



Opinion No 01/2014

Amendment of requirements for flight recorders and underwater locating devices

RELATED NPA/CRD 2013-26 — RMT.0400 (OPS.090(a)) & RMT.0401 (OPS.090(b)) — 5.5.2014

EXECUTIVE SUMMARY

This Opinion addresses safety issues related to the reliability and preservation of flight recorders and to locating the aircraft after an accident over water.

This Opinion proposes to address these safety issues by:

- mandating that obsolete recording technologies are not used anymore on aircraft operated for commercial air transport after 1 January 2019;
- mandating a CVR recording duration of 20 hours for large aeroplanes (MCTOM of over 27 000 kg) first issued with an individual CofA on or after 1 January 2020, and 2 hours for other aeroplanes required to carry a CVR;
- mandating a 90-day transmitting time for the ULDs fitted on flight recorders after 1 January 2018 for aeroplanes operated in CAT, and after 1 January 2020 in other cases; and
- mandating that large aeroplanes (MCTOM of over 27 000 kg) operated for CAT on long range overwater flights are fitted with a long range detection ULD after 1 January 2019.

The proposed changes are expected to increase safety by facilitating the recovery of information by the safety investigation authorities. They will address 13 safety recommendations from safety investigation authorities, improve ICAO compliance, and bring benefits for flight recorder serviceability and preservation, and for the retrieval of an aircraft after an accident over water.

This Opinion proposes amendments to Annexes IV (Part-CAT), VI (Part-NCC), and VIII (Part-SPO) to Commission Regulation (EU) No 965/2012 as last amended by Commission Regulation (EU) No 379/2014.

Applicability		Process map	
Affected regulations and decisions:	Annexes IV, VI and VIII to Commission Regulation (EU) No 965/2012; Decision 2012/017/R; Decision 2012/018/R; Decision 2013/021/R; Decision 2014/018/R (AMC/GM to Part-SPO)	Concept Paper:	No
Affected stakeholders:	Aircraft operators; flight crew members; aircraft pilots	Terms of Reference	24.9.2012
Driver/origin:	Safety, legal obligation (ICAO Standards)	Rulemaking group:	No
Reference:	ICAO Annex 6 Part I, Part II, and Part III Safety recommendations CAND-1999-002 (McDonnell Douglas MD11, HB-IWF, 02/09/1998); GREC-2006-045 (B737 of Helios, 5B-DBY, 14/08/2005); NORW-2006-013 (ATR 42, OY-JRJ 31/01/2005); NETH-2011-015 (Boeing 737, PH-BDP, 10/02/2010); UNKG-2012-013 (Boeing 767, G OOBK, 03/10/2010); FRAN-2012-025 (Airbus 340, F-GLZU, 22/07/2011); FINL-2012-003 (Airbus A330, OH-LTO, 11/12/2010); FRAN-2009-016, FRAN-2009-017, FRAN-2009-018, FRAN-2011-017 and FRAN-2011-018 (Airbus A330, F-GZCP, 01/06/2009); UNKG-2008-020 (ATR42, EI-SLD, 18/01/2007).	RIA type:	Full and light
		Technical consultation during NPA drafting:	No
		Publication date of the NPA:	20.12.2013
		Duration of NPA consultation:	3 months
		Review group:	No
		Focussed consultation:	No
		Publication date of the Decision:	2015/Q2

Table of contents

1. Procedural information	3
1.1. The rule development procedure	3
1.2. The structure of this Opinion and related documents	3
1.3. The next steps in the procedure	3
2. Explanatory Note	4
2.1. Issues to be addressed	4
2.2. Objectives	4
2.3. Outcome of the consultation	4
2.4. Summary of the Regulatory Impact Assessment	5
2.4.1. Preferred options	5
2.4.2. Impacts	5
2.5. Overview of the proposed amendments	7
2.5.1. Main differences with the amendments proposed by NPA 2013-26.....	7
2.5.2. Other differences with the amendments proposed by NPA 2013-26	8
2.5.3. Summary of the amendments to the current rules.....	9
2.5.3.1. Preservation and use of recordings.....	9
2.5.3.2. Flight recorder performance (commercial air transport)	11
2.5.3.3. Flight over water.....	12
2.5.3.4. Flight recorder performance (other than commercial air transport).....	12
3. References	13
3.1. Affected regulations.....	13
3.2. Reference documents	13

1. Procedural information

1.1. The rule development procedure

The European Aviation Safety Agency (hereinafter referred to as the 'Agency') developed this Opinion in line with Regulation (EC) No 216/2008¹ (hereinafter referred to as the 'Basic Regulation') and the Rulemaking Procedure².

This rulemaking activity is included in the Agency's [4-year Rulemaking Programme](#), under RMT.0400 (OPS.090(a)) & RMT.0401 (OPS.090(b)). The scope and timescale of the task were defined in the related Terms of Reference³ (see process map on the title page).

The draft text of this Opinion has been developed by the Agency. All interested parties were consulted through NPA 2013-26⁴. 75 comments were received from interested parties, including industry, national aviation authorities, operators and staff associations.

The Agency has addressed and responded to the comments received on the NPA. The comments received and the Agency's responses are presented in the Comment-Response Document (CRD) 2013-26⁵.

The final text of this Opinion (i.e. Explanatory Note and draft Commission Regulation) has been developed by the Agency.

The process map on the title page summarises the major milestones of this rulemaking activity.

1.2. The structure of this Opinion and related documents

Chapter 1 of this Opinion contains the procedural information related to this task. Chapter 2 'Explanatory Note' explains the core technical content. The draft rule text proposed by the Agency is published on the Agency's website⁶.

1.3. The next steps in the procedure

This Opinion contains proposed changes to Union regulations, and is addressed to the European Commission which will use it as a technical basis to prepare a legislative proposal.

The Decision containing the related Acceptable Means of Compliance (AMC) and Guidance Material (GM) will be published by the Agency when the related Implementing Rule(s) are adopted by the Commission. A draft text of the related AMC and GM is presented in CRD 2013-26.

¹ Regulation (EC) No 216/2008 of the European Parliament and the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1), as last amended by Commission Regulation (EU) No 6/2013 of 8 January 2013 (OJ L 4, 9.1.2013, p. 34).

² The Agency is bound to follow a structured rulemaking process as required by Article 52(1) of the Basic Regulation. Such process has been adopted by the Agency's Management Board and is referred to as the 'Rulemaking Procedure'. See Management Board Decision concerning the procedure to be applied by the Agency for the issuing of opinions, certification specifications and guidance material (Rulemaking Procedure), EASA MB Decision No 01-2012 of 13 march 2013.

³ <http://easa.europa.eu/system/files/dfu/ToR%20RMT.0400-0401%20%28OPS.090%29.pdf>

⁴ In accordance with Article 52 of the Basic Regulation and Articles 5(3) and 6 of the Rulemaking Procedure.

⁵ <http://easa.europa.eu/document-library/comment-response-documents>

⁶ <http://easa.europa.eu/document-library/opinions>

2. Explanatory Note

2.1. Issues to be addressed

There are four issues covered by this Opinion:

- (a) The unreliability of obsolete recording technologies such as magnetic tape, magnetic wire and frequency modulation. These technologies are still in use among flight recorders on board aircraft registered in Europe (refer to Regulatory Impact Assessment (RIA) A of NPA 2013-26: 'Discontinuation of obsolete recording technologies').
- (b) Frequent cases of the cockpit voice recorder (CVR) overwriting the recording after an accident or a serious incident (also called 'CVR overrun'), making the CVR useless for the safety investigation (refer to RIA B of NPA 2013-26: 'CVR overrun after an accident or a serious incident').
- (c) The insufficient transmission time of underwater locating devices (ULDs) fitted to flight recorders. In several cases, the signal of the flight recorder ULD faded out before it could be located (refer to RIA C of NPA 2013-26: 'Transmission time of flight recorder underwater locating device').
- (d) Difficulties in locating wreckage after an overwater accident when insufficient information on the accident location is available, and when in addition the sea floor is so deep that the signal of a flight recorder ULD cannot be detected from the sea surface (refer to RIA D of NPA 2013-26: 'Very long detection range underwater locating device for wreckage localisation in oceanic areas').

All four issues translate into essential recorded information or pieces of evidence being lost or recovered with very significant delay. They hinder or delay significantly the reconstruction of the sequence of events that led to an occurrence and the understanding of causes, rendering corrective actions impossible or happening too late.

2.2. Objectives

The overall objectives of the EASA system are defined in Article 2 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Section 2.1. of this Opinion.

The specific objectives of this proposal are to address the issues of:

- (a) obsolete recording technologies for flight recorders installed on board aeroplanes and helicopters required to carry an FDR or a CVR;
- (b) CVR overruns for CVRs installed on board aeroplanes and helicopters required to carry a CVR;
- (c) transmission time of flight recorder ULDs when considering aeroplanes and helicopters required to carry an FDR or a CVR; and
- (d) safety benefits of an additional ULD with a much higher detection range for wreckage localisation in oceanic areas.

2.3. Outcome of the consultation

A summary of comments as well as replies to individual comments can be found in CRD 2013-26.

2.4. Summary of the Regulatory Impact Assessment

2.4.1. Preferred options

The preferred options are the following:

- Mandate that from 1 January 2019, the CVR fitted to an aeroplane has a minimum recording duration of 2 hours and is not recording on magnetic tape or magnetic wire.
- Mandate that from 1 January 2019, the CVR fitted to a helicopter operated for commercial air transport is not recording on magnetic tape or magnetic wire.
- Mandate that aeroplanes with an MCTOM of over 27 000 kg and first issued with an individual Certificate of Airworthiness (CofA) on or after 1 January 2020 are equipped with a CVR that has a minimum recording duration of 20 hours.
- Mandate that if a CVR recording is used for purposes other than investigation by an authority and other than for ensuring the CVR serviceability, then a procedure relating to the handling of the CVR recordings and transcripts shall be in place.
- Mandate that the ULDs of crash-protected flight recorders required to be installed on commercial air transport aeroplanes have a transmission time of 90 days by 1 January 2018.
- Mandate that the ULDs of crash-protected flight recorders required to be installed on aircraft other than commercial air transport aeroplanes have a transmission time of 90 days by 1 January 2020.
- Mandate that commercial air transport aeroplanes with an MCTOM of over 27 000 kg are equipped by 1 January 2019 with an 8.8 kHz ULD when:
 - the aeroplane is operated over routes on which it is at no point at a distance of more than 180 NM from the shore, and
 - the aeroplane is not equipped with a reliable means to determine, in case of an accident where the aeroplane is severely damaged, the location of point of the end of flight within 6 NM accuracy.

2.4.2. Impacts

Table 1 presents a summary of the impacts of the preferred options. In addition, a summary of the quantified economic impacts was presented in Table 2 of NPA 2013-26. For more details, refer to Chapter 4 of NPA 2013-26.

Note 1:

The following abbreviations are used for the categories of impacts in Table 1:

- SAF stands for Safety,
- ECO stands for Economic,
- PRP stands for Proportionality,
- REG stands for Regulatory coordination and harmonisation.

Note 2:

In Table 1, '-/+ ' means a slightly negative/positive impact, '--/++ ' means a medium negative/positive impact, and '---/+++ ' means a very negative/positive impact.

Table 1 — Summary of impacts of the preferred options

Preferred options	Impacts				
	SAF	ECO	PRP	REG	Overall
RIA A and RIA B: - More frequent recording inspections for flight recorders using magnetic wire and frequency modulation, and fewer recording inspections for solid-state flight recorders. - Modify the OPS rules in order to mandate that from 1 January 2019: - all aeroplanes required to carry a CVR, be fitted with a CVR having a minimum recording duration of 2 hours, that is not recording on magnetic tape or magnetic wire; and - all helicopters operated for commercial air transport and required to carry a CVR, be fitted with a CVR that is not recording on magnetic tape or magnetic wire. - Require that aircraft operators develop comprehensive procedures to ensure flight recorder preservation following an accident or serious incident, while relaxing the requirement in the case of an incident subject to mandatory reporting. - Require that all aeroplanes with an MCTOM of over 27 000 kg and first issued with an individual CofA on or after 1 January 2020 be equipped with a CVR with a minimum recording duration of 20 hours. - Require that if a CVR recording is used for purposes other than investigation by an authority or ensuring the CVR serviceability, then a procedure relating to the handling of the CVR recordings and transcripts is established.	+++ (Unreliable recording technologies are phased out and causes of CVR overruns are addressed)	++ (Savings for solid-state recorders and less cases of mandatory preservation of flight recorders)	– (Small operators are impacted more)	+ (Better alignment with ICAO Annex 6)	+++
RIA C and RIA D: - Mandate that the ULDs of crash-protected flight recorders fitted to all commercial air transport aeroplanes that are required to carry a flight recorder have an underwater transmission time of 90 days by 1 January 2018. - Mandate that the ULDs of crash-protected flight recorders fitted to all aircraft other than commercial air transport aeroplanes that are required to carry a flight recorder have an underwater transmission time of 90 days by 1 January 2020. - Mandate that commercial air transport aeroplanes with an MCTOM of over 27 000 kg are equipped by 1 January 2019 with an 8.8 kHz ULD when: - the aeroplane is operated over routes on which it is at no point at a distance of more than 180 NM from the shore, and - the aeroplane is not equipped with a reliable means to determine, in case of an accident where the aeroplane is severely damaged, the location of the point of the end of the flight within 6 NM accuracy.	+++ (Robust solution to timely recover aircraft and flight recorder after an accident over water)	–/+ (Retrofit cost for industry, savings for underwater search operation supported by States)	+ (The more expensive retrofit with an 8.8 kHz ULD is only for CAT operators of large aircraft performing oceanic flights)	++ (Alignment with ICAO Annex 6)	+++

2.5. Overview of the proposed amendments

Note:

The applicability dates of the requirements proposed were determined assuming a publication of the Regulation in the second quarter of 2015. If the publication of the Regulation occurs later than the second quarter of 2015, the applicability dates should be adjusted to maintain an equivalent notice time.

2.5.1. Main differences with the amendments proposed by NPA 2013-26

Compared with the proposals of NPA 2013-26, the main differences are:

- (a) The requirement of a very long recording duration CVR for large aeroplanes is modified so that its minimum recording duration is 20 hours (instead of 15 hours), and this requirement applies to aircraft first issued with an individual CofA on or after 1 January 2020 (instead of 1 January 2019). Indeed, several comments on NPA 2013-26 suggested that a 15-hour recording duration may not be sufficient to capture the whole duration of a very-long-range flight. Although very-long-range flights only represent a small percentage of flights performed by operators of the EASA Member States, an increase of the recording duration of the CVR to 20 hours is finally proposed in order to provide for a solution that will always capture completely the last flight and that will provide sufficient time margin for preserving the CVR recording after completion of the flight in all cases. This will make the corresponding requirement satisfactory in the long term, which is important given that it will only apply to newly manufactured aeroplanes and thus it will have a long-term effect on safety.

As this increase from 15 to 20 hours corresponds to an increase of 33 % of the memory capacity of the CVR, more time should be granted to the industry to prepare. It is considered that 2 additional years are sufficient. Since the publication of this Opinion is advanced to the second quarter of 2014 (instead of the second quarter of 2015, as announced in the Terms of Reference of Rulemaking task RMT.0400 & RMT.0401), 1 year is already saved compared to the initial publication schedule. In addition, the date of applicability of this requirement is moved from 1 January 2019 to 1 January 2020, providing for the second additional year. Given that the very long recording duration CVR is a long-term solution anyway, and that other measures are also proposed by this Opinion for reducing the frequency of CVR overruns in the short and medium term, postponing the introduction of the very long recording duration CVR by 1 year is considered acceptable in terms of safety.

- (b) The applicability date for equipping flight recorders required to be carried on board commercial air transport aeroplanes with 90-day ULDs is advanced from 1 January 2020 to 1 January 2018.

Indeed, since the publication of this Opinion is advanced by 1 year, the applicability date for the requirements related to ULDs could also be advanced by 1 year to 1 January 2019. In addition, the recent accident of the B777 registered 9M-MRO of Malaysia Airlines (MH370) has highlighted once again that the 30-day period is an insufficient transmission time for a flight recorder ULD, in particular when considering large commercial air transport aeroplanes, because they usually have longer operating ranges than lighter aeroplanes and helicopters, and thus are more likely to have an accident far away from the shore. Therefore, in order to accelerate the replacement of flight recorder ULDs for this category of aircraft, the applicability date is advanced by another year to 1 January 2018.

ULDs compliant with ETSO-C121b are expected to be available by the end of 2014. When considering commercial air transport aeroplanes, a replacement of flight recorder ULDs by 90-day ULDs 2 years earlier might increase by a few tens of euros the remaining value of the replaced ULD, and thus the replacement cost, which was assessed to be EUR 420 per flight recorder in RIA C of NPA 2013-26. However, the

cost per flight recorder would remain below EUR 500, which means less than EUR 1 000 for an aircraft equipped with two flight recorders. Hence the economic impact of this option remains unchanged (slightly negative for the industry).

With regard to the impact on regulatory coordination and harmonisation, with an applicability date set on 1 January 2018, the EASA Member States will be in full compliance with the Standard 1.1c) of Appendix 9 of ICAO Annex 6 Part I, hence this impact is considered medium positive (instead of slightly positive in RIA C of NPA 2013-26).

- (c) The requirement to carry an 8.8 KHz ULD is not anymore restricted to those large commercial air transport aeroplanes that were first issued with an individual CofA on or after 1 January 2005; instead, it applies irrespective of the date of manufacture of the aircraft.

Indeed, in NPA 2013-26 it was proposed to not require them for aeroplanes manufactured before 2005, in order not to impose retrofit costs on aircraft for which the exposure to risk is considered lower (because their remaining service life is shorter). However, the accident of MH370 has highlighted once again the difficulties encountered during underwater search operations, when the sea floor is very deep and the search area is very large. Making the carriage of an 8.8 kHz ULD mandatory regardless of the date of manufacture will ensure that all large commercial air transport aeroplanes of the EASA Member States' operators overflying oceans are fitted with an 8.8 kHz ULD. Such a ULD model is a stand-alone equipment, so it can be installed on any large aeroplane, whatever its type or date of manufacture.

The Regulatory Impact Assessment D of NPA 2013-26 identified that the average retrofit cost per aircraft is less than EUR 3 500 per aircraft, and that 2 800 aeroplanes manufactured after 2005 would need to be retrofitted for a total cost of around EUR 10 000 000. If the criterion of the date of manufacture is removed, around 6 000 aeroplanes will be eligible, corresponding to a total cost of around EUR 20 000 000 for aircraft operators of the EASA Member States. This total cost impact can still be considered moderate.

With regard to the impact on regulatory coordination and harmonisation, this change would improve EASA Member States' compliance with Standard 6.5.3.1c) of ICAO Annex 6 Part I: except for the applicability date which is 1 year later than what is prescribed by this Standard, the requirement would not deviate from the Standard.

Note 1:

The publication of the Opinion is advanced by 1 year. However, given that models of TSO-C200 will not be commercially available before the second half of 2015, and given that a minimum of 30 months is advisable between the date of publication of the requirement and the date of applicability (to account for the retrofit design and certification), the date of applicability of 1 January 2019 proposed by NPA 2013-26 is not changed.

Note 2:

The condition 'operated over routes on which it is at no point at a distance of more than 180 NM from the shore' is more stringent than what is prescribed by Standard 6.5.3.1c) of ICAO Annex 6 Part I; therefore, it does not need to be notified as a difference with this Standard.

2.5.2. Other differences with the amendments proposed by NPA 2013-26

- (a) Subparagraph (f)(1) of paragraph CAT.GEN.MPA.195 has been reworded to require that if a CVR recording is used for purposes other than investigation (by a safety investigation authority, the competent authority, or the administration of justice) and other than for ensuring the CVR serviceability, then a procedure relating to the

handling of the CVR recordings and transcripts shall be in place in addition to getting the prior consent by crew members and maintenance personnel concerned. In addition, an AMC paragraph identifying important elements of the procedure for handling CVR recordings, recommending that all information with a privacy content is removed from the recording at an early stage, and that the aircraft operator retains sufficient information on the use made of the CVR recording and evidence that this use got the prior consent of the persons concerned will be added. A GM paragraph explaining why particular precautions must be taken when handling CVR recordings will also be added. Similar changes have been applied to NCC.GEN.145 and SPO.GEN.145.

- (b) Paragraphs CAT.IDE.A.185, CAT.IDE.A.190 and CAT.IDE.A.195 have been corrected so that the requirement to have 'a device to assist in locating it in water' only applies to a fixed flight recorder, and not to a deployable flight recorder. Indeed, deployable flight recorders are permitted by ETSOs C123b, C124b and C177, their performance is specified in EUROCAE Document 112 (which is referred to by AMC1 CAT.IDE.A.185, AMC2 CAT.IDE.A.190 and AMC1 CAT.IDE.A.195), and they are mentioned as a possible automatic means to determine the location of the point of end of flight within 6 NM accuracy. However, deployable flight recorders don't need to have a ULD, as they are designed to float upright into water and emit an emergency signal with their integrated Emergency Locator Transmitter (ELT). These corrections are also applied to helicopters and to Part-NCC and Part-SPO.
- (c) Subparagraph (f) of CAT.IDE.A.285 has been modified so that the scope of the automatic means to determine the end of flight with 6 NM is restricted to 'accidents where the aircraft is severely damaged'. Indeed, the definition of an accident according to ICAO Annex 13 and Regulation (EU) No 996/2010 is broader and encompasses cases where aircraft occupants or persons on the ground are fatally and seriously injured without the aircraft being severely damaged. In addition, this automatic means shall allow determining the location of 'the point of end of flight' instead of 'the point of impact with the Earth's surface', in order to account for in-flight collisions and explosions.
- (d) As a result of the changes made to the proposed text of the rules, and as a result of the comments received to the NPA, the related AMC/GM will also need to be changed once the rule is amended. The proposed AMC/GM, as well as an explanation of the changes made, can be found in CRD 2013-26.

2.5.3. Summary of the amendments to the current rules

2.5.3.1. Preservation and use of recordings

- (a) It is proposed to amend the provisions of Part-CAT related to the preservation of the flight recorder recordings by the flight crew and the aircraft operators.
 - (1) Subparagraph (a)(10) of CAT.GEN.MPA.105 is amended so that a distinction is made between occurrences subject to a safety investigation (accidents, serious incidents, and some incidents investigated by the safety investigation authority) and occurrences that must simply be reported in accordance with paragraph ORO.GEN.160 of Part-ORO. Indeed, since flight recorders are identified in the Minimum Equipment List of aircraft required to carry them, deactivating the flight recorders each time an occurrence subject to mandatory reporting occurs can have a significant operational impact. There are many more occurrences subject to mandatory reporting than accidents and serious incidents. To address this issue, it is proposed that:
 - (i) occurrences subject to a safety investigation require taking all the measures necessary to preserve the flight recorder recordings, in accordance with Regulation (EU) No 996/2010;
 - (ii) other occurrences, which correspond to in-flight incidents and are much more frequent, do not require quarantining the flight recorders.

Nevertheless, these occurrences are subject to mandatory reporting to the competent authority according to ORO.GEN.160(a) and to Regulation (EU) No 376/2014. Therefore, the recording of flight recorders shall not be erased by the flight crew, as it could be useful for an internal incident analysis or for reassessing the aircraft type airworthiness in accordance with Commission Regulation (EU) No 748/2012;

- (iii) since it may be difficult for the commander to determine quickly the severity of an occurrence, references to the definitions of an accident and a serious incident in Regulation (EU) No 996/2010 will be provided in a new Guidance Material: GM1 CAT.GEN.MPA.105(a)(10); and
 - (iv) it is also proposed to amend the provision requiring that the commander ensures that the flight recorders are not reactivated following an accident or a serious incident until the investigation authority agrees with their reactivation. The commander should only be responsible for ensuring that instructions in the Operations Manual are complied with and that precautionary measures are taken to preserve the recordings before leaving the flight crew compartment (including informing the relevant personnel). The operator is responsible for the subsequent actions.
- (2) Subparagraph (a) of CAT.GEN.MPA.195 is modified so that the requirement on the aircraft operator to preserve the flight recorder recordings is restricted to accidents, serious incidents and incidents indicated by the investigation authority. Preserving the flight recorder recording has operational consequences and, depending on the mandatory occurrence reporting system in place for CAT aircraft, there could be many more reportable occurrences than those which are subject to an official safety investigation.
- (b) Subparagraph (f)(1) of paragraph CAT.GEN.MPA.195 is reworded to require that if a CVR recording is used for purposes other than investigation (by a safety investigation authority, the competent authority or the administration of justice) and other than for ensuring the CVR serviceability, then a procedure relating to the handling of the CVR recordings and transcripts shall be in place in addition to the prior consent by crew members and maintenance personnel concerned.
- (c) It is proposed, as for Part-CAT, to amend the provisions of Part-NCC related to the preservation and use of the flight recorder recordings by the flight crew and the aircraft operators.
- (1) Subparagraph (a)(9) of NCC.GEN.106 is amended so that a distinction is made between occurrences subject to a safety investigation (accidents, serious incidents and some incidents indicated by the safety investigation authority) and occurrences that must simply be reported in accordance with a mandatory occurrence reporting system, if any. It is also proposed to amend the provision requiring that the commander ensures that the flight recorders are not reactivated following an accident or a serious incident until the investigation authority agrees with their reactivation.
 - (2) Subparagraph (a) of NCC.GEN.145 is modified so that the requirement on the aircraft operator to preserve the flight recorder recordings is restricted to accidents, serious incidents and incidents indicated by the investigation authority. Preserving the flight recorder recording has operational consequences and, depending on the mandatory occurrence reporting system in place for NCC aircraft, there could be many more reportable occurrences than those which are subject to an official safety investigation.
 - (3) Subparagraph (f)(1) of NCC.GEN.145 is reworded to require that if a CVR recording is used for purposes other than investigation by an authority and other than for ensuring the CVR serviceability, then a procedure relating to the

handling of the CVR recordings and transcripts shall be in place in addition to the prior consent by crew members and maintenance personnel concerned.

- (d) It is proposed, as for Part-CAT and Part-NCC, to amend the provisions of Part-SPO related to the preservation and use of the flight recorder recordings by the flight crew and the aircraft operators.
 - (1) Subparagraph (a)(9) of SPO.GEN.107 is amended so that a distinction is made between occurrences subject to a safety investigation (accidents, serious incidents and some incidents indicated by the safety investigation authority) and occurrences that must simply be reported in accordance with a mandatory occurrence reporting system, if any. It is also proposed to amend the provision requiring that the commander ensures that the flight recorders are not reactivated following an accident or a serious incident until the investigation authority agrees with their reactivation.
 - (2) Subparagraph (a) of SPO.GEN.145 is modified so that the requirement on the aircraft operator to preserve the flight recorder recordings is restricted to accidents, serious incidents and incidents indicated by the investigation authority. Preserving the flight recorder recording has operational consequences and, depending on the mandatory occurrence reporting system in place for SPO aircraft, there could be many more reportable occurrences than those which are subject to an official safety investigation.
 - (3) Subparagraph (f)(1) of SPO.GEN.145 is reworded to require that if a CVR recording is used for purposes other than investigation by an authority and other than for ensuring the CVR serviceability, then a procedure relating to the handling of the CVR recordings and transcripts shall be in place in addition to the prior consent by crew members and maintenance personnel concerned.

2.5.3.2. Flight recorder performance (commercial air transport)

- (a) It is proposed to amend CAT.IDE.A.185 (CVR on board an aeroplane operated for commercial air transport) so that after 1 January 2019:
 - (1) a CVR using obsolete recording technologies such as frequency modulation, magnetic wire or magnetic tape is not allowed anymore;
 - (2) the CVR must have a minimum recording duration of 2 hours; and
 - (3) for a newly manufactured aeroplane (first issued with an individual CofA on or after 1 January 2020) with an MCTOM of over 27 000 kg, the CVR must have a minimum recording duration of 20 hours.
- (b) It is proposed to insert a provision in CAT.IDE.H.185 (CVR on board a helicopter operated for commercial air transport), so that after 1 January 2019 obsolete recording technologies such as frequency modulation, magnetic wire or magnetic tape are not allowed anymore. However, the minimum recording duration of the CVR installed on future helicopters is not increased because there are no known cases of CVR overrun with a helicopter.
- (c) It is proposed to modify the requirement of a ULD for the FDR, the CVR and the data link recorder (if applicable) carried on board an aeroplane operated for commercial air transport, so that:
 - (1) a ULD is only required when the flight recorder is fixed (i.e. it is not a deployable flight recorder), and
 - (2) the ULD must have a minimum underwater transmission time of 90 days by 1 January 2018.

The affected paragraphs are CAT.IDE.A.185, CAT.IDE.A.190 and CAT.IDE.A.195.

- (d) It is proposed to modify the requirement of a ULD for the FDR, the CVR and the data link recorder (if applicable) carried on board a helicopter operated for commercial air transport, so that:
 - (1) a ULD is only required when the flight recorder is fixed (i.e. it is not a deployable flight recorder), and
 - (2) the ULD must have a minimum underwater transmission time of 90 days by 1 January 2020.

The affected paragraphs are CAT.IDE.H.185, CAT.IDE.H.190 and CAT.IDE.H.195.

2.5.3.3. Flight over water

- (a) It is proposed to insert a subparagraph (f) into CAT.IDE.A.285 (Flight over water with an aeroplane operated for commercial air transport) to require that aeroplanes with an MCTOM of over 27 000 kg are, not later than 1 January 2019, equipped with an 8.8 kHz ULD (ULD with a very long detection range). There are two alleviations to this requirement:
 - (1) When the aeroplane is operated over routes that do not go further than 180 NM from a shore, meaning that the aeroplane does not fly over oceanic areas; or
 - (2) When the aeroplane is equipped with an automatic means to determine, following an accident where the aircraft is severely damaged, the location of the point of end of flight with 6 NM accuracy. With such an accuracy, the underwater search zone would have an area that does not justify the fitment of an 8.8 kHz ULD because it could be covered within a few days by underwater search means.
- (b) This new subparagraph (f) of CAT.IDE.A.285 will be completed with AMC and GM.

2.5.3.4. Flight recorder performance (other than commercial air transport)

- (a) It is proposed to amend NCC.IDE.A.160 (CVR on board an aeroplane operated for non-commercial operations) and SPO.IDE.A.140 (CVR on board an aeroplane operated for specialised operations) to require that in the case of an aeroplane first issued with an individual CofA on or after 1 January 2020 and with an MCTOM of over 27 000 kg, the CVR has a minimum recording duration of 20 hours.
- (b) It is proposed to modify the requirement of a ULD for the FDR, the CVR and the data link recorder (if applicable) in Part-NCC and Part-SPO, so that:
 - (1) a ULD is only required when the flight recorder is fixed (i.e. it is not a deployable flight recorder), and
 - (2) the ULD must have a minimum underwater transmission time of 90 days by 1 January 2020.

The affected paragraphs are NCC.IDE.A.160, NCC.IDE.A.165, NCC.IDE.A.170, NCC.IDE.H.160, NCC.IDE.H.165, NCC.IDE.H.170, SPO.IDE.A.140, SPO.IDE.A.145, SPO.IDE.A.150, SPO.IDE.H.140, SPO.IDE.H.145 and SPO.IDE.H.150.

Done at Cologne, on 5 May 2014.

Patrick KY
Executive Director

3. References

3.1. Affected regulations

Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to Air Operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 296, 25.10.2012, p. 1)

3.2. Reference documents

ICAO Annex 6 Part I, Part II and Part III