified if necessary, to ensure a proportionate approach;
- An impact assessment will be prepared on the basis of the initial assessment already performed by EASA.

### 4. What are the deliverables

The deliverables of this RMT are:

- a notice of proposed amendment (NPA) that contains the proposed proportionate amendments to CS-29, CS-27 and, if considered necessary, CS-VLR; and
- an ED Decision that amends CS-29, CS-27 and, if considered necessary, CS-VLR.

### 5. How we consult

A public consultation will take place through an NPA in accordance with Article 7 of the Rulemaking Procedure<sup>3</sup>.

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and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1535612134845&uri=CELEX:32018R1139>).

<sup>3</sup> EASA Management Board [Decision N°18-2015](#) of 15 December 2015 replacing Decision 01/2012 concerning the procedure to be applied by the Agency for the issuing of opinions, certification specifications, acceptable means of compliance and guidance material ('Rulemaking Procedure').

## 6. Interface issues

N/a

## 7. Profile and contribution of the rulemaking group

A rulemaking group will be established with the following objectives:

- a) To assess and complement the initial gap analysis proposed by EASA (refer to paragraph 3);
- b) Support EASA by providing inputs, as necessary, to conduct this RMT;
- c) Provide advice to EASA;
- d) Provide comments on the draft proposals prepared by EASA before launching public consultation through an NPA;
- e) Support EASA as necessary in reviewing the comments received during the public consultation of the NPA.

The profile of the rulemaking group and its members is described below.

Expertise required:

- Practical experience in the development of rotorcraft flight manuals;
- Practical experience in rotorcraft flight operations and in the preparation of operational manuals; or
- Experience in the approval of rotorcraft flight manuals.

Group composition:

- Representatives from EASA and Civil Aviation Authorities (CAAs);
- Rotorcraft manufacturers;
- Rotorcraft operators;
- Training organisations.

The maximum number of external members who will be accepted is 20, however, in order to ensure the necessary flexibility and effectiveness, this rulemaking group could be divided into sub-groups.

The rulemaking group members should be available to invest up to 20 hours per month in the activities related to this RMT.

## 8. Reference documents

### 8.1. Related regulations

N/a

### 8.2. Related decisions

Executive Director Decision No. 2003/17/RM of 14 November 2003 amending Certification Specifications and Acceptable Means of Compliance for Very Light Rotorcraft (CS-VLR);



Decision No. 2003/15/RM of the Executive Director of the Agency of 14 November 2003 on certification specifications for small rotorcraft ('CS-27');

Decision No. 2003/16/RM of 14 November 2003 on Certification Specifications and Acceptable Means of Compliance for Large Rotorcraft ('CS-29').

### 8.3. Reference documents

N/a

