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Disclaimer:

The Annual Safety Recommendations Review is produced by the European Union Aviation Safety Agency (EASA). This edition provides an overview of the safety recommendations that have been addressed to EASA in 2022. It also presents the replies produced during the year.

This annual review provides feedback on the follow-up given to safety recommendations in the context of openness, transparency and accountability that characterises European Public Administration.

Apart from its safety-related informative character, this review also provides relevant information related to safety concerns raised, for both EASA and its stakeholders, including the European public.

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2023 Annual Safety Recommendations Review

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AB	Advisory Body
AMC	Acceptable Means of Compliance
AME	Aero-medical Excaminer
ANSV	Agenzia Nazionale per la Sicurezza del Volo, Italy
BEA	Bureau d'Enquête et d'Analyse pour l'Aviation Civile (France)
BIS	Best Intervention Strategy
CAG	Collaborative Analysis Group
CS	Certification Specifications
CRFS	Crash Resistant Fuel System
CRSS	Crash Resistant Seats and Structures
EASA	European Union Aviation Safety Agency
ENCASIA	European Network of Civil Aviation Safety Investigation Authorities
EPAS	European Plan for Aviation Safety
EU	European Union
HEMS	Helicopter Emergency Medical Services
ICAO	International Civil Aviation Organization
MS	Member States
NPA	Notice of Proposed Amendment
RMT	Rulemaking Task
SHK	Statens haverikommission, Norway
SIA	Safety Investigation Authority
SIB	Safety Information Bulletin
SPT	Safety promotion Task
SR	Safety Recommendation

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EXECUTIVE SUMMARY

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Executive summary

The Annual Safety Recommendations Review provides information on the activity carried out by the Agency in the field of accident and incident investigation and follow-up in 2022. In addition, the review highlights a range of safety issues and Agency safety improvement actions that will be of interest to the European aviation community and the wider public.

This 16th edition includes:

- General statistical data on the safety recommendations addressed by Safety Investigation Authorities to the Agency in 2022;
- Information on the replies that the Agency has provided to safety recommendations in 2022;
- Main safety issues that have been addressed and the actions taken.

The Agency has a key role in safety investigation follow-up in Europe. This has been reflected in the establishment of a precise process for managing the safety recom¬mendations received. Due to its central position in the aviation safety system, the Agency can take actions with respect to systemic problems and risk management.

The implementation of safety recommendations serves to ensure lessons are learned and help prevent future occurrences.

During 2022, Safety Investigation Authorities from 8 different States addressed 33 safety recommendations to the Agency in the context of its remit, all originating from EASA Member States. The total number of safety recommendations addressed to the Agency is similar to that in previous years.

The majority, 58% of the safety recommendations were related to aircraft, equipment or facilities. Recommendations related to personnel as well as procedures or regulations constituted 21% each.

The handling of safety recommendations in a systematic manner constitutes one of The Agency's key responsibilities. In 2022, the Agency provided 87 replies to 79 safety recommendations:

- 44 of these were final replies (closing safety recommendations) with 21 of these replies assessed as `agreed' by The Agency, and 16 assessed as `partially agreed'. The remaining closing replies were categorised as `Closed-Disagreement';
- The remaining 43 replies were updates providing information on the progress of the actions decided upon by the Agency and for which the relevant activities were not yet completed;
- As assessed by the originator, 10 of the final responses provided by the Agency were deemed to be "adequate" or "partially adequate" (5 and 5 respectively), and 6 responses was deemed as "not adequate". Three additional assessments were received on the intermediate replies. With respect to the remaining replies sent in 2022, the Agency awaits the Safety Investigation Authorities' (SIA) assessment.


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Introduction

Within the European Union (EU), the principles governing the investigation of accidents and serious incidents are defined in 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.

Regulation (EU) No 996/2010 transposes international standards and recommended practices as described in Annex 13 to the Chicago Convention on International Civil Aviation. It sets outs an obligation for each Member State of the European Union to establish an independent, permanent national civil aviation Safety Investigation Authority, which shall investigate accidents and serious incidents to improve aviation safety and prevent future occurrences without apportioning blame or liability. Investigation reports and the related safety recommendations are sent to the aviation authorities concerned for consideration and action as needed.

Regulation (EC) No 2018/1139, the EASA Basic Regulation, states that: "The Agency and the national competent authorities shall undertake the necessary and effective actions to increase and promote awareness of civil aviation safety and disseminate safety related information relevant for the prevention of accidents and incidents".

The Agency assigns a high priority to the follow-up of safety recommendations and has established effective procedures to that effect:

- The Agency delivers a first reply to a safety recommendation within 90 days;
- Safety recommendations are subject to a continuous internal monitoring process until all agreed corrective actions are closed;
- The Agency receives assessments of its responses from Safety Investigation Authorities (SIAs).

These procedures support the Agency in ensuring transparency with respect to its decisions and actions in line with its mission for safety. The Agency also supports effective cooperation in safety investigation by working with the European Network of Civil Aviation Safety Investigation Authorities (ENCASIA) in Working Group 6 on Safety Recommendations.

The Agency also monitors safety recommendations that are issued to other aviation and non-aviation addressees.

The Annual Safety Recommendations Review provides an overview of the follow-up performed by the Agency in response to recommendations for which it is the addressee.

The first edition of this Review was issued in 2007. This 16th edition reviews the 2022 activity and presents:

- General statistical data on the safety recommendations addressed by Safety Investigation Authorities to the Agency in 2022;
- Information on the replies that the Agency has given to past safety recommendations in 2022;
- Main safety issues that have been addressed through the actions taken.

A process to identify, assess and mitigate safety risks at the European level has been established by the Agency since 2016. The safety risk management process involves the identification of safety issues, risk assessment and decision-making on the best course of action to mitigate these risks. The Agency, the Member States (MS) and industry work together in this process through Collaborative Analysis Groups (CAG) and Advisory Bodies (ABs).

The Annual Safety Review published by the Agency provides the main and most visible elements from the European safety risk management process, such as key statistics relating to accidents and serious incidents, as well as an analysis of the key risk areas and safety risk portfolios for each domain. This risk management process is coordinated by the Agency, and it supports the European Plan for Aviation Safety (EPAS).

Safety recommendations are a key input to the safety risk management process. They provide information on the potential deficiencies in the aviation system and propose solutions to mitigate the associated safety risks.


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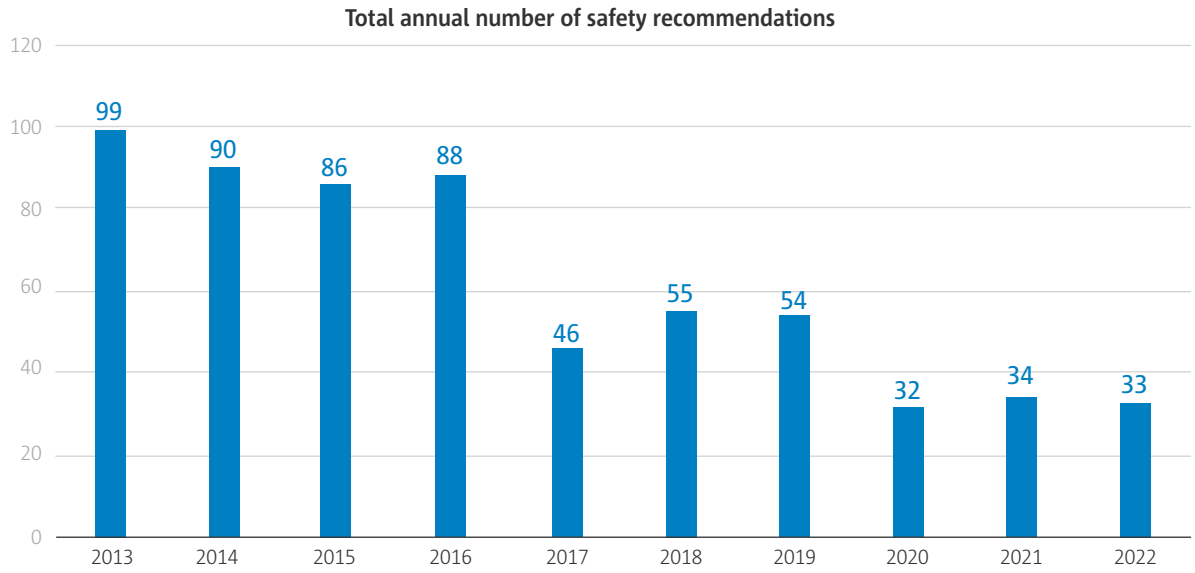
Safety Recommendations received in 2022

3.1 Overview of Safety Recommendations received in 2022

During 2022, a total of 33 safety recommendations were addressed to the Agency.

Figure 1 shows the total annual number of safety recommendations that the Agency has received over the past 10 years. The follow-up of safety recommendations and the role of the Agency is mandated by Regulation (EU) No 996/2010. The issuance of safety recommendations addressed to the Agency started to develop shortly before this regulation entered into force in 2010. In the years from 2013 to 2016, the annual number of safety recommendations addressed to the Agency remained constantly relatively high. In 2017, this amount fell by around half. Despite a marginal increase in 2018 and 2019, the general downward trend continues and the number in 2022 is close to the 2021 amount.

Figure 1: Safety Recommendations addressed to EASA per year

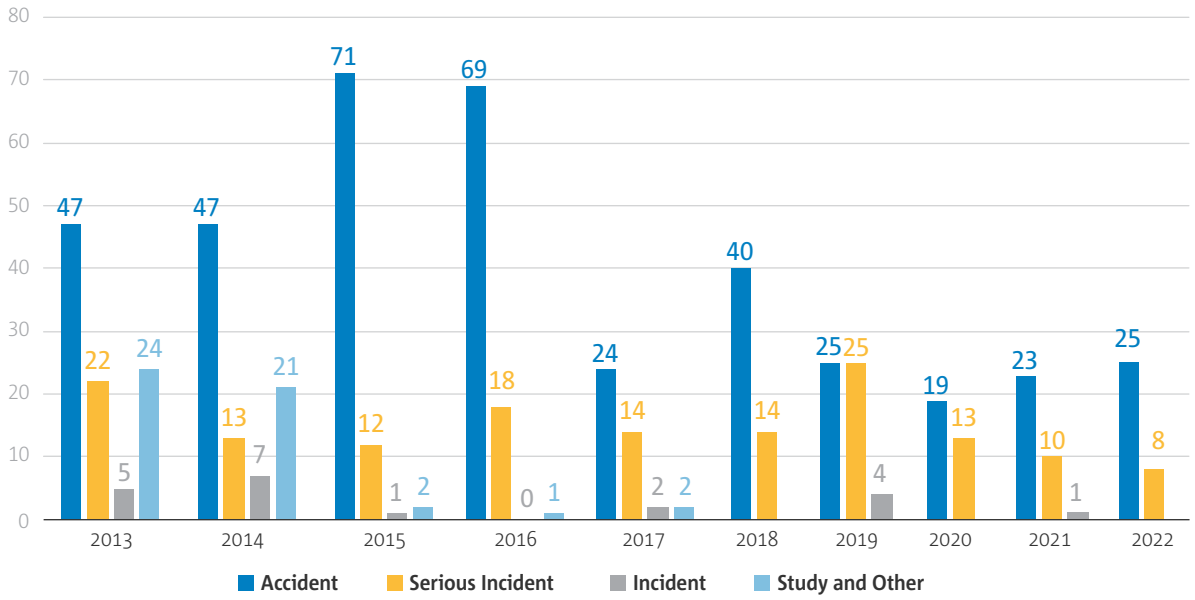


In 2022, all safety recommendations addressed to the Agency were issued by EASA Member State SIAs. The number of safety recommendations in general still reflects the factors identified during the recent years, namely proactively identifying safety concerns, and addressing them before they would be raised during an investigation and the Agency's active involvement in investigations during the report drafting phase, leading to draft safety recommendations being discussed in advance and in some cases either withdrawn, revised or re-addressed.

In 2022, the safety recommendations addressed to the Agency related to 17 occurrences, comprising 12 accidents and 5 serious incidents.

Figure 2 shows the total number of safety recommendations received by occurrence class since 2013.

Figure 2: Annual Safety Recommendations by occurrence class 2013-2022



The aircraft categories and operation types involved in the occurrences that resulted in safety recommendations in 2022 are listed in the table below.

Figure 3: Safety Recommendations received in 2022 by Type of Operation and Aircraft Category

Type of Operation	Aircraft Category						
	Fixed Wing					Rotorcraft	Grand Total
	Large Aeroplane	Light Sport Aeroplane	Small Aeroplane	Very Light Aeroplane	Sailplane		
Commercial Air Transport	**7**	**0**	**0**	**0**	**0**	**11**	**18**
Cargo							**0**
Airline							**0**
Passenger							**0**
Airline	7						**7**
HEMS						2	**2**
Sightseeing						7	**7**
Other	2					2	**2**
Non-Commercial Operations	**0**	**1**	**6**	**1**	**3**	**2**	**13**
Flight Training		1	1				**2**
Pleasure			3	1	3	2	**9**
Other			2				**2**
Specialised Operations (Aerial Work)	**0**	**0**	**2**	**0**	**0**	**0**	**2**
Parachute drop							**0**
Calibration							**0**
Aerial photography			2				**2**
Firefighting							**0**
Towing							**0**
Grand Total	**7**	**1**	**8**	**1**	**3**	**13**	**33**

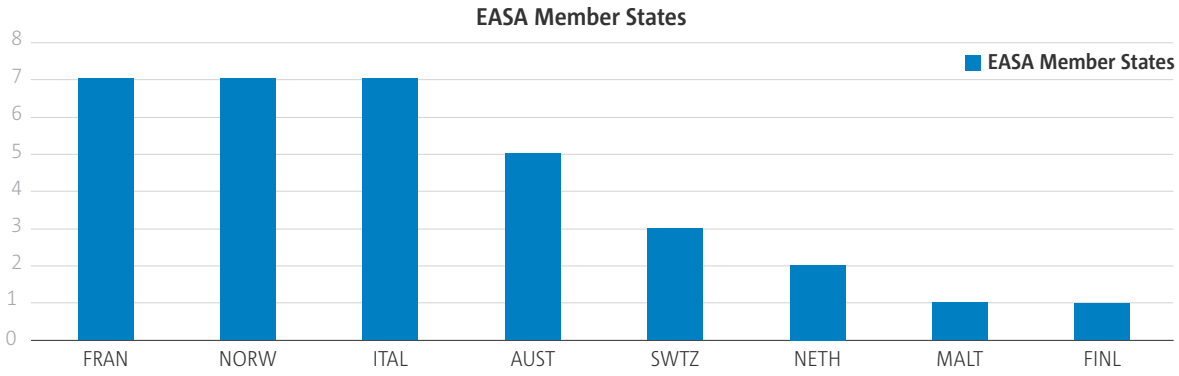
Compared to the previous year, the number of recommendations related to Commercial Air Transport has slightly decreased. There were no recommendations issued relating to UAVs.

3.2 Origin of the Safety Recommendations received in 2022

In 2022, the Safety Investigation Authorities (SIAs) of 8 different States addressed 33 safety recommendations to the Agency. All the safety recommendations were issued by EASA Member State SIAs.

Figure 4 shows the contribution of the different SIAs to the total number of safety recommendations addressed to the Agency in 2022.

Figure 4: States contribution to Safety Recommendations received in 2022



The French safety investigation authority, Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile (BEA), issued seven safety recommendations relating to four events. One event involved an aircraft in commercial operations, where a Boeing 737 encountered turbulence en-route causing severe injuries to a cabin crew member. The two recommendations issued concern improved presentation of meteorological information both in air traffic service units and onboard of an aircraft. The three other events involved an Airbus Helicopters AS350B, a Cirrus SR22 aeroplane and a Cessna 525A aeroplane, all in private operations. The safety recommendations issued concern safety margin on Helicopter Landing Site, raising awareness of the consequences of ageing, updating the information brochure published by EASA concerning preventing hypoxia and processing inconsistent air data information, respectively.

The Norwegian Safety Investigation Authority, Statens havarikommisjon (SHK) issued seven safety recommendations, all related to an accident involving an Aerospatiale AS350 helicopter. The helicopter crashed during a sight-seeing flight and caught fire when impacting the ground. The safety recommendations address crash-resistant fuel systems, lightweight recorders and servo transparency.

The Italian safety investigation authority, Agenzia Nazionale per la Sicurezza del Volo (ANSV) issued seven safety recommendations related to three events. Three safety recommendations were issued as a result of an investigation to a serious incident involving a Boeing 787, which experienced an engine failure during climb. The safety recommendations address protecting the aircraft and persons on ground from high energy debris and assessing the probability for such an occurrence. Two safety recommendations stem from a fatal accident involving a Pilatus PC6 aircraft. The safety recommendations address pilot training and operational procedures in parachuting operations. Another two safety recommendations were issued as a result of an investigation to an accident to Aerospatiale AS350 helicopter. The helicopter was carrying skiers when one person got stuck in the helicopter's utility basket and fell to the ground after the helicopter lift-off. The safety recommendations address a solution to prevent re-occurrence of such an event and implementing a retro-vision system for the pilot.

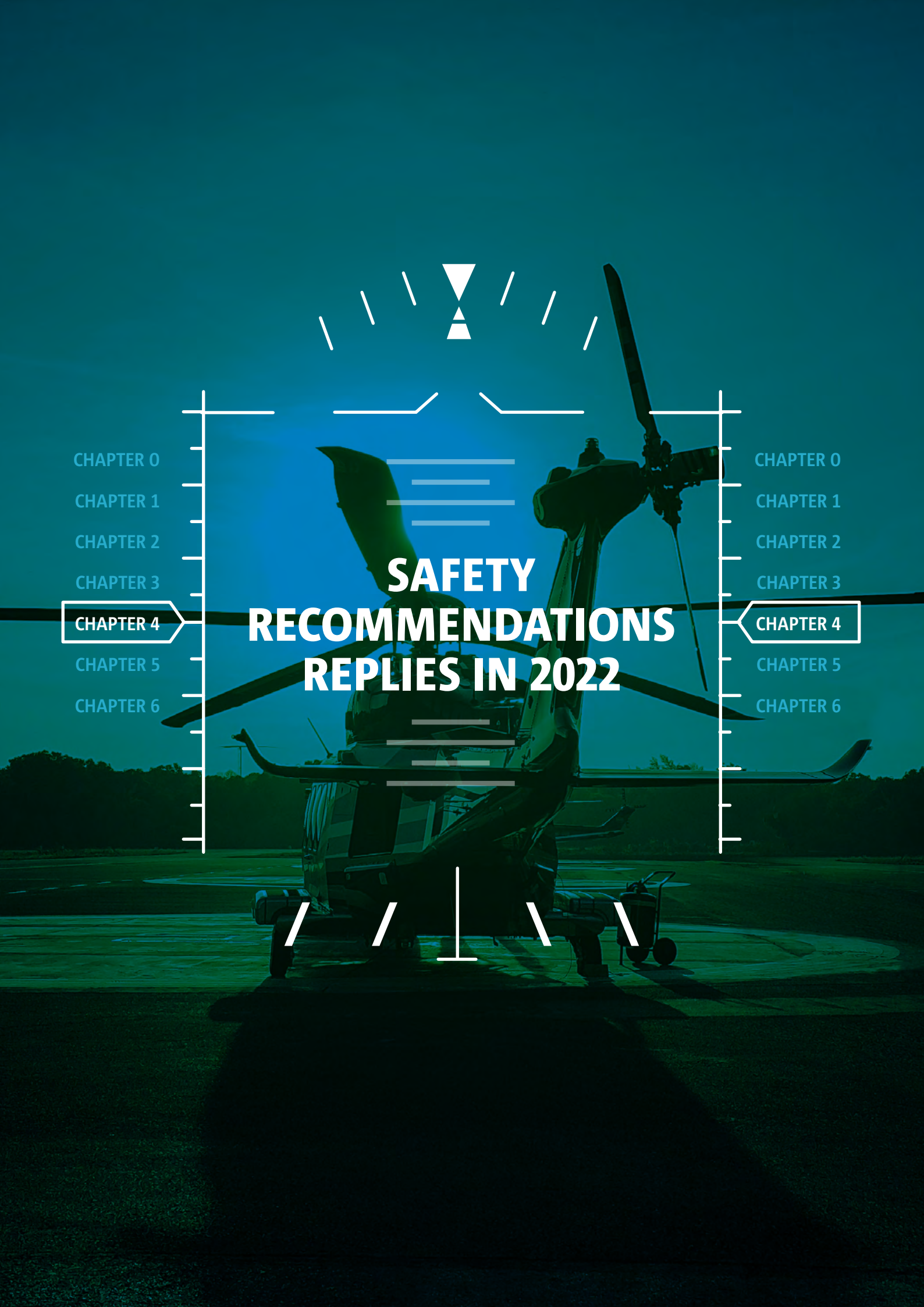
3.3 Involvement in accident and serious incident investigations

Below are listed some of notable events in 2021 in which the Agency was involved:

- An accident involving Airbus Helicopters EC135 in January in US, where the helicopter experienced an uncommanded strong roll movement which led to loss of control and crashlanding on a town.
- A serious incident involving an Airbus 330 in February in Ghana when the aircraft experienced an engine problem due to microbiological contamination caused by water in the fuel
- A serious incident involving ab Airbus A320 in May in France, where the aircraft experienced a near controlled flight into terrain after an incorrect altimeter setting during the approach
- A fatal accident involving a Blackshape BH115 in June in which the aircraft crashed into a lake during a training flight. The Agency supports this investigation by providing technical expertise.
- A fatal accident involving an Antonov 12 in Greece in July in which the aircraft crashed after an inflight fire occurred on one engine and then extended to the wing.
- An accident involving a Boeing 737 in September in France, where the aircraft overshot runway upon landing. The aircraft ended submerged with its nose section in a lake.
- An accident involving Leonardo Helicopters AW139 in September in France, where an emergency landing was made after smoke was observed in the cockpit and the controls became unresponsive.
- An accident involving a Cessna 551 in Latvia in September, where the cabin pressure was lost resulting in the incapacitation of the persons onboard. The airplane continued to fly north-east up to the coast of Latvia and subsequently crashed into the Baltic Sea.
- An accident involving an Airbus A330 in October in the Philippines, where the aircraft suffered a runway excursion after a loss of brakes.
- An accident involving an Airbus A320 in October in Paraguay, where the aircraft entered a hailstorm and experienced severe damage on its nose section
- An accident to an ATR 42 in Tanzania in November, where the aircraft crashed into a lake during the approach
- An accident to an Airbus A320 in Peru in November, where the aircraft collied with a firetruck on the runway during take-off

In addition, several investigations launched in previous years were still on-going or completed in 2022 with the Agency's participation by monitoring the progress and providing technical expertise.

The safety actions that were taken during or immediately following an investigation do not appear in this publication unless the Safety Investigation Authority issued an associated, formal safety recommendation to EASA in 2022.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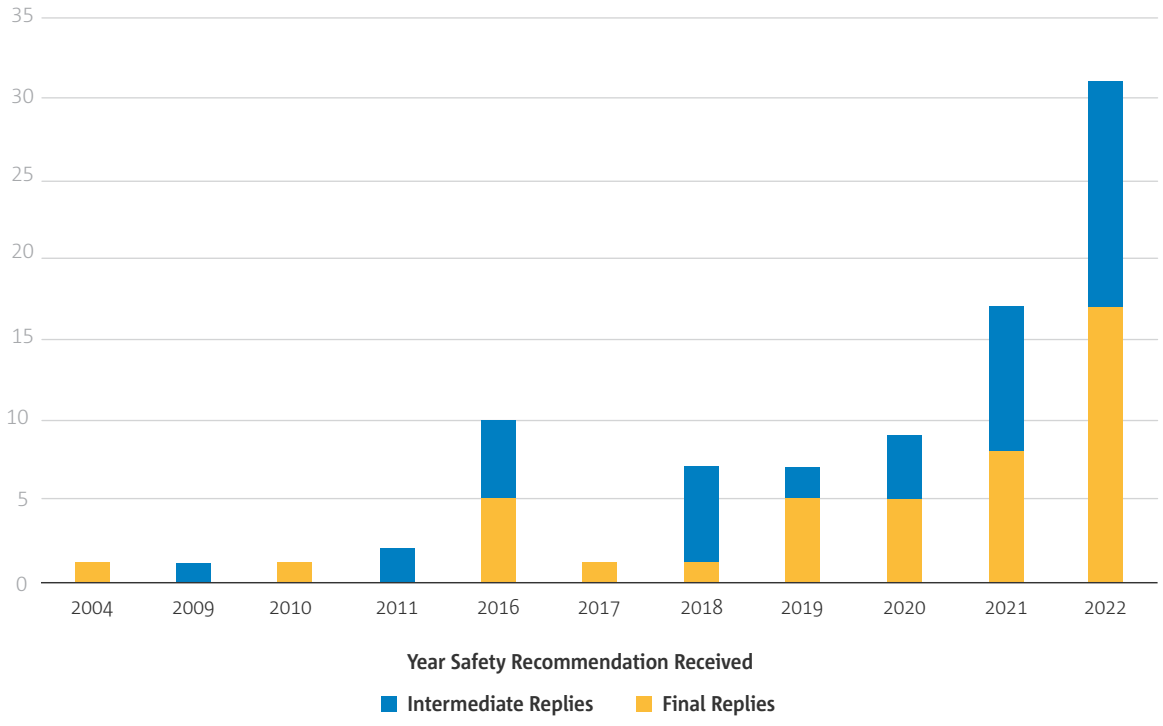
Safety Recommendations replies in 2022

4.1 Overview of Safety Recommendations replies in 2022

In 2022, the Agency issued 87 replies to 79 safety recommendations. As updates are provided, several response letters can be issued for the same recommendation within a year. The vast majority of replies produced in 2022 were Agency's responses to safety recommendations first received in the years 2016 to 2022.

However, replies to recommendations from earlier years were also issued, as illustrated in the chart below, for those cases where follow-up actions and conclusions were reached, or which required updates and/or closure of the safety recommendation.

Figure 5: EASA replies to safety recommendations in 2022, by year received



4.2 Status of Safety Recommendations replies issued in 2022

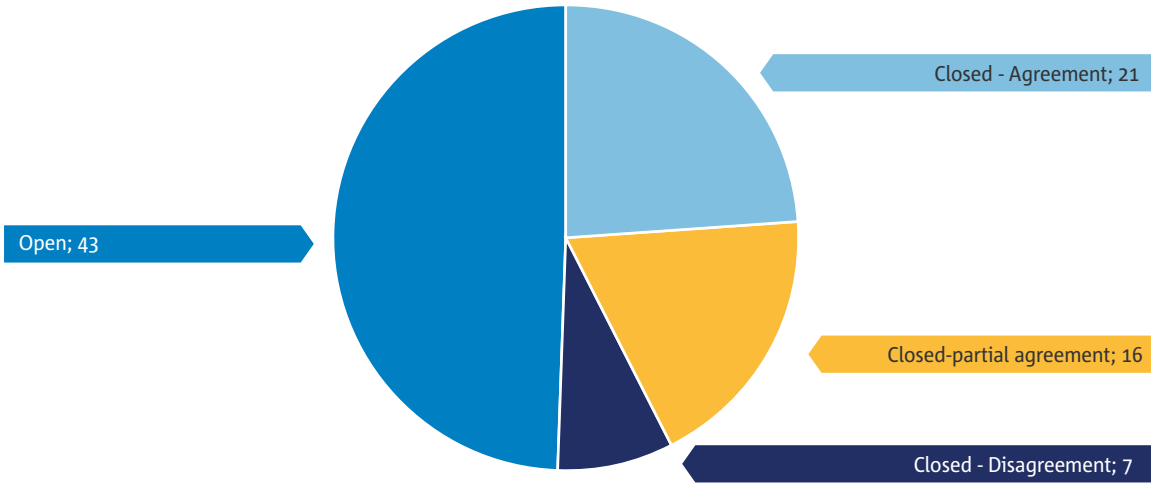
Each final response closing a safety recommendation and the response assessment by the originator is classified according to the categories[1] given in Annex C.

Among the 87 replies that were sent by the Agency in 2022, summarised in figure 6, 44 were final replies that closed safety recommendations. These resulted in the following responses by the Agency:

- The Agency agreed to take corrective action in 37 cases, either by directly applying the recommended actions as was the case for 21 of them or, for the remaining 16, by partially agreeing but taking corrective actions other than those recommended;
- In a further 7 cases, the safety recommendations were evaluated and the safety benefit was not agreed.

Figure 6 below shows this distribution:

Figure 6: Safety Recommendation Replies sent in 2022 [status, total number]



1 These definitions of classification categories were developed in collaboration with the European Network of Safety Investigation Authorities and are part of a taxonomy aimed at facilitating the management of safety recommendations.

In monitoring safety recommendations, their status remains open until the action related to each recommendation is fully developed and completed.

In addition to the 44 final replies closing a safety recommendation, 43 updating replies (intermediate responses) were issued. These updating replies provided information on the progress of the actions decided upon by the Agency but for which the relevant activities had not yet been completed.

To monitor whether SIAs consider the Agency's replies to be adequate, or if they disagree with the actions proposed, the Agency has implemented procedures in line with Regulation (EU) No 996/2010.

Figure 7 shows the assessment received from the originator on the EASA Replies since 2017.

Figure 7: Reply assessment received from the originator on the EASA Replies since 2017

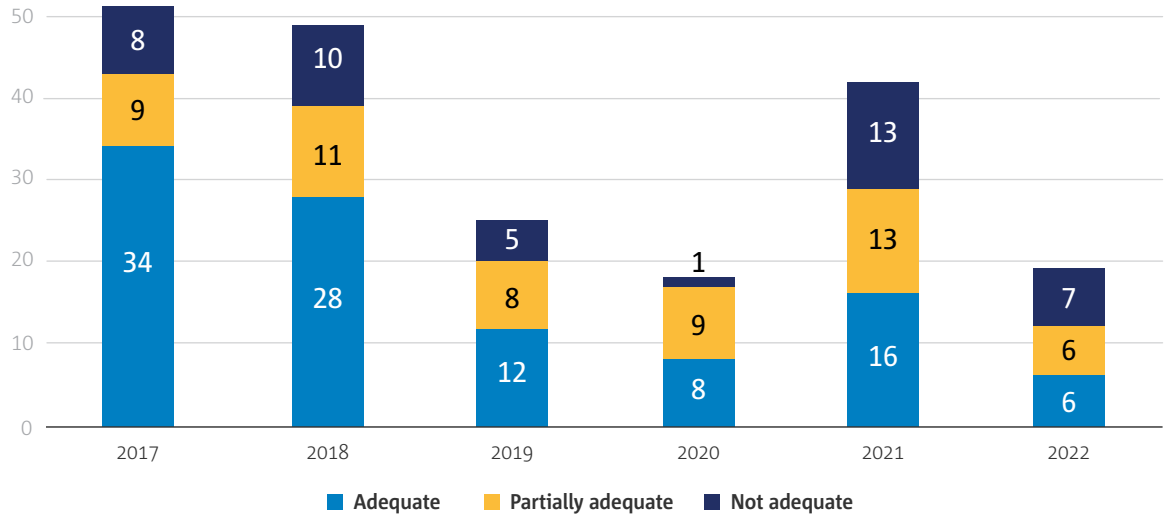
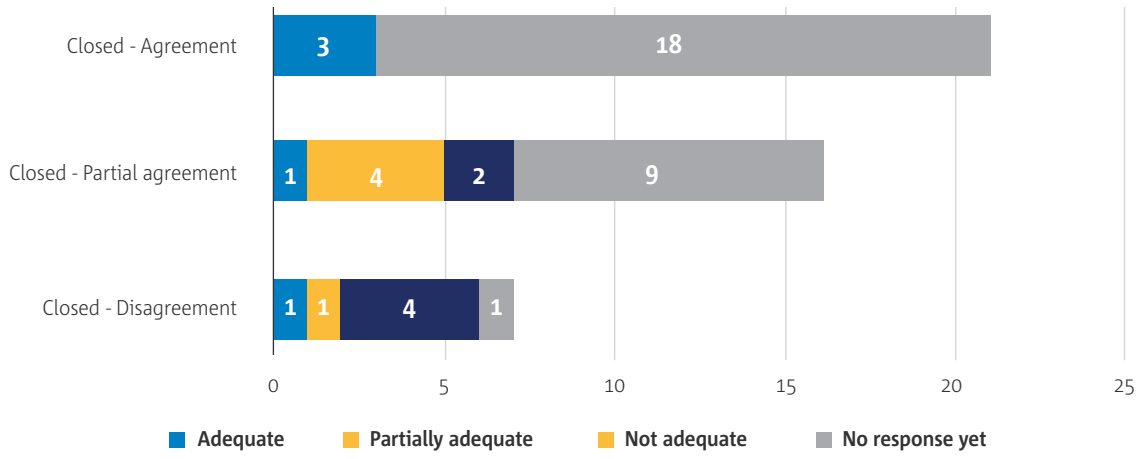


Figure 8 shows the total number of response assessments that EASA received from the SIAs based on the 44 final replies sent in 2022. As assessed, 10 of the responses provided by the Agency were deemed to be "adequate" or "partially adequate", and 6 responses were deemed as "not adequate". With respect to the remaining replies sent in 2022, EASA awaits the SIAs' assessment.

Figure 8: Assessment received by EASA on the Final Responses sent in 2022



OVERVIEW OF KEY SAFETY TOPICS PROCESSED AND ACTIONS CARRIED OUT IN 2022

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Overview of key safety topics processed and actions carried out in 2022

In 2022, Safety Investigation Authorities from 8 different States issued 33 safety recommendations to EASA that addressed issues within EASA's remit. Figure 9 provides a breakdown of the safety recommendation topics. The handling of the safety recommendations in a systematic manner constitutes one of EASA's key responsibilities.

Figure 9: Safety Recommendations addressed to EASA per topic by EU SIAs

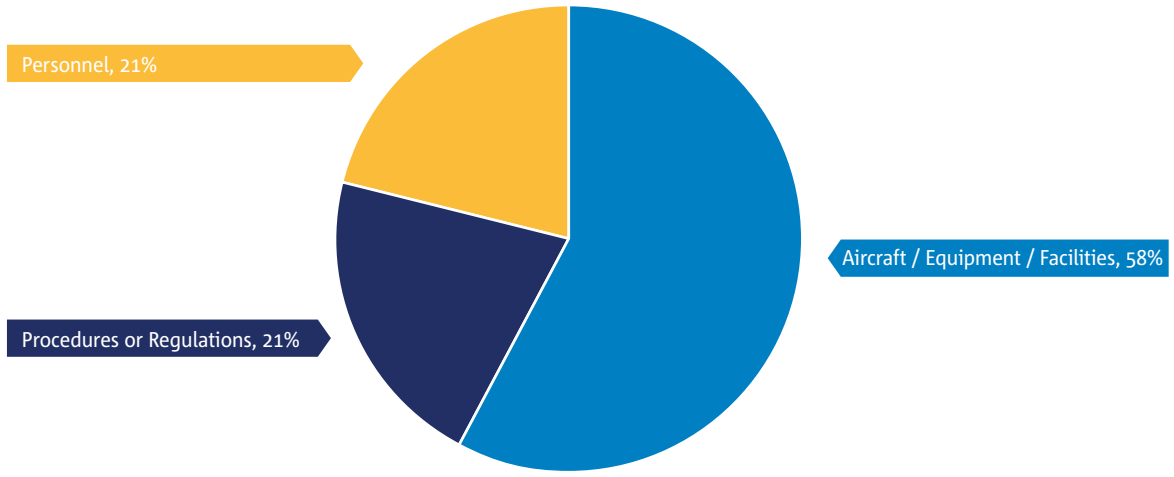
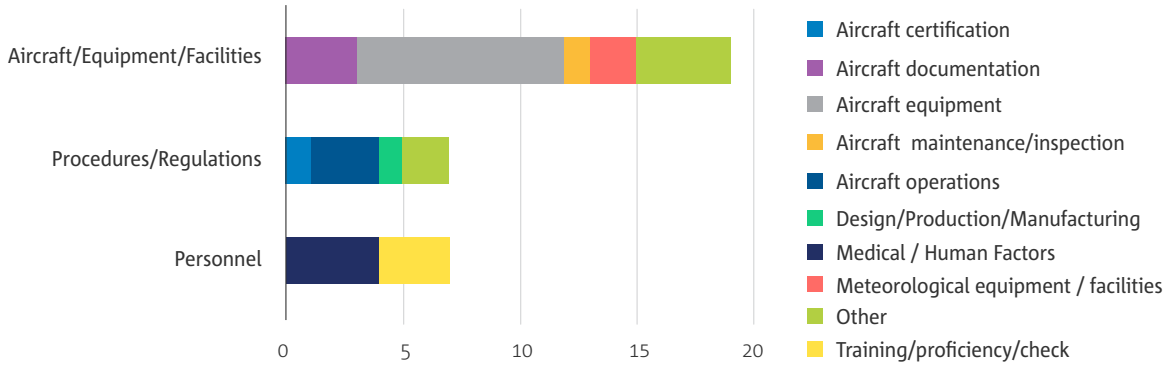


Figure 10: Safety Recommendations addressed to EASA per topic and area



Among the actions taken in 2022, key safety topics are outlined below with accompanying information on the action that the Agency has taken. The description highlights the safety issues that were underlined by the safety recommendations, together with the actions taken by the Agency in response.

5.1 Helicopters crash resistant fuel systems

As a result of safety recommendations received in the past years, The Agency has continued the work aimed at improving helicopter safety and post-crash survivability. In 2022, The Agency has received another two safety recommendations from Norway (involving AS 350 LN-OFU) addressing this safety issue. The Agency issued the first replies to these safety recommendations, which were later complemented at the beginning of 2023. New crash resistant fuel systems have been developed by different applicants and approved by EASA.

On 16 December 2021, the European Union Aviation Safety Agency (EASA) published the Terms of Reference (ToR) for rulemaking task RMT.0710 'Improvement in the survivability of rotorcraft occupants in the event of an otherwise survivable crash'.

The ToR includes references to several accidents and safety recommendations, including the last ones issued by Norway. The overall objective of this RMT is to improve rotorcraft occupant protection in the event of a survivable crash scenario and enhance safety by increasing the number of rotorcraft that are fitted with crash-resistant fuel systems (CRFS) and crash-resistant seats and structures (CRSS).

On 11 November 2022, EASA published Notice of Proposed Amendment (NPA) 2022-10 entitled 'Improvement in the survivability of rotorcraft occupants in the event of a crash.

This NPA proposes to mandate the installation of a CRFS onto existing rotorcraft designs that are still in production and the retrofit of existing rotorcraft that are operated in states participating in the work of EASA (commonly referred to as 'EASA Member States').

This mandate would be achieved by proposed amendments of Regulation (EU) 2015/640 (the 'Additional Airworthiness Specifications' Regulation), including its Annex I (Part-26), and of the corresponding Certification Specifications (CS-26).

EASA is analysing the comments received on NPA 2022-10 during the public consultation.

These comments will be taken into account for the decision on the next step, i.e. the release of an Opinion to the European Commission recommending amendments to Regulation (EU) 2015/640.

5.2 Parachuting operations

The safety in parachuting operations has been an emerging concern during the previous years. Some Member States have asked the Agency to address the shortcomings identified during their investigations. In 2022, the Agency initiated a thorough review of the issue and has performed a safety issue analysis (SIA) related to safety in parachuting aircraft operations. In this respect, EASA concluded that the safety risk needs to be mitigated. Therefore, a `Best Intervention Strategy (BIS) parachute operations' process was initiated.

The BIS process will develop further on proposed SIA actions. This process may result in a proposal for mitigation actions through rulemaking, safety promotion or other suitable means. EASA is planning to submit this BIS to the Advisory Bodies for consultation in 2023.

In the meantime, with respect to parachuting operations, EASA has already included a major Safety Promotion Task (SPT.0121) in the European Plan for Aviation Safety (EPAS).

The main scope of SPT.0121 is to continue delivering safety promotion material to improve the safety of parachuting aircraft operations, by highlighting the most common causes of accidents and establishing good practices and operational procedures that can help to mitigate the most important risks.

EASA has also published a safety promotion article on 'operations manual for parachute clubs'.

Additional details and links to these actions can be found in the published EPAS 2023-2025.

5.3 Lightweight recorders for helicopters

Flight data recorders and cockpit voice recorders are not required to be installed on all categories of aircraft due to reasons of their technical capabilities, cost-efficiency or perceived benefit to assist in an investigation. Technical solutions exist however to enable the installation of cost-efficient lightweight recorders capable of recording data, sound and video image and they are offered by some major helicopter manufacturers. During 2022, the Agency received safety recommendations seeking the revision of the existing requirements to mandate the equipment in all helicopters used for commercial air transport of persons, regardless of their certificate of airworthiness date.

The Agency concluded that the existing rules, which go beyond ICAO Annex 6 (to the Convention on International Civil Aviation), already contain wide set of requirements for such devices and that extending this to all existing helicopters would only bring moderate benefits for the prevention of accidents, considering the cost/benefit ratio. To facilitate investigations of light helicopter accidents, and for other potential benefits, EASA is promoting the voluntary installation of such recording devices through a dedicated webpage.

In addition, the voluntary installation of recording devices on board already-manufactured helicopters is facilitated by Certification Specifications for Standard Changes and Standard Repairs (CS-STAN), CS-SC104a (Installation of lightweight in-flight recording systems): such recording devices may be installed by a qualified maintenance engineer without a change approval. Furthermore, EASA Safety Information Bulletin 2019-015R1 'Flight recorders on small rotorcraft' recommends that owners and operators of small rotorcraft, registered in the States participating in the work of EASA (commonly referred to as 'EASA member States'), consider installing such recording devices.

5.4 Ageing pilots

A number of safety recommendations have been received by the Agency addressing potential adverse effects of higher age of the pilots. The recommendations are related to pilot's vision performance, requirements for aeromedical examiners and requirements for the maximum age of the flight instructors. The Agency has provided replies addressing these concerns in three separate replies.

Regarding the assessment of visual fitness:

In the existing requirements, the AMEs are instructed in several instances to include further examination on clinical indication and for doubtful cases to refer the case to a specialist.

In this context, the European Union Aviation Safety Agency (EASA) considers that the current regulatory framework adequately allows AMEs to freely address the physiological consequences of ageing as needed and no regulatory change is needed at this point.

However, in addition to the above, on the occasion of the next amendment of the AMC, the Agency intends to make explicit mention of the fact that AMEs should consider, in their assessment of eyesight, the degenerative effects of age.

Regarding the assessment of overall aeromedical fitness:

Within the rulemaking task RMT.0287(2)(b) on increasing the age limit for pilots involved in single pilot Helicopter Emergency Medical Services (HEMS) operations, a requirement has been added to point 'MED.B.005 General' of Annex IV (Part-MED) of Commission Regulation (EU) No 1178/2011, requiring Aero-Medical Examiners (AMEs) to give proper consideration during their medical examination to the degenerative effects of ageing on the body systems. Similar provisions have been also added to the Acceptable Means of Compliance (AMC) pertaining to point 'MED.B.070 Visual System' of Annex IV (Part-MED) of Commission Regulation (EU) No 1178/2011.

Regarding the maximum age of flight instructors:

Having reviewed recent accidents involving elderly pilots, the European Union Aviation Safety Agency (EASA) is considering the introduction in Rulemaking Task RMT.0287(2)(b) of provisions to enhance the medical examination of elderly pilots with a focus on the visual system, including colour vision.

Regarding the possible introduction of an age limit for flight instructors, EASA is considering in a future update of Part-MED under RMT.0424 to consult medical experts regarding the need for an age limit for instructors and/or the need for stricter medical requirements for this professional role.

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CONCLUSIONS

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Conclusions

In 2022, a total of 33 safety recommendations were addressed to the Agency in connection with 17 occurrences (12 accidents and 5 serious incidents), a number that is almost the same as in 2021. The safety recommendations were issued by the Safety Investigation Authorities of 8 different EASA Member States. 58% of the safety recommendations were related to aircraft, equipment or facilities, those related to personnel and procedures or regulations constituted 21% each.

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- The remaining 43 replies were updates providing information on the progress of the actions decided upon by the Agency and for which the relevant activities were not yet completed;
- As assessed by the originator, 10 of the final responses provided by the Agency were deemed to be "adequate" or "partially adequate" (5 and 5 respectively), and 6 responses was deemed as "not adequate". Three additional assessments were received on the intermediate replies. With respect to the remaining replies sent in 2021, The Agency awaits the SIAs' assessment.

The number of replies provided is close to the number of replies provided in 2021. The 44 closing replies sent in 2022 continued to decrease the number of safety recommendations currently open for the Agency. Furthermore, the actions taken by the Agency in response to the safety recommendations encompassed several key safety topics that are currently part of the European Plan for Aviation Safety (EPAS) and which are included in the European safety risk management process.

LIST OF 2022 SAFETY RECOMMENDATIONS REPLIES

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ANNEX C

ATR72, VH-FVR, 20/02/2014

ASTL-2017-015:
The ATSB recommends that EASA monitor and review ATR's engineering assessment of transient elevator deflections associated with a pitch disconnect to determine whether the aircraft can safely withstand the loads resulting from a pitch disconnect within the entire operational envelope. In the event that the analysis identifies that the aircraft does not have sufficient strength, it is further recommended that EASA take immediate action to ensure the ongoing safe operation of ATR42/72 aircraft [AO-2014-032-SR-015].

Type of response: **Final**

Reply sent on 16/12/2022: The European Union Aviation Safety Agency (EASA) has reviewed the ATR assessment of transient elevator deflections associated with a pitch disconnect. It has been based on a study of the control cable elasticity, the results from a full-scale static test as well as a dedicated flight testing campaign, on top of other analysis.

EASA agrees with ATR that the aircraft can safely withstand the loads resulting from a pitch disconnect within the entire operational envelope.

SR actual Status: **Closed Agreement**

BELL - 204 OE-XBT 23/07/2010, Austria

AUST-2011-011 (VERSA):
Ergeht an: FAA; EASA. Um dem erhöhten Gefahrenpotential bei Arbeitsflügen (Außenlastflügen) zu begegnen, sollten Hubschrauber mit aufprallresistenteren Pilotensitzen, die zumindest annähernd den gültigen Zertifizierungsvorschriften CS 27 (FAR 27) und CS 29 (FAR 29) entsprechen, ausgerüstet sein. In diesem Zusammenhang sollte die Gewährung von Grandfather Rights (CAR 7) überdacht und in einem geeigneten, technisch möglichen Ausmaß evaluiert und Verbesserungen im Bereich der Aufschlagsicherheit und der Rückhaltesysteme vorgenommen werden. (SE/UUB/LF/11/2011)

Type of response: Intermediate

Reply sent on 16/02/2022: All rotorcraft type-certificated to European Union Aviation Safety Agency (EASA) Certification Specifications CS-27 or CS-29, Joint Aviation Authorities (JAR) JAR-27 or JAR-29, or Federal Aviation Administration (FAA) Part 27 (from Amendment 27-25 dated Nov. 1989) or FAA Part 29 (from Amendment 29-29 dated Nov. 1989), are required to meet the dynamic impact requirements for seats and occupant restraint systems. Where application for type-certification was received before the FAA rules amendments mentioned above, the rotorcraft need not meet these dynamic impact requirements.

In November 2015, a new task has been assigned by the FAA for the Aviation Rulemaking Advisory Committee (ARAC) to provide recommendations regarding occupant protection rulemaking in normal and transport category rotorcraft for older certification basis type designs. The scope of this task includes, among other items, the seating systems improvements to protect occupants during a crash. EASA participated in the ARAC Rotorcraft Occupant Protection Working Group (ROPWG) created to take care of this task. The final recommendations of the ROPWG are contained in the final analysis report to the ARAC (revised on 27 September 2018):
https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/ROPWG%20Task%206%20Final%20Report%20Revised%202018-09-27.pdf

On 16 December 2021, EASA published the Terms of Reference for Rulemaking Task RMT.0710 entitled 'Improvement in the survivability of rotorcraft occupants in the event of an otherwise survivable crash'. This safety recommendation and the related accident will be taken into account, a reference is included:
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0710

The report of the ROPWG will be considered during the development of a regulatory impact assessment (RIA) that will assess the safety benefits of the retroactive implementation of the crash-resistant seats and structures (CRSS) measures to the future production of already type-certified rotorcraft and/or a retrofit of the existing rotorcraft fleet in relation to the economic, environmental, proportionality, and social impacts of such a measure.
If the above-mentioned RIA concludes that the safety benefits of the implementation of retroactive measures for CRSS outweigh the potential economic, environmental, proportionality, and social impacts, EASA will publish a Notice of Proposed Amendment (NPA) to propose amendments to Annex I (Part-26) to Regulation (EU) 2015/640 (as regards the introduction of new additional airworthiness requirements) and to CS-26 (Certification Specifications And Guidance Material for Additional airworthiness specifications for operations).

This reply will be updated during the development of RMT.0710.

SR actual Status: Open

SCHEIBE SF25, D-KIWC, 16/07/2019, Austria

AUST-2020-001:
Issued to EASA, in conjunction with the designing state and the holder of the type certificate of the touring motor glider Type SCHEIBE SF 25 C - FALKE: The information given in the SCHEIBE AIRCRAFT "Flight manual for the motor glider SF 25 C - FALKE", edition March 1997, amendment 9 of 07.04.2013 and according to EASA data sheet TCDS No. EASA.A.098, Issue 11, Date 14 Jan 2016, certified for the motor glider Type SF 25 C. Maximum continuous output of 46 KW at 4800 RPM speed and 22 INHG boost pressure for motor gliders with ROTAX 912 A engine and controllable pitch propeller contradicts the performance table for the ROTAX 912 A engine with controllable pitch propeller in the BRP-ROTAX Operating manual "Operators Manual for ROTAX Engine Type 912 Series", Edition 4 / Rev. 0, November 01/2016 ("Performance data for variable pitch propeller - Engine 912 A / F / UL"), which at 4800 RPM speed and 26.5 INHG Boost pressure indicates a power of 37.7 KW in ISA conditions. Motor gliders type SF 25 C - FALKE with a ROTAX 912 A engine are optionally available with or without switchable carburetor preheating. The extraction of the intake air influences the intake air temperature and intake boost pressure, which also determine the engine performance. If the maximum continuous power specified in the flight manual of the motor glider requires a higher engine speed and / or a higher intake pressure than the parameters for the power setting specified in the flight manual of the motor glider, the actually available engine power in ISA conditions would be lower than the certified maximum continuous power of the motor glider. This would have a negative impact on flight safety as a result of the poorer flight performance when climbing. Incorrect performance specifications in the operating instructions for motor gliders could lead to an incorrect assessment of the available engine performance. The maximum continuous output of 46 KW at 4800 RPM speed and 22 INHG boost pressure for motor gliders with ROTAX 912 A engine and variable pitch propeller specified in the flight manual for the touring motor glider type SCHEIBE SF 25 C - FALKE should be checked with regard to the correctness of the values for engine power, engine speed and intake boost pressure and if discrepancies are identified, they are also checked for compliance with the airworthiness requirements for gliders and motor gliders JAR22. A possible influence of the extraction of the intake air on the engine performance should be taken into account.

Type of response: **Final**

Reply sent on 07/07/2022: The Flight and Maintenance Manual for powered sailplane SF 25 C _ Falke has been corrected in accordance with the safety concern highlighted by this safety recommendation, and approved on the 20 December 2021 by the European Union Aviation Safety Agency (EASA) under Major Change approval 10078018.

SR actual Status: **Closed Agreement**

Diamond DA42, OE-FLL, 25/09/2009, Austria

AUST-2022-001:
In the course of the construction regulations, EASA should ensure that cockpit canopy locking mechanisms, in particular Bowden cables and locking bolts, which were and are installed by the aircraft manufacturer Diamond Aircraft Industries on aircraft of Diamond Aircraft Industries identical to the aircraft Diamond Aircraft Industries DA42, do not pose a risk in the event of an accident for occupants, in particular due to the breakout of the Bowden cable from the CFRP molded part and its penetration into the pilot and passenger areas..

Type of response: **Intermediate**

Reply sent on 13/08/2022: The Flight and Maintenance Manual for powered sailplane SF 25 C _ Falke has been corrected in accordance with the safety concern highlighted by this safety recommendation, and approved on the 20 December 2021 by the European Union Aviation Safety Agency (EASA) under Major Change approval 10078018.

SR actual Status: **Closed Agreement**

CESSNA T303, D-ITOL, 08/05/2021, Austria

AUST-2022-002:
It is recommended that the level of knowledge of aircraft systems should be demonstrated after type training. In particular, the emergency procedure for landing gear problems should THEORETICALLY be run through during a check flight. (Knowledge of the systems and procedures described in the flight manual, what is the order of the activities to be carried out, where are the relevant fuses, where is the pump lever, and how long does it take to pump until the landing gear is extended and locked, etc).

Type of response: **Final**

Reply sent on 24/09/2022: Regulation (EU) 1178/2011 - Appendix 9 - A. General - CONDUCT OF THE TEST/CHECK - point 7 states:

"During the proficiency check, the examiner shall verify that holders of the class or type rating maintain an adequate level of theoretical knowledge"

Theoretical knowledge (written) examination is foreseen for the initial issue only, and this is considered to sufficiently address the applicable requirements.

Additionally, there are several items in the content of TEST/CHECK that the examiner should take into consideration. The examiner is also responsible for checking the completion of the training aspects of the applicant and he has full access to the training records.

AMC1 FCL.725 (a) Requirements for the issue of class and type ratings
(7) landing gear: (i) main components of the: (A) main landing gear; (B) nose gear; (C) gear steering; (D) wheel brake system, including anti-skid. (ii) gear retraction and extension (including changes in trim and drag caused by gear operation); (iii) required tyre pressure, or location of the relevant placard; (iv) controls and indicators including warning indicators in the cockpit in relation to the retraction or extension condition of the landing gear and brakes; (v) components of the emergency extension system.

(e) Emergency procedures:
(1) recognition of the situation as well as immediate memory actions in correct sequence and for those conditions recognised as emergencies by the manufacturer and competent authority for certification:

…(2) actions according to the approved abnormal and emergency checklist:
engine restart in-flight;
landing gear emergency extension;
application of the emergency brake system;
emergency extension of lift devices;
fuel dumping;
emergency descent.

FCL.725 (c) Skill test.
An applicant for a class or type rating shall pass a skill test in accordance with Appendix 9 to this Part to demonstrate the skill required for the safe operation of the applicable class or type of aircraft.

Appendix 9. CONDUCT OF THE TEST/CHECK
6. The examiner may choose between different skill test or proficiency check scenarios containing simulated relevant operations. Full-flight simulators and other training devices shall be used, as established in this Annex (Part-FCL). 7. During the proficiency check, the examiner shall verify that holders of the class or type rating maintain an adequate level of theoretical knowledge. 8. Should applicants choose to terminate a skill test for reasons considered inadequate by the examiner, they shall retake the entire skill test. If the test is terminated for reasons considered adequate by the examiner, only those sections not completed shall be tested in a further flight. 9. At the discretion of the examiner, any maneuver or procedure of the test may be repeated once by the applicants. The examiner may stop the test at any stage if it is considered that the applicants' demonstration of flying skill requires a complete retest

In addition, the recently issued European Union Aviation Safety Agency (EASA) Examiner Manual as part of safety promotion activities, addresses the following specific activities:

- 13.3 Oral examination on ground - general;
- Module 4.1 - CR TR SP(A) - 5. Oral examination on ground
    - o […] operational aspects

- o […] aircraft systems. Limitations, performance, mass and balance
- o […] emergency procedures.

Considering the above, the applicable provisions fully address the Safety Recommendation regarding risk mitigation in licensing and training without the need for additional regulatory activities.

SR actual Status: Closed

CESSNA T303, D-ITOL, 08/05/2021, Austria

AUST-2022-003:
A normal checklist and an emergency checklist in handy form (minimum standard according to the manual) should be carried on board. The presence should be checked during the annual inspection of the aircraft.

Type of response: **Intermediate**

Reply sent on 24/09/2022: Within the European Union Aviation Safety Agency (EASA)'s Safety Promotion work the goal is to promote a holistic and systems-based approach to managing the safety of every flight.

This is shown in the Safety Map of the World (https://www.easa.europa.eu/community/content/stronger-safer-together) that highlights the simplest building blocks of safe operations, where EASA promotes safety as the capacity for an effective flight.

EASA has specific safety promotion material already planned around the topic of "Handling Emergency Situations" to deal with situations like the one described in this accident. In more detail, EASA intends to highlight the risk of the emergency situation with a clear link to:

- The "Resources" needed to achieve a safe outcome - such as the relevant checklists in the aircraft,

- The "Compliance" element, because the organisation has the responsibility to ensure that the checklist is in accordance with the relevant rules and is then accessible and fit for purpose.

- The "People" element, accounting for pilots that need to be aware of the checklist and the requirement to use it when needed.

- The "Mindset" element, which requires the organisation to make use of the checklist as a result of a right corporate culture.

EASA plans to publish this Safety Promotion material by Q3 2023.

SR actual Status: **Open**

DIAMOND DA42, OE-FLL, 29/05/2009, Austria

AUST-2022-001:
In the course of the construction regulations, EASA should ensure that cockpit canopy locking mechanisms, in particular Bowden cables and locking bolts, which were and are installed by the aircraft manufacturer Diamond Aircraft Industries on aircraft of Diamond Aircraft Industries identical to the aircraft Diamond Aircraft Industries DA42, do not pose a risk in the event of an accident for occupants, in particular due to the breakout of the Bowden cable from the CFRP molded part and its penetration into the pilot and passenger areas.

Type of response: **Final**

Reply sent on 07/11/2022: The occurrence aircraft was type certified in 2004. The applicable airworthiness requirements at the time (Joint Aviation Requirements JAR 23 Amendment 1) included provisions for the protections of occupants from body injuries in case of incidents and accidents (e.g., JAR 23.561 and 23.562). These requirements aim at protecting occupants from inertia loads during an emergency landing and include dynamic testing. The current European Union Aviation Safety Agency (EASA) Certification Specifications, applicable to new designs, include and enhance these provisions.
The aircraft wreckage showed signs of a very high energy impact, to the extent that the survival space for the passengers did not exist any longer. An analysis done with the Type Certificate Holder highlighted that there have been other fatal accidents which occurred at a lower impact energy, where the Bowden cable did not cause any additional injury to the occupants. Consequently, it can be assumed that the occupants of this aircraft suffered further serious internal injuries, which were not survivable independently from the wounds caused by the loose Bowden cable.
EASA considers that certification requirements should aim at protecting the occupants from inertia loads that are expected to occur during survivable crash / emergency landing. An impact with trees at cruise speed induces far greater inertia loads so that such a scenario cannot be assumed to be survivable.
In conclusion, EASA considers that suitable and proportionate measures are already in place to ensure occupant safety in survivable accidents in general aviation.

SR actual Status: **Closed**

MD HELICOPTER 902, OE-XWF, 01/08/2017, Austria

AUST-2022-004:
It was noted that Figure 2-2 from the MD900 Flight Manual, Chapter 2 _Limitations_, was properly approved by the civil aviation authorities, but some information may be misinterpreted. It is recommended that the information in Figure 2-2 should be re-evaluated and, in cooperation with the FAA and the manufacturer, that consideration be given to whether and how the relevant information in this chart can be presented more clearly, taking into account the possibility of misinterpretations. This may include, among other things, extending the text _TAKEOFF AND LANDING WAT LIMIT_ to include the word _HIGE_, introducing safety margins, especially around the operating limit of 12400 ft, clarifying that wind from the front can also have a negative effect, or, if necessary, changing the title, as _[...] For Crosswind Operations_ could give the wrong impression that the chart is only to be used in crosswinds conditions.

Type of response: **Intermediate**

Reply sent on 07/11/2022: The Federal Aviation Administration (FAA) is the Primary Certification Authority for the MD900 helicopter Type.

Nevertheless, following this Safety Recommendation, the European Union Aviation Safety Agency (EASA), as Validating Authority only for the above-mentioned helicopter Type, has proactively initiated coordination with both the FAA and MD Helicopters (i.e. the Type Certificate Holder) to evaluate the current MD900 helicopter Flight Manual with the aim of identifying possible ways, if any, of improving it, especially with regard to limitations addressing controllability.

SR actual Status: **Open**

MD HELICOPTER 902, OE-XWF, 01/08/2017, Austria

AUST-2022-005:
OSD (Operational Suitability Data) for the MD900 helicopter are not available from the type certificate holder at EASA, nor does a legal obligation exist for the MD900 type to require such. However, the operating limit regarding the aerodynamic controllability (flight manual Figure 2-2) is a peculiarity of this helicopter model and the NOTAR system, which is uncommon in this form compared to helicopter models with conventional tail rotor according to FAR Part 27 or CS-27. It is recommended to examine options, in cooperation with FAA and the type certificate holder, to make pilots aware of the aerodynamic and operational peculiarities of MD900 type helicopters.

Type of response: **Intermediate**

Reply sent on 07/11/2022: The European Union Aviation Safety Agency (EASA), in cooperation with the Federal Aviation Administration (FAA) and the Type Certificate (TC) holder (i.e. MD Helicopters), is evaluating the opportunity and the available tools to increase pilots' awareness of the aerodynamic and operational peculiarities of MD900 type helicopter associated with the NOTAR® (No Tail Rotor) system. Such options may include specific training or operational material developed by the TC holder or safety promotion actions by EASA.

SR actual Status: **Open**

AIRBUS - A319 B-6419 13/05/2018, China

CHIN-2020-001 (AIB):
SWCAAC-ASR-2018-1-6 Recommends that EASA consider revision of AMC 25.775(d)[particularly section 7.c (6)] to require the relevant FHA/SSA, and their documentation, in order to evaluate the consequences of windshield heating system failures in terms of the structural integrity of the windshield and the potential subsequent effect(s) at aircraft level, including, as needed, the necessary testing to support and validate these evaluations. This recommendation also includes considering the practicality of updating AMC 25.775(d) Section 7.c (6) to extend the notion of transparency among the effects associated with loss of the windshield, rather than only to the loss of the heating function.

Type of response: **Final**

Reply sent on 24/09/2022: On 6 December 2021, the European Union Aviation Safety Agency (EASA) published CS-25 (Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes) Amendment 27 (ED Decision 2021/015/R):
https://www.easa.europa.eu/document-library/certification-specifications/cs-25-amendment-27

Acceptable Means of Compliance (AMC) 25.775(d) ('Windshields and windows') has been amended to address the content of this safety recommendation, although not in section 7.c as it was deemed not appropriate to the subject.

A new section 8 has been created, entitled 'Other failure conditions that may have structural effects'.

This new section:

-reiterates the applicable provisions from AMC 25.1309 ('System design and analysis'), in particular that the evaluation of the severity of failure conditions should be done considering the effects that potential or consequential effects on structural integrity may have on the aeroplane,
-indicates that the applicant should classify as at least hazardous a system failure condition that leads to a structural failure which could result in partial or complete loss of a windshield,
-highlights that the applicant should pay attention to common causes of failures when installing windshields and related systems or components, and to the contribution of such common causes to cascading failures. The applicant should identify through common cause analysis appropriate design, manufacturing, installation, and maintenance precautions to mitigate the risk of any failure condition adversely affecting systems or components, which may directly or indirectly lead to a structural failure that could result in the partial or complete loss of the windshield or the loss of transparency of the windshield.

SR actual Status: **Closed Agreement**

SHORT - SC7 OE-FDN 08/04/2015, Czech Republic

CZCH-2018-001 (UZPLN):
It is recommended to the FAA and EASA in coordination with the engine manufacturer consider the necessary actions in order to ensure the quality and timely detection of TPE 331 engine turbine wheel disks by a non-destructive FPI test.

Type of response: **Intermediate**

Reply sent on 16/02/2022: The European Union Aviation Safety Agency (EASA) is in regular contact with the Federal Aviation Administration (FAA), the primary certification authority of the engine, in order to obtain the necessary information to support decisions regarding this safety recommendation.

In May 2021 the FAA communicated that it has determined that an Airworthiness Directive (AD) will be necessary to prevent additional TPE331 turbine rotor separations and they are working with Honeywell to develop an appropriate corrective action. The FAA also highlighted that, as per their airworthiness process, an additional 2 years' time would be reasonable to develop the corrective action and finalize the AD. At this time, the FAA does not envision that the AD would require a special non-destructive Fluorescent Penetrant Inspection (FPI) test. Rather, the focus of the FAA AD will be on the engine cycle counting methods for special-use missions, such as agricultural and sky-diving operations, since these consume the life of the rotor at a higher rate, resulting in rotor separations prior to reaching the published rotor life limit.

EASA plans to adopt the FAA AD as soon as it is published.

SR actual Status: **Open**

DASSAULT - FALCON900EX OE-IMI 03/12/2020, Denmark

DENM-2021-001 (AIB):
In order to prevent landings with frozen brakes, the AIB recommends that EASA in cooperation with the aircraft manufacturer modify in a more directive and explicit manner the AFM normal procedures (including the use of the brake heating system) and that the aircraft manufacturer accordingly modifies the CODDE 2.

Type of response: **Intermediate**

Reply sent on 16/02/2022: The European Union Aviation Safety Agency (EASA) is currently checking, together with the type certificate holder, the AFM normal procedures including the use of the brake heating system and the CODDE2. A further update will be provided.

SR actual Status: **Open**

DASSAULT - FALCON900EX OE-IMI 03/12/2020, Denmark

DENM-2021-002 (AIB):
The AIB recommends that EASA in cooperation with the aircraft manufacturer re-evaluate the initial airworthiness Post-Failure Situation Sheet for blocked wheels and the continued airworthiness Significant Event Review for frozen brakes.

Type of response: **Intermediate**

Reply sent on 16/02/2022: The European Union Aviation Safety Agency (EASA) is currently checking, together with the type certificate holder, the initial airworthiness Post-Failure Situation Sheet for blocked wheels and the continued airworthiness Significant Event Review for frozen brakes. A further update will be provided.

SR actual Status: **Open**

VANS RV8, OH-XRV, 27/09/2021, Finland

FINL-2022-002:
The European Aviation Safety Agency improves aeromedical examiners' knowledge and skills in the assessment of the state of health of elderly comorbid pilots.

Type of response: **Intermediate**

Reply sent on 16/12/2022: Within the rulemaking task RMT.0287(2)(b) on increasing the age limit for pilots involved in single pilot Helicopter Emergency Medical Services (HEMS) operations, a requirement has been added to point 'MED.B.005 General' of Annex IV (Part-MED) of Commission Regulation (EU) No 1178/2011, requiring Aero-Medical Examiners (AMEs) to give proper consideration during their medical examination to the degenerative effects of ageing on the body systems. Similar provisions have been also added to the Acceptable Means of Compliance (AMC) pertaining to point 'MED.B.070 Visual System' of Annex IV (Part-MED) of Commission Regulation (EU) No 1178/2011.

The Opinion presenting the proposed regulatory material resulting from rulemaking task RMT.0287(2)(b) is planned to be published in Q2 2023.

With these additions we consider that the Safety Recommendation will be fully implemented.

SR actual Status: **Open**

ATR - ATR72 9Y-TTC 04/05/2014, France

FRAN-2019-018 (BEA):
BEA recommends that:
EASA assess the benefit of imposing the installation of vibration level indicators for each propeller-engine assembly in the cockpits of commercial air transport aeroplanes equipped with turboprop engines.

Type of response: **Final**

Reply sent on 16/02/2022: On 6 December 2021, the European Union Aviation Safety Agency (EASA) published CS-25 (Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes) Amendment 27 (Executive Director Decision 2021/015/R):
https://www.easa.europa.eu/document-library/certification-specifications/cs-25-amendment-27

CS 25.1305 'Powerplant instruments' has been amended to require that not only turbojet but also turboprop large aeroplanes are equipped with a vibration indication system. The system must indicate imbalances in engine rotor systems and in propeller rotating assemblies.

SR actual Status: **Closed Agreement**

ATR - ATR72 9Y-TTC 04/05/2014, France

FRAN-2019-019 (BEA):
BEA recommends that:
EASA and the FAA impose that the initial certification of propellers includes the carrying out of an in-depth study of the actual vibration behaviour of each propeller in flight idle with speeds around VMO.

Type of response: **Final**

Reply sent on 16/02/2022: On 6 December the European Union Aviation Safety Agency (EASA) published CS-25 (Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes) Amendment 27 (ED Decision 2021/015/R):
https://www.easa.europa.eu/document-library/certification-specifications/cs-25-amendment-27

A new Acceptable Means of Compliance (AMC) 25.907 ('Propeller vibration') has been created.

This AMC accepts Federal Aviation Administration (FAA) Advisory Circular (AC) 20-66B 'Propeller Vibration and Fatigue', of 24 March 2011, as an acceptable means of compliance with CS 25.907 regarding the evaluation of vibratory stresses on propellers.

In addition, this AMC stipulates that, when investigating the actual vibration behaviour of each propeller, the applicant should include the operating conditions that correspond to descent with the power levers at flight idle position and with speeds around maximum operating limit speed (VMO).

The AMC refers to the experience gathered from in-service aeroplanes as provided in the investigation report of this incident, which has shown that such conditions may cause cyclic loads and vibrations that may exert excessive stress on some parts of the propeller. As aerodynamic loads differ depending on the position of the engine-propeller assembly on the aeroplane, the applicant should investigate the propellers' vibration behaviour at all engine-propeller assembly positions.

SR actual Status: **Closed Agreement**

AIRBUS - A380 F-HPJE 30/09/2017, France

FRAN-2020-006 (BEA):
EASA and the FAA ensure that the design and sizing criteria and methods along with the manufacturing processes and in-production checks of engine rotor-grade critical parts made of α/β titanium alloy, and in particular the titanium alloy Ti-6-4, are such that the risk of failure of these parts due to the cold dwell fatigue phenomenon is controlled.

Type of response: **Intermediate**

Reply sent on 16/02/2022: Whilst no longer directly participating in the industry groups, the European Union Aviation Safety Agency (EASA) continues to follow the work of the Federal Aviation Administration (FAA) and its activities with two Industry groups, the Aerospace Industries Association (AIA) Rotor Integrity Steering Committee (RISC) and the Jet Engine Titanium Quality Committee (JETQC), to address the safety issues of the recommendation. These complementary teams will be considering industry practices for improved titanium alloy conversion practices and the characterization and quantification of titanium micro-texture, with the objective of a holistic design, manufacturing and lifing system.

SR actual Status: **Open**

AIRBUS - A380 F-HPJE 30/09/2017 , France

FRAN-2020-008 (BEA):
EASA and the FAA carry out a review of engine rotor-grade critical parts made of α/β titanium alloy, and in particular the titanium alloy Ti-6-4, which undergo a manufacturing process likely to lead to the presence of intense macro-zones and for which the risk of failure due to a cold dwell fatigue phenomenon has not been sufficiently taken into account during the certification. EASA and the FAA will subsequently make sure, where appropriate, that an adapted in-service inspection programme is implemented to detect possible incipient cracks which might lead to the failure of the part.

Type of response: **Final**

Reply sent on 16/02/2022: The European Union Aviation Safety Agency (EASA) has worked with the Federal Aviation Administration (FAA), Transport Canada (TCCA) and the engine Type Certificate Holders (TCH) to assess the existing life limited part/critical part rotor designs which may be subject to the risk of failure due to a cold dwell fatigue phenomenon.

The EASA Continuing Airworthiness Review Item (CARI) document number 4-19-01 was signed on 19th January 2021 and sent to all concerned EASA TCH where EASA acts as state of design. The purpose of the CARI was a review of engine and Auxiliary Power Unit (APU) rotor-grade critical parts made of α/β titanium alloys, which undergo a manufacturing process that may lead to the presence of macrozones or microtexture regions.

The responses have been analysed, and EASA concluded that, in the absence of a specific area of concern for the EASA TCH, no adaptation of the in-service inspection programme was necessary. EASA CARI 4-19-01 was subsequently proposed for closure on 29th November 2021.

The EASA is informed that the FAA and TCCA made a similar request to their TCH which are identified in the EASA CARI.

SR actual Status: **Closed Agreement**

AEROSPATIALE - AS350, F-GIBM, 07/03/2021, France

FRAN-2022-001:
The BEA recommends that: - in the absence of references regarding safety margins with respect to obstacles when using HLS or confined areas for Non-Commercial Operation (NCO); - whereas the diversity of HLS and confined areas used in NCO by pilots with varying degrees of experience and proficiency; - whereas the difficulty in associating flight experience measured in flight hours with practical experience of operations in confined areas; - whereas companies carrying out commercial operations impose on their pilots, in their operations manual, dimensions for unrecognised landing sites; EASA publish a guide aimed at training organisations which indicate distance-to-obstacle reference values adapted to initial training and how these can evolve according to the pilot's experience and ratings.

Type of response: **Final**

Reply sent on 20/05/2022: In the opinion of the European Union Aviation Safety Agency (EASA), Annex I (Part-FCL) of Commission Regulation (EU) No 1178/2011 and the associated Acceptable Means of Compliance (AMC) contains sufficient details for helicopter training courses regarding exercises focused on confined area operations including selection of and operations to and from unprepared sites.

Furthermore, skill tests requirements for all type of licences and flight instructor rating, have a dedicated Section 2 where hover manoeuvres, advanced handling and confined areas airmanship is tested.

According to the current regulatory framework, the training organisations (see for example AMC1 ORA.ATO.140 and AMC1 DTO.GEN.250 Aerodrome and operating sites _ General) providing training for helicopters must ensure availability of training sites for confined area operation training and sloping ground operation training.

EASA has therefore concluded that the actual regulatory provisions fully address the training needs connected to confined area operations including selection of and operations to and from unprepared sites.

Additionally, the next revision of the Flight Instructor Guide, to be published by EASA in 2022, already contains useful information addressing the matter at hand.

In the next revision that will be published in 2024, according to the two-year update schedule, additional information relevant to training in confined areas will be introduced on the following parts of the Flight Instructor Guide:

- example(s) of practical Threat and Error Management (TEM)
- Recce, especially elaboration on the Ground Recce, in view of distance-to-obstacles
- manoeuvring in the confined area, in view of distance-to-obstacles
- procedures for departure, in view of distance-to-obstacles
- additional tips for instructors
- common errors, and
- checklists

Furthermore, specific input will be sought regarding the French national helisurface rules to provide the most comprehensive guidance possible.

Based on the above, EASA's opinion is that the existing regulatory framework already contains sufficient details for training course design specifics, therefore it does not see a need to amend Part-FCL in this context..

SR actual Status: **Closed Partial Agreement**

AEROSPATIALE - AS350, F-GIBM, 07/03/2021, France

FRAN-2022-002:
The BEA recommends that: - whereas one of the most characteristic physiological consequences of the beginning of ageing is the impairment of vision; - whereas chronological age is not to be correlated with physiological age; - to characterize all of the pilot's vision performance which degrades irremediably with age and in which visual acuity is only one element; - whereas the regulations may encourage AMEs to limit the aero-medical examination to one where the result is reduced to the person being declared fit or unfit, to the detriment of raising the pilot's awareness and promoting safety when the latter meets the fitness criteria; EASA include in Part MED of EU regulation No 1178/2011, a guide or Acceptable Means of Compliance (AMC) proposing an awareness module that will encourage AMEs to freely address, during renewal medical examinations, the physiological consequences of ageing, using in particular, a contrast sensitivity assessment test as a support, with the objective of promoting safety.

Type of response: **Final**

Reply sent on 20/05/2022: Paragraph MED.A.040 (a) requires the aero-medical examiner (AME) or aero-medical centre (AeMC) performing an examination to issue, revalidate or renew a medical certificate once the required aero-medical examinations and assessments, as applicable, have been completed and the applicant has been assessed as fit. Furthermore, paragraph MED.A.040 © enables the possibility for additional investigations where there is a clinical or epidemiological indication before the medical certificate is issued, revalidated or renewed.

Additionally, and specifically for the assessment of the visual system the AMC1 MED.B.070 (a) and (c), and AMC2 MED.B.070 (a)(1) and (b) defines as an acceptable means of complying with the requirement mandating a routine eye examination during all revalidation and renewal examinations the following:

- At each aero-medical examination, an assessment of the visual fitness should be undertaken and the eyes should be examined with regard to possible pathology.
- All abnormal and doubtful cases should be referred to an ophthalmologist. Conditions which indicate ophthalmological examination include but are not limited to a substantial decrease in the uncorrected visual acuity, any decrease in best corrected visual acuity and/or the occurrence of eye disease, eye injury, or eye surgery.
- A routine eye examination may be performed by an AME and should include:

o (1) history;
o (2) visual acuiti-s - near, intermediate and distant vision (uncorrected and with best optical correction if needed);
o (3) examination of the external eye, anatomy, media and fundoscopy; and
o (4) further examination on clinical indication.

Consequently, the AMEs are instructed in several instances to include further examination on clinical indication and for doubtful cases to refer the case to a specialist.
In this context, the European Union Aviation Safety Agency (EASA) considers that the current regulatory framework adequately allows AMEs to freely address the physiological consequences of aging as needed and no regulatory change is needed at this point.

However, in addition to the above, on the occasion of the next amendment of the AMC, the Agency intends to make explicit mention of the fact that AMEs should consider, in their assessment of eyesight, the degenerative effects of age..

SR actual Status: **Closed Agreement**

CIRRUS SR22, N918SE, 28/09/2020, France

FRAN-2022-003:
EASA to amend the brochure, _Preventing Hypoxia_ to include information about mild hypoxia and posthypoxic impairments along with their symptoms, and encourage pilots to be more prudent when the limits mentioned in paragraph NCO.OP.190(b) are exceeded and supplemental oxygen is not being used.

Type of response: **Intermediate**

Reply sent on 16/06/2022: The European Union Aviation Safety Agency (EASA) intends to review the contents of the _Preventing Hypoxia_ leaflet, to take into account the recommendation and to include any other updates needed in a new version. This is envisaged for the 2023 Safety Promotion programme.

SR actual Status: **Open**

CIRRUS SR22, N918SE, 28/09/2020, France

FRAN-2022-004: EASA to amend and update the brochure, 'Preventing Hypoxia' in order to delete references to the pulse oximeter as a means of determining supplemental oxygen needs above the thresholds mentioned in regulatory requirement NCO.OP.190(b), and limit reference to the pulse oximeter to that of an additional means to ensure that there is a sufficient oxygen supply during the flight phases in which supplemental oxygen is used.

Type of response: **Intermediate**

Reply sent on 16/06/2022: The European Union Aviation Safety Agency (EASA) intends to review the contents of t"e "Preventing Hypo"ia" leaflet, to take into account the recommendation and to include any other updates needed in a new version. This is envisaged for the 2023 Safety Promotion programme.

SR actual Status: **Open**

AIRBUS A340, F-GLZU, 11/03/2017, France

FRAN-2019-025:
The BEA recommends that EASA in coordination with the national oversight authorities ensure that European operators introduce in their flight analysis programme, the indicators required to monitor take-off performance and at the very least, long take-offs.

Type of response: **Final**

Reply sent on 21/09/2022: Flight Data Monitoring (FDM) is addressed under Commission Regulation (EU) No 965/2012 on air operations, and the associated Acceptable Means of Compliance (AMC) and Guidance Material (GM) is published under European Union Aviation Safety Agency (EASA) Executive Director (ED) Decisions.

Commercial air transport operators are required to establish and maintain an FDM programme which shall be integrated into its management system, for aeroplanes with a maximum certificated take-off mass of more than 27 000 kg (refer to ORO.AOC.130 (a)).

The operator_s FDM programme should be tailored according to the safety priorities identified under its management system (refer to ORO.GEN.200 (a)(3)) based on the operator_s individual fleet and routes. According to this principle, it is an operator_s responsibility to assess whether take-off performance monitoring should be implemented in its FDM programme. In addition, the FDM programme output should be used to evaluate risks and monitor the effectiveness of corrective actions (as specified in AMC1 ORO.AOC.130). Therefore, it is important that the competent authorities ensure that ORO.GEN.200 (a)(3) and ORO.AOC.130 are effectively implemented by the operators (as part of the oversight activities required under ARO.GEN.300 (a)(2)). Member State Task MST.0032 of the European Plan for Aviation Safety (EPAS) 2022-2026 includes the following:

Member States shall foster the ability of [national competent authorities] to assess and oversee the organisations management system in all sectors. This shall focus in particular on [&] the interaction between the risk identification/assessment process and the organisation_s monitoring process, the use of [&] safety information such as occurrences, incidents, and accidents and, where applicable, flight data monitoring (FDM)._

In addition, as indicated under Member State Task MST.0003 of the EPAS 2022-2026, national competent authorities should maintain a regular dialogue with their operators on FDM programmes. One objective of this dialogue, as stated under MST.0003, is making operators aware of the good practice documents produced by the European Operators FDM forum (EOFDM). EOFDM document titled _Guidance for the implementation of FDM precursors_ offers computation methods to monitor slow acceleration during the take-off roll, late rotation, slow rotation, late lift-off.

Although operators are responsible for their management systems, EASA informs Member States and the industry about newly identified risks when they are potentially relevant for all operators, for example through publication of Safety Information Bulletins (SIBs) and during meetings with EASA advisory bodies. In particular:

- In February 2016, EASA issued SIB No. 2016-02 on use of erroneous parameters at take-off, in which operators are recommended to define and implement specific FDM events relevant to the monitoring of take-off performance in their FDM programme. Such FDM events can also be used to identify insufficient take-off performance that results from a slow rotation on take-off.
- In November 2017, EASA issued SIB No. 2017-20 on slow rotation during take-off. In this SIB, operators of 4-engine wide-body aeroplanes are recommended to assess whether their operating procedures may be affected by slow rotation on take-off, and if so, to collect relevant data through their FDM programme in order to identify any abnormal rotation rates in their operation.
- In March 2020, EASA highlighted the safety issue of insufficient take-off performance to the Member States_ Air Operations Technical Body through a written communication.
- In September 2021, a revision of SIB 2016-02 (SIB No. 2016-02R1) was published and it was presented by EASA at a meeting with the Member States_ Air Operations Technical Body in November 2021. SIB No. 2016-02R1 points at some computation methods defined in EOFDM documentation that are relevant for the monitoring of take-off performance, and that could be implemented by the majority of operators. EASA urged Member States to give SIB 2016-02R1 due attention and to include it in their oversight activities to determine whether operators considered it within the frame of their hazard identification process. In addition, EASA has been highlighting the safety issue of insufficient take-off performance through its routine air operations standardisation activities since November 2021.

Finally, changes to GM1 ORO.AOC.130 and GM2 ORO.AOC.130 were adopted with ED Decision 2021/005/R (published in April 2021) to ensure that take-off performance monitoring will continue to be considered in operators_ FDM programmes. These changes include:

- inserting a recommendation to consider the _risk of runway excursion or abnormal runway contact at take-off or landing_ as part of the risk areas monitored with the FDM programme, and

- new examples of FDM events, such as _low or high lift-off rotation rate_.

SR actual Status: **Closed Agreement**

FOKKER F28, F-GMPG, 25/01/2007, France

FRAN-2009-001:
Le BEA recommande que tout en veillant à maintenir les exigences opérationnelles relatives au contrôle du dégivrage avant le vol, l'AESA s'attache à faire évoluer les 58nc as58cations de certification pour demander l'analyse du comportement des avions lorsque les surfaces d'ailes sont contaminées au sol et pour garantir le maintien des marges de sécurité acceptables 58nc as de contamination légère.

Type of response: **Intermediate**

Reply sent on 07/10/2022: This safety recommendation is taken into account in the scope of rulemaking task RMT.0118 entitled 'Analysis of on-ground wing contamination effect on take-off performance degradation' which started with the publication of its terms of reference on 21 March 2017:

https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0118

On 25 July 2022, EASA published Notice of Proposed Amendment (NPA) 2022-08 for public consultation:

https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-08

The NPA proposes to amend the Certification Specifications (CS) and Acceptable Means of Compliance (AMC) for Large Aeroplanes (CS-25).

After evaluating all viable options by means of an impact assessment, EASA proposes not to mandate the 'analysis of aeroplane behaviour when the wings surfaces are contaminated on ground and to guarantee the maintaining of acceptable safety margins, in case of slight contamination'.

EASA intends to continue safety promotion actions that are expected to enhance safety by further raising awareness of the community on the procedures related to winter operations, thus mitigating the risk of take-off with unnoticed contaminated wing by icing conditions.

Nevertheless, new CS and AMC 25.1595 are proposed allowing the aeroplane manufacturer, on a voluntary basis, to certify a large aeroplane for safe take-off in the presence of a determined level of pre-take-off frozen contamination on some surfaces such as upper and lower wing surfaces, wing tips, and upper fuselage surfaces. This typically addresses, for instance, cold soak ice contamination on wings. The Aeroplane Flight Manual (AFM) would then indicate the certified contamination(s) as operating limitation(s), and would provide the associated operational procedures.

SR actual Status: **Open**

BOEING 737, SE-RPE, 25/07/2021, France

FRAN-2022-014:
The serious incident on 25 July 2021, the subject of this report, occurred in Italian airspace. As in France concerning the display of meteorological information on air traffic control screens, storm phenomena are not displayed on the radar screens of Italian air traffic controllers.
Consequently, the BEA recommends that:
- whereas the display of meteorological phenomena on air traffic control radar screens is likely to enable air traffic controllers to anticipate possible crew requests to modify flight paths and to implement, if needed, transfer strategies outside of the standard route;
- whereas this situation can be extrapolated to different air navigation service providers in Europe;
- whereas the recommendations already issued on the topic have not come to fruition;
EASA, in coordination with Eurocontrol:
1. conduct a global review of existing systems and those being developed that display near-real-time weather images on the radar screens of air traffic controllers, and their use by air navigation service providers as part of the flight information service, with the aim of facilitating meteorological avoidance strategies developed by flight crews,
2. on the basis of the above review and other available data, identify the system specifications, tools and working methods that would be most suitable for use by the European air navigation service providers in order to facilitate weather avoidance strategies developed by flight crews,
3. promote the implementation and use of such systems, tools and working methods by the European air navigation service providers in order to facilitate meteorological avoidance strategies developed by flight crews.

Type of response: **Final**

Reply sent on 19/12/2022: Under the current regulatory framework, which is consistent at European and global level, the responsibility divided between the pilot in command and the controller is clearly defined:

The pilot in command is responsible for the safe conduct of flight, which includes any decisions taken on avoiding adverse weather (e.g. as per point CAT.GEN.MPA.105 of Annex IV (Part-CAT) to Regulation (EU) No. 965/2012);

Controllers will provide information relevant to the safe conduct of flight as part of the flight information service (e.g. as per point SERA.7001 of Regulation (EU) No 923/2012).

However, the final decision on the conduct of the flight always rests with the pilot in command (e.g. as per point SERA.9001 of Regulation (EU) No 923/2012).

Over the last few years the European Union Aviation Safety Agency (EASA) has undertaken significant work on weather information and pilot awareness, including an initial workshop in 2015 and a survey on the use of weather applications within an electronic flight bag (EFB). One outcome of this was the “Weather information for pilots strategy paper” which was published in 2018. There are also several weather-related tasks defined within the European plan for aviation safety (EPAS) for 2022-2026. These past and future deliverables are all aiming to increase the availability of weather information and reducing the risk of weather-related incidents and accidents within the single European sky.

As an example of an outcome in this activity, EASA has investigated ways to present more weather information to pilots, including through an EFB. Furthermore, in 2017 and 2018 EASA reviewed two different software products regarding their usability to aid flight crews to develop more efficient strategies to avoid adverse weather. The availability of this information enables flight crew to more effectively formulate their avoidance strategy and follows the regulatory scope outlined above. EASA will continue to build on this work and considers it to be a driver that has improved and will continue to improve flight safety.

With the adoption of Regulation (EU) 2020/469 amending Regulation (EU) 2017/373 and associated Acceptable Means of Compliance and Guidance Material, large parts of the ICAO PANS (Procedures for Air Navigation Services) ATM (Air Traffic Management) were transposed into the European regulatory framework, this included provisions which account for the possibility to use information on adverse weather in the provision of ATS surveillance services. Before this material was transposed into the EU regulatory framework, it has been present in ICAO PANS ATM since edition 13, which was published in 1996. As such, these ICAO PANS provisions were used by EU Member States and the regulatory possibility to display weather information on controller surveillance displays has therefore existed for many years. Despite this there has been no uptake from European air navigation service providers.

To the knowledge of EASA, there is currently no mature solution for how to introduce this information onto air traffic controller’s surveillance displays, there is also no known safety analysis regarding the benefit of this proposed change.

EASA therefore considers that, at this stage, it would be appropriate to further explore the use of harmonised tools and working methods that enable the display and use of storm zone information at en-route and approach controllers' working positions. EASA has also decided to perform an internal review of recent weather-related accidents, drawing on a cross-domain approach and to evaluate possible mitigating actions.

SR actual Status: Closed Partial Agreement

BOEING 737, SE-RPE, 25/07/2021, France

FRAN-2022-015:
Many different generations of weather radar exist today. The oldest systems offer limited performance and/or require specific training to ensure they are used correctly (e.g. manual selection of tilt and gain). In addition, the weather radar can only detect precipitation and some hazards associated with precipitation. The effectiveness of the detection depends on the size, composition, phase (liquid/solid) and the concentration of droplets (water) or particles (ice). Moreover, pilots must be familiar with the techniques for using the different radars (adjustment, parameters and analysis of the display) and know the limitations of the system used.
Heavy precipitation can, in addition, hide the meteorological situation behind a cell shown on the radar screen (mitigation phenomenon), and radar returns do not always provide a comprehensive image of the situation behind the strongest cells.
Consequently, the BEA recommends that:
- whereas the effectiveness of the detection capability of onboard weather radars is variable;
- whereas weather radars do not always provide the flight crew with the information required to safely navigate through large areas of convective activity;
- whereas the provision of observed and forecast high-resolution meteorological information, such as images derived from satellites and ground weather radars, is likely to improve the crew's situational awareness;
EASA promote systems and equipment providing advanced meteorological information on board aircraft that is updated in near real-time.

Type of response: **Final**

Reply sent on 16/12/2022: Regulation EU 965/2012 allows the use of systems and advanced meteorological information on-board through Electronic Flight Bags and Instruments, Data, and Equipment requirements. This enables the use of technology to reduce risks from adverse weather conditions in all phases of flight.

The topic All-weather operations is one of the strategic enablers in the European Plan for Aviation Safety (EPAS) 2022-2026 (3.1.3.8).

Since 2015 the European Union Aviation Safety Agency (EASA) has increased its focus on weather-related challenges and, as part of that work, has sought to identify whether the meteorological information available to pilots could be enhanced. Accordingly, EASA organised a first workshop on 28-29 October 2015 dedicated to 'Weather information provided to pilots'.

Following the workshop, a project team with representatives from international organisations, associations, and industry was tasked in April 2016 to assess the situation. The work of the team resulted in the 'Weather Information to Pilots Strategy Paper' issued in January 2018 (https://www.easa.europa.eu/en/domains/air-operations/weather-information-pilots).

The Strategy Paper focuses on the weather phenomena that introduce risks to aviation, describes the current mitigation measures, the deficiencies and how to overcome them. The paper focuses on Commercial Air Transport (CAT) aeroplanes. The EASA Strategy Paper proposes nine recommendations to further improve weather information and awareness. The recommendations are detailed on paper and also on the Weather Information to Pilots webpage.

Another key action in EPAS is to promote the availability of enhanced meteorological information and uplink connectivity. Safety Promotion Task (SPT).0114 will promote the availability of enhanced meteorological information and up-link connectivity. The task has been extended into 2023 and will serve two main purposes:

- from a technology perspective, it will promote the benefits of the latest technologies for providing meteorological information to pilots with the goal of persuading organisations of the benefits of investing in safety technologies

- additionally, this task will also seek to inform pilots of the importance of being able to use the technology and systems available effectively in flight to support decision-making. The material developed will highlight some of the common challenges with interpreting weather information.

Furthermore, it should be noted that EASA concluded in 2022 another major task in this regard. Rulemaking task (RMT).0379 on All-Weather operations led to amendments to Regulation (EU) No 965/2012, Regulation (EU) No 139/2014 and CS-AWO (Certification Specifications for All-Weather Operations). The main aim was to allow for a better integration of the regulatory requirements related to the operational use of new, advanced technology such as, for example, enhanced flight vision system (EFVS), as well as the application of some advanced new operational procedures, which may support AWOs.

Significant focus has been invested in developing resilient rules, which are not technology-dependent. Particular attention was paid to the development of requirements enabling the use of EFVS to the maximum extent possible (e.g. use of EFVS for landing). A new concept of 'light operational credits' for EFVS 200 operations, not requiring the use of specific low-visibility procedures (LVPs), has also been introduced.

The changes introduced are expected to maintain safety, reduce the regulatory burden, increase cost-effectiveness, improve harmonisation (e.g. with the Federal Aviation Administration (FAA)), and achieve as much as feasible alignment with the Standards and Recommended Practices (SARPs) of the International Civil Aviation Organization (ICAO).

SR actual Status: **Closed Agreement**

FOKKER - F28 HB-JVE 20/01/2015 Germany

GERF-2018-002 (BFU):
The European Aviation Safety Agency (EASA) should continue and expand the current activities regarding aircraft de-icing. In addition, due to the importance of aircraft de-icing for flight safety, EASA should consider placing aircraft de-icing under regulatory authority similar to aircraft maintenance.

Type of response: **Intermediate**

Reply sent on 15/03/2022: The scope of the EU regulatory framework for civil aviation has been expanded to cover groundhandling (GH) services with the publication, on 22 August 2018, of Regulation (EU) 2018/1139 of the European Parliament and of the Council (hereafter referred to as the 'new Basic Regulation'). Annex VII of this Regulation establishes the essential requirements for GH service providers. According to the new Basic Regulation, the definition of 'groundhandling service' covers, amongst others, 'aircraft services', which, in turn, includes aircraft de-icing (See Council Directive 96/67/EC).

To determine the optimal way to discharge its new responsibilities in the GH domain, the European Union Aviation Safety Agency (EASA) has established a European GH Roadmap which was developed through focussed consultation with experts and reviewed with stakeholders during a GH Conference which took place on 07 March 2019. The Roadmap consists of three phases: fact finding, definition of scope, and implementation of actions. The first two phases have been completed.

For the 'implementation of actions' phase, EASA has initiated rulemaking task RMT.0728 'Development for requirements for groundhandling', with the objective of establishing a regulatory framework, consisting of Implementing Rules (IR), Acceptable Means of Compliance (AMC) and Guidance Material (GM), for the provision of GH services (see the European Plan for Aviation Safety (EPAS) 2022-2026).

Currently, Commission Regulation (EU) No 965/2012 on air operations covers aircraft ground de-icing/anti-icing through, amongst others, the following provisions which are addressed to the air operators (IR, AMC and GM):

- ORO.GEN.200 'Management system' (The operator's risk assessment, mitigation (e.g. procedures in the Operations Manual), personnel training and compliance monitoring)
- ORO.GEN.205 'Contracted activities' (The operator shall ensure compliance with the applicable rules by their service providers)
- AMC3 ORO.MLR.100 Manuals – general 'Contents – CAT operations' (e.g. 8.2.4 under OM-A)
- CAT.OP.MPA.250 and GM1 to GM3 'Ice and other contaminants – ground procedures'

To support the implementation of the above-mentioned air operations provisions, EASA published the following Safety Information Bulletins (SIBs), in 2017 and 2018 respectively:

- SIB 2017-11 on Global aircraft de-icing standards
- SIB 2018-12 on Post de-icing/anti-icing checks

In addition, during the 2019 EASA Annual Safety Conference which took place in Helsinki on 04 and 05 Nov 2019, aircraft ground de-icing/anti-icing was highlighted through a dedicated winter operations specialist panel.

Furthermore, EASA is planning to launch a 'Winter Readiness Campaign' in 2022 Q4 which will focus on the important subject of aircraft ground anti/de-icing (See SPT.0102 'Development of new safety promotion material on high-profile aerodrome and groundhandling safety issues' under the EPAS 2022-2026).

The Terms of Reference for RMT.0728 'Development for requirements for groundhandling' were published on 22 November 2019, and the planning milestone for the draft regulatory provisions (IR, AMC and GM) to be submitted for focussed consultation, is 2022 Q2 (see the EPAS 2022-2026).

SR actual Status: **Open**

SCHLEICHER - K7 HA-5087 29/09/2018, Hungary

HUNG-2020-003 (TSB):
ITM-TSB is recommending the European Aviation Safety Agency to consider modification of Airworthiness Directive 72-007/3 currently in force for Schleicher K-7 gliders. It is suggested that the inspection interval for wooden structures is dependant not only on elapsed time, but also on the number of take-offs.

Type of response: **Final**

Reply sent on 03/02/2022: The European Union Aviation Safety Agency has issued Airworthiness Directive (AD) 2021-0230 on 14 October 2021, superseding Luftfahrt Bundesamt Germany (LBA) AD 72-7/3 and providing inspections instructions and corrective actions for all wooden Schleicher sailplanes having an elevator of a similar design, and making the inspections dependent on elapsed time and on the number of launches.

SR actual Status: **Closed Agreement**

R26 GOBE, HA-5514 & HA-5501, 07/06/2015, Hungary

HUNG-2019-003: TSB recommends EASA to consider initiate regulation of the maximum age of flight instructors participating in the practical training of pilots involved in non-commercial aviation, similarly to the area of commercial air transport.

Type of response: **Intermediate**

Reply sent on 17/06/2022: Having reviewed recent accidents involving elderly pilots, the European Union Aviation Safety Agency (EASA) is considering the following actions:

•introducing in Rulemaking Task RMT.0287(2)(b) provisions to enhance the medical examination of elderly pilots with a focus on the visual system, including colour vision. The Opinion is scheduled to be published in Q1 2023.

Regarding the possible introduction of an age limit for flight instructors, EASA is considering the following:

•in the future update to Part-MED under RMT.0424 to consult the medical experts regarding the need for an age limit for instructors and/or the need for stricter medical requirements for this professional role. The Opinion is scheduled to be published in Q3 2025.

SR actual Status: **Open**

ATR72, EP-ATS, 18/02/2018, Iran

IRAN-2021-002:
To revise stall recovery procedure in ATR72-212 FCOM based on findings of this report and provide it to the aircraft operators.

Type of response: **Final**

Reply sent on 16/12/2022: The stall recovery procedure in the ATR72-212 Flight Crew Operating Manual (FCOM) is in line with the latest work carried out at the International Civil Aviation Organization (ICAO) level that has been established as a result of a close cooperation between ICAO, Airbus, ATR, Boeing, Bombardier, and Embraer. The Upset Prevention and Recovery Training Aid (AUPRTA) highlights that best practice is to first reduce Angle of Attack (AoA) when recovering from stall. Furthermore, it has been confirmed by ATR that the stall recovery procedures are harmonized amongst all ATR models.

The European Union Aviation Safety Agency (EASA) would like to highlight that it is clearly stated in the FCOM that the first action (to reduce AoA) must be followed by an increase of power. The exact amount of power is not specified in the FCOM, as the appropriate amount of power could be subject to the specific upset condition which the flight crew should appropriately assess on the basis of its own experience and training. This is in accordance with the Upset Prevention and Recovery Training Aid AUPRTA Revision 3 and international best practices for stall recovery:

https://www.icao.int/safety/loci/auprta/index.html

SR actual Status: **Closed Disagreement**

ATR72, EP-ATS, 18/02/2018, Iran

IRAN-2021-004:
'To revise AD 2009-0170 to include whole probable factors leading to the aircraft performance degradation.'

Type of response: **Final**

Reply sent on 16/12/2022: The paragraph "Reason" of the Airworthiness Directive (AD) 2009-0170 states that the AD is intended to minimise hazards associated with the inadvertent encounter of severe icing conditions (which are beyond current certification envelope requisites for Part 25 aeroplanes) by providing the flight crew with measurable and objective evidence and timely alerts when such severe icing conditions are encountered.

It is not the intention of the subject AD to provide an exhaustive list of all probable factors that could lead to a degradation in performance of the aircraft.

SR actual Status: **Closed Disagreement**

ATR72, EP-ATS, 18/02/2018, Iran

IRAN-2021-005:
To ensure all aircraft manuals have full description about mountain wave hazards and preventative requirements and guidance.

Type of response: **Final**

Reply sent on 16/12/2022: The current European Union (EU) regulatory framework covers the awareness of meteorological phenomena such as mountain waves and the associated risks to operations in Regulation (EU) No 965/2012 laying down requirements for air operations and Regulation (EU) No 1178/2011 laying down requirements for aircrew at the respective levels. The information improving the awareness of mountain wave hazards and preventative requirements and guidance, and any training related to it, are not considered to be part of the type design related documentation such as aircraft manuals.

It is rather considered by the European Union Aviation Safety Agency (EASA) that such information is part of the general knowledge of a pilot and applicable independently of the specific aircraft type. Based on that, it is under the responsibility of:

- flight crew licensing to include relevant information in qualification and training of flight crews for general awareness of mountain wave hazards and preventative actions;

- the operators to provide detailed information to their flight crews on the existence and frequency of occurrence of mountain wave phenomena specific to the routes.

SR actual Status: **Closed Disagreement**

SIKORSKY - S92 EI-ICR 14/03/2017, Ireland

IRLD-2021-040 (AAIU):
EASA should carry out a safety promotion exercise, in parallel with the development of certification specifications for human factors in the design of rotorcraft cockpits, to provide operators of in-service helicopters with a best practice guide to mitigate the risks associated with human factors and pilot workload issues.

Type of response: **Intermediate**

Reply sent on 03/02/2022: The European Plan for Aviation Safety (EPAS) 2021-2025 includes Safety Promotion Task SPT.0093 on the development of new safety promotion material on high-profile helicopter safety issues. In the context of this task human factors and pilot workload are addressed. The work is split into 3 areas:

-Being Ready: Specifically how a pilot should prepare in terms of skills, human factors knowledge and personal readiness.
-Transition to Operations: Being mentally ready for flight, visualising the mission ahead and the key decisions/ human factors aspects that a pilot might encounter.
-Operating Safely: Preventing different types of accident through good decision making and the application of human factors principles in different operational flight scenarios.

This work is carried out in a collaborative approach both at European Level through the European Safety Promotion Network - Rotorcraft as well as at global level in the Vertical Aviation Safety Team. The key goal is to address the relevant human factors topics in their different operational contexts.

In parallel, it is worth highlighting that the European Union Aviation Safety Agency (EASA) has also launched Rulemaking Tasks RMT.0713 ("Human Factors in rotorcraft design") and RMT.0724 ("Improvement of operating information in Rotorcraft Flight Manuals"), showing the clear objective of addressing the intent of this Safety Recommendation from a wider design and operational perspective, in addition to the promotion of good safety practices as per the Safety Promotion Task SPT.0093 ("Development of new safety promotion material on high-profile helicopter issues").

RMT.0713 was completed on 16 June 2021 with the publication of the amendments of CS-27 and CS-29 (Executive Director Decision 2021/010/R) that introduce specific requirements (i.e. Certification Specifications CS 27/29.1302) to ensure that human factors are systematically taken into account during the design and certification process of rotorcraft cockpits.
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2021010r

RMT.0724 started on 12 March 2021 with the publication of its Terms of Reference.
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0724

SR actual Status: **Open**

AGUSTA (AW609) - AGUSTA (AW609) N609AG 30/10/2015, Italy

ITAL-2016-151 (ANSV):
The ANSV recommends, in the framework of the certification process, to verify that the aerodynamic behavior of the aircraft at high-speed conditions will be reviewed, if necessary making use of wind tunnels tests in addition to updated models and simulations that can be representative of the complex flight conditions of this peculiar aircraft.

Type of response: **Intermediate**

Reply sent on 03/02/2022: In its capacity as the primary certification authority, the Federal Aviation Administration (FAA) is currently discussing with the applicant the Certification Basis for the AW609 tiltrotor aircraft.
The European Union Aviation Safety Agency (EASA) is also defining its own Certification Basis as validating authority, to ensure that the aerodynamic behaviour as well as the control laws are validated at high speed and in all flight conditions. The EASA Certification Basis will be consolidated once the FAA Certification Basis has been established.

SR actual Status: **Open**

AGUSTA (AW609) - AGUSTA (AW609) N609AG 30/10/2015, Italy

ITAL-2016-152 (ANSV):
The ANSV recommends, in the framework of the certification process, to verify that the control laws of the aircraft will be reviewed in the management of the extreme flight conditions in which the aircraft could possibly fly. That verification should be addressed to ensure the effectiveness of the flight controls inputs given by the pilot avoiding the possibility of unexpected and un-commanded coupling effects.

Type of response: **Intermediate**

Reply sent on 03/02/2022: In its capacity as the primary certification authority, the Federal Aviation Administration (FAA) is currently discussing with the applicant the Certification Basis for the AW609 tiltrotor aircraft.
The European Union Aviation Safety Agency (EASA) is also defining its own Certification Basis as validating authority, to ensure that the aerodynamic behaviour as well as the control laws are validated at high speed and in all flight conditions. The EASA Certification Basis will be consolidated once the FAA Certification Basis has been established.

SR actual Status: **Open**

BOEING B787, LN-LND, 10/08/2019, Italy

ITAL-2022-003: To evaluate the opportunity of revising the risk assessment related to people on ground being hit by PDA, considering in the most conservative way the different specific scenarios for each phase of flight for the improvement of safety. Special attention should be given to people living nearby the airports. The results should be taken into account for the next certification requirements.

Type of response: **Final**

Reply sent on 16/02/2022: The Certification Memorandum CM-21.A-A-001 'Parts detached from aeroplanes' Issue 01 dated 29 November 2018 has been developed as a guidance applicable in the perimeter of the continued airworthiness and covers the cases of parts that become detached from the aeroplane with no or low initial relative speed to the aeroplane. The CM is applicable to "large aeroplanes" category and is based on data from the in-service rates of loss parts provided by Dassault, ATR and Airbus. The probabilities calculation that was used to provide the guidance in the CM has been based on the following conservative assumptions: • The Earth (including oceans) has a population density equal to Singapore in 2017. • People on ground are not shielded by buildings, cars, etc. • Once hit, people are fatally injured. As a case study, EASA took into account the projection of the increase in population average of the 12 most populated countries in 2030 (exponential law retrieved from the trend of the average values of these countries between 2012 and 2017), and despite the increased population the safety objective provided in the CM is still met. In addition, the in-service experience confirms the assumptions used to create the CM. The EASA therefore considers CM-21.A-A-001 Issue 01 is already conservative enough to cover the risk related to people on ground being hit by PDA, for all phases of flight.

SR actual Status: **Closed Not Adequate**

PILATUS - PC6 T7-SKY 20/09/2020, Italy

ITAL-2022-001 (ANSV):
l'ANSV raccomanda di riconsiderare quanto previsto dal regolamento UE n. 965/2012, Allegato VII Parte NCO, prevedendo la predisposizione, anche per gli operatori che svolgano attività di lancio paracadutisti non commerciale, di un Manuale delle operazioni che definisca le procedure e le modalità di impiego dell'aeromobile specifico per l'effettuazione della particolare attività aviolancistica presso il luogo in cui questa venga effettuata.

Type of response: **Intermediate**

Reply sent on 15/03/2022: Depending on the specific nature of the undertaking, parachute operations in the states participating in the work of the European Union Aviation Safety Agency (EASA) are governed by Part-SPO (specialised operations) or Part-NCO (non-commercial operations with other-than complex motor-powered aircraft) of Commission Regulation (EU) No 965/2012, on air operations [Article 6(4a)(c) of the Regulation and SPO.GEN.005(c)(2)].

According to NCO.SPEC.105, the pilot-in-command (PIC) is required to carry out a risk assessment and establish checklists to mitigate the risks related to the specific activity. The checklists for parachute operations shall contain: normal, abnormal and emergency procedures; relevant performance data; required equipment; any limitations; and responsibilities and duties of the pilot-in-command, and, if applicable, crew members and task specialists (NCO.SPEC.PAR.100). In practise, this is commonly achieved in cooperation with parachuting clubs which also make use of material, including sample operations manuals, provided by national parachuting associations.

Regarding type-specific considerations, all flights must be performed in such a way that the operating procedures specified in the Aircraft Flight Manual for the preparation and execution of the flight are followed (sub-paragraph 1.2 of Annex V of Regulation (EU) 2018/1139). This is the responsibility of the PIC (sub-paragraph (a)(3) of NCO.GEN.105).

Mandating use, under Part-NCO, of an Operations Manual detailing the procedures and the aircraft type operations for skydiving flights, on a specific base/airport, would not be consistent with EASA's commitment to the General Aviation Road Map which supports the principle of proportionality and aims to bring positive change to the general aviation community by simplifying existing regulations where possible, introducing flexible measures where necessary, and developing safety promotion to address safety risks.

However, EASA is currently conducting a Safety Issue Assessment (SIA) of parachute operations to establish the best intervention strategy (BIS) (see SI-4023 under the non-commercial operations - small aeroplanes safety risk portfolio in the European Plan for Aviation Safety (EPAS) 2022-2026). The first draft of the SIA/BIS is planned for Q4/2022.

In the meantime, EASA has embarked on a series of safety promotion activities under Safety Promotion Task SPT.0121 in the EPAS 2021-2025 and the EPAS 2022-2026 to help foster safe parachute operations, including:

- On-line 'Workshop for the Skydiving Community within EU' on 25 February 2021
https://www.easa.europa.eu/newsroom-and-events/events/workshop-skydiving-community-within-eu;

- Creation of a dedicated page for the Skydiving Community on the GA Community site on EASA's web site, with a link to a sample Operations Manual template
https://www.easa.europa.eu/community/topics/parachuting-and-skydiving;

- Sunny Swift 'Operations manual for parachute clubs', published 20 December 2021
https://www.easa.europa.eu/newsroom-and-events/news/sunny-swift-operations-manual-parachute-clubs;

- Planned for 2022: Collaborative safety promotion with select national aviation authorities' key industry partners for parachute operations.

SR actual Status: **Open**

PILATUS - PC6 T7-SKY 20/09/2020, Italy

ITAL-2022-002 (ANSV):
Alla luce anche del riscontro dato dall'ENAC alla raccomandazione di sicurezza ANSV-8/1356-17/1/A/20, l'ANSV raccomanda all'EASA di prevedere, nell'ambito delle abilitazioni contemplate dalla Parte FCL, l'abilitazione al lancio di paracadutisti, comprensiva di un dettagliato programma di addestramento del pilota che intenda effettuare attività di lancio paracadutisti.

Type of response: **Final**

Reply sent on 11/04/2022: Depending on the specific nature of the undertaking, skydiving operations in the states participating in the work of the European Union Aviation Safety Agency (EASA) are governed by Part-SPO (specialised operations) or Part-NCO (non-commercial operations with other-than complex motor-powered aircraft) of Commission Regulation (EU) No 965/2012, on air operations [see Article 6.4a(c) and SPO.GEN.005(c)(2)].

According to SPO.OP.230 and NCO.SPEC.105, the operator/pilot-in-command (PIC) is required to carry out a risk assessment and establish standard operating procedures (SOPs) or checklists, respectively, to mitigate the risks related to the specific activity. When developing the SOPs or checklists, the mitigation should be tailored according to the complexity of the operation and should consider the required piloting skills and level of experience [see AMC2 SPO.OP.230 and GM1 NCO.SPEC.105 (a)(2)]. For developing the checklist, the pilot-in-command should duly take into account minimum crew experience and training provisions, as well as recency provisions [see GM1 NCO.SPEC.105(c)((2) and (3)].

SOPs should include the following for flight crew members: selection criteria (initial qualification, flight experience, experience of the activity); initial training (volume and content of the training); recent experience requirement and/or recurrent training (volume and content of the training). For initial and recency training, the operational environment and the complexity of the activity should be detailed in the training programmes [see AMC2 SPO.OP.230(c)(2)]. The qualification and nomination of persons providing the training should also be included in the SOPs [See SPO.SPEC.PAR.100(c)].

Instead of mandating specific pilot training, including any detailed pilot training syllabi, for skydiving/parachute operations, mitigation is provided through the air operations regulation as highlighted above, which is considered to be more appropriate due to the fact that specific operational requirements can only be determined at operator/operations level rather than a generic pilot training organisation level (i.e. flight crew licensing). Examples of specific operational aspects which need to be considered are as follows:

• the operating environment, e.g. geographic considerations;
• the type of aeroplane used, as every single aeroplane has its own characteristics;
• the type of skydiving operation, as the activities are not always the same

Furthermore, introducing a pilot rating for skydiving operations would not support the principle of proportionality for the general aviation community. It would not be consistent with EASA's commitment to the General Aviation Road Map which aims to bring positive change to the general aviation community by simplifying existing regulations where possible, introducing flexible measures where necessary, and developing safety promotion to address safety risks.

EASA has therefore concluded that it would not be appropriate to impose additional flight crew training by introducing a formal training programme for pilots in parachute operations.

However, EASA has embarked on a series of safety promotion activities under Safety Promotion Task SPT.0121 in the EPAS 2021-2025 and the EPAS 2022-2026 to help foster safe parachute operations, including:

• On-line 'Workshop for the Skydiving Community within EU' on 25 February 2021 https://www.easa.europa.eu/newsroom-and-events/events/workshop-skydiving-community-within-eu;

• Creation of a dedicated page for the Skydiving Community on the GA Community site on EASA's web site, with a link to a sample Operations Manual template https://www.easa.europa.eu/community/topics/parachuting-and-skydiving;

• Sunny Swift 'Operations manual for parachute clubs', published 20 December 2021 https://www.easa.europa.eu/newsroom-and-events/news/sunny-swift-operations-manual-parachute-clubs;

• Planned for 2022: Collaborative safety promotion with select national aviation authorities' key industry partners for parachute operations.

SR actual Status: **Open**

BOEING B787, LN-LND, 10/08/2019, Italy

ITAL-2022-004:
To evaluate a revision of the CS-E and AC33.75 in order to provide a clear definition of high energy debris including what constitute a risk for the aircraft and people on board, but also for people on the ground in the framework of the different phases of flight. Special attention should be given to people living nearby the airports.

Type of response: **Final**

Reply sent on 25/04/2022: On 22 November 2021, the European Union Aviation Safety Agency (EASA) published Notice of Proposed Amendment (NPA) 2021-13 'Regular update of CS-E' (rulemaking task RMT.0184) proposing an amendment of the certification specifications (CS) and acceptable means of compliance (AMC) for engines (CS-E). The document can be found on the EASA Website here: https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2021-13 Item 1 'Compressor and turbine blade failure' aims at improving the certification of turbine engines to better assess and mitigate the potential hazards from blade failures, especially by better integrating the analysis and identification of the potential threats to the aircraft on which the engine is to be installed. Among the different proposed changes to CS-E, the following ones are deemed to address the concerns highlighted in the investigation report regarding the threat represented by non-contained engine debris: AMC E 510 ('Safety analysis'), paragraph (3)(d)(iii) on 'Non-containment of high-energy debris' is proposed to be amended, including the addition of a paragraph specifying that some engine failures may result in debris being released from the engine, forward, rearward, or otherwise outside of the containment structure. If such failures may result in debris being released with an energy and trajectory that could cause a hazard to the aircraft, they should be considered as causing a Hazardous Engine Effect. •CS-E 810 ('Compressor and Turbine Blade Failure') is proposed to be amended to clarify that Hazardous Engine Effects that may be triggered by the blade failure must not occur at a rate greater than that defined as Extremely Remote. The current wording requiring to demonstrate that no Hazardous Engine Effect can happen is not considered as adequate as some debris may be released outside of the radial containment area and this must be addressed and mitigated. •AMC E 810 ('Compressor and Turbine Blade Failure'), paragraph (2) (c), related to the conditions after the containment test, is proposed to be amended to: (1) reflect the amendment made to CS-E 810; and (2) add new sub-paragraphs explaining the elements that should be taken into account for the demonstration of the Extremely remote probability, highlighting the needed coordination with the aircraft manufacturer to ensure that the threat to the aircraft is adequately assessed, and indicating the information that should be provided in the manuals containing the instructions for installing and operating the engine. The approach taken is therefore not to propose a definition of the term 'high energy', which may conduct to some prescriptive criteria. The proposal rather aims at ensuring that an evaluation of the threat posed to the aircraft is performed, and that the associated risk is adequately mitigated. Finally, when debris are ejected axially, either through the engine air intake or the engine exhaust nozzle, they fall onto the ground and their energy only depends on their mass and to some extent the height at which they have been released (beyond a certain height the terminal velocity is reached). This is therefore independent from the consideration as 'high energy debris' or not in the frame of CS-E certification. Furthermore, the initial temperature of blade fragments will decrease very quickly after being ejected from the engine until they reach the ground surface. Note: CS-E does not require to assess the risk for people on ground. Regarding this risk, EASA considers that the approach taken in the Certification Memorandum CM-21.A-A-001 Issue 01 'Part detached from an aircraft' (29 November 2018) is adequate. EASA does not consider that there is a need to amend CS-E on this issue.

SR actual Status: **Closed Partial Agreement**

BOEING - 787 LN-LND 10/08/2019, Italy

ITAL-2022-005 (ANSV):
Taking into account the actual accident and incident statistics, the actual volume of traffic of the commercial transportation and the actual technology state of the art, it is recommended to evaluate a periodic revision of the maximum allowable probabilities of occurrence used in the CSs and Part21 (FAA regulation: AC25 25.1309-1A, AC33-75, AC39- 08), establishing clear calculation methods. This has the aim to improve the safety, setting achievable standard levels of reliability, compatible with the actual state of the art.

Type of response: **Final**

Reply sent on 25/04/2022: The European Union Aviation Safety Agency (EASA) has analysed the investigation report on this serious incident and this safety recommendation. Although it is legitimate to seek actions in the domain of safety assessment to improve the safety of transportation by large aeroplanes, the following facts should be considered: -the EASA annual safety review 2021 presents the identified safety risks for large aeroplanes (see section 2.3). These safety risks do not reveal a concern with the reliability of installed systems or equipment that could be explained by an inadequate probability of failure conditions. Many occurrences involve causal factors that include human factors and human performance components (approximately a quarter of commercial air transport large aeroplane accident and serious incident), -the maximum allowed probabilities of failure conditions (for installed systems and equipment) currently used for the certification of large aeroplanes should be considered in the global context of the safety objectives. The minimum safety objectives, allocated to systems and equipment, as defined in acceptable means of compliance (AMC) AMC 25.1309, are composed of several elements (e.g. no single failure leading to catastrophic effect, minimisation of latent failures, information of pilots on unsafe conditions, etc), and the probabilities of failure conditions are only one of them. -the content of AMC 25.1309, including methodologies to calculate probabilities, was amended more than 10 times since 1988. Each amendment introduced new safety relevant considerations such as single failure criteria, development assurance levels, the recognition of the ED79A/ARP4754A, or more recently significant latent failures. It is noted that the failure condition that led to this incident did not call into question the safety standards set by the regulations. EASA therefore considers that decreasing further the probability objectives currently used in the CSs and Annex I (Part 21) to Commission Regulation (EU) No 748/2012 would not materialise into a significant improvement of safety. EASA will nevertheless continue to improve on a regular basis other aspects contained in AMC 25.1309 and Part 21 which can improve safety.

SR actual Status: **Closed**

PIPER PA34, 9H-AEB, 01/11/2021, Malta

MALT-2022-001:
To the Competent Authorities and Aircraft Manufacturers:
It is recommended that the quality and interface properties of the checklist is considered during the certification process, primarily using the guidelines found in EASA, Research project EASA.2012/1: Appendix 1 and Appendix 4. This includes type and size of font, items that should be included, materials and the ability for the checklist to be easily held in one hand.

Type of response: **Final**

Reply sent on 16/12/2022: Commission Regulation (EU) No 965/2012 clearly stipulates that the pilot-in-command shall follow the procedures and latest checklists supplied by the manufacturer (NCO.GEN.105(a)(3) and AMC1 NCO.GEN.105(c)).

The Research Project EASA.2012/1 on the "Principles and guidelines relative to the design of checklists and working methods in the cockpit", supported by the European Human Factors Advisory Group (EHFAG), is an important element to be taken into account by manufacturers and operators as well as National Aviation Authorities (NAAs), providing clear references as regards the state of the art in the design and application of normal / abnormal and emergency checklists.

Furthermore, the European Union Aviation Safety Agency (EASA) continues working on this topic, in particular through Safety Promotion.

Firstly, task SPT.0129 within the forthcoming European Plan for Aviation Safety (EPAS) 2023 - 2025, to be implemented in 2023 and 2024, will provide guidance on the best use and application of procedures and checklists across the whole aviation community. It will provide guidance on best practices and operational considerations for information used in different scenarios and situations by pilots.

Additionally, there will also be safety promotion work on decision-making to highlight the challenges of channelised attention and the possibility to miss checklist items during moments of high workload. This has recently been incorporated into the set of General Aviation (GA) Briefing.

SR actual Status: **Closed Agreement**

BOEING B737, PH-HSJ, 06/09/2019, Netherlands

NETH-2022-001:
EASA to Mandate that EU registered commercial air transport aeroplanes, with a certified maximum certificated take-off mass of more than 27,000 kg, and with a certificate of airworthiness issued after 31 December 2001, to be equipped with a cockpit voice recorder capable of retaining recorded data for at least 25 hours; implement this requirement as of 1 January 2028.

Type of response: **Final**

Reply sent on 13/08/2022: The issue of Cockpit Voice Recorder (CVR) data being overwritten after serious incidents and accidents was assessed within the framework of the European Union Aviation Safety Agency (EASA) Rulemaking Task RMT.0400 'Amendment of requirements for flight recorders and underwater locating devices'. The rulemaking impact assessment 'B' contained in the associated Notice of Proposed Amendment (NPA) 2013-26 concluded that the best option with regard to safety, cost impact, regulatory harmonisation, and other aspects, was a combination of several measures, including:- mandatory retrofit of 2-hours recording duration CVR for all aeroplanes that were required to carry a CVR; requiring operators to adopt procedures to ensure the preservation of the CVR recordings upon completion of a flight during which a serious incident or accident occurred; and the introduction of CVRs with a very long recording duration for newly manufactured aeroplanes with a maximum certificated take-off mass (MCTOM) greater than or equal to 27 000 kg.

In particular, the fitment of CVRs with a very long recording duration (duration of 15 hours proposed in NPA 2013-26; duration of 25-hours finally adopted) was not proposed for already-operated aeroplanes, as such CVR models were not available in 2015, when the corresponding European Union (EU) requirement was published (refer to Commission Regulation (EU) 2015/2338 amending Commission Regulation (EU) No 965/2012). The economic impact of mandating a 2-hours recording duration CVR retrofit by 1 January 2019 was not negligible and implementing this safety recommendation would mean that several hundreds of aeroplanes would have to undergo two CVR retrofits within a few years: the first one to install a 2-hours recording duration CVR, and the second one to replace it with a 25-hours recording duration CVR.

Rejected take-offs are part of the occurrences that must be reported according to Commission Implementing Regulation (EU) 2015/1018 that lists the occurrences to be mandatorily reported according to Regulation (EU) No 376/2014. According to the latter Regulation, the pilot in command shall report an occurrence within 72 hours of becoming aware of it, unless exceptional circumstances prevent this (in the investigated incident, the flight crew reported to their operating company after landing at the destination airport); in addition, the operator shall report the details of the occurrence to its competent authority within 72 hours of being notified by a flight crew member. Hence, even in the absence of a CVR recording, it is assumed that soon after a successful rejected take-off, the responsible safety investigation authority (SIA) will be in a position to interview the involved flight crew. In addition, the Flight Data Recorder (FDR) installed on large aeroplanes is required to have a minimum recording duration of 25 hours (refer to Commission Regulation (EU) No 965/2012, Part-CAT, CAT.IDE.A.190), flight data collected for the purpose of a flight data monitoring programme (refer to Commission Regulation (EU) No 965/2012, Part-ORO, ORO.AOC.130) is retained by operators for several months or years, and air traffic management (ATM) recordings must be preserved for at least 30 days (refer to Regulation (EU) No 2017/373, Part-ATS, ATS.OR.455). Hence, while EASA concurs that a CVR recording is beneficial for the investigations of successful rejected take-offs, it is not considered essential. In the case of a rejected take-off resulting in an accident, it is assumed that in most cases, either the CVR recording will be preserved by the flight crew (as required by Part-CAT, CAT.GEN.MPA.105), or that the loss of power supply to the CVR caused by the accident conditions (such as impact damage or post-impact fire) will de facto stop the CVR recording.

Today, the EU requirement that aeroplanes operated for Commercial Air Transport (CAT) with an MCTOM of more than 27 000 kg and an individual certificate of airworthiness first issued on or after 1 January 2022 shall be equipped with a 25-hours recording duration CVR (refer to Commission Regulation (EU) No 965/2012, Part-CAT, CAT.IDE.A.185) is fully aligned with the International Civil Aviation Organisation (ICAO) Annex 6 part I, standard 6.3.2.3.2. This safety recommendation is therefore proposing more stringent requirements than those prescribed in ICAO Annex 6 Part I. However, third-country (non-EU) operators (TCO) are only required to comply with ICAO Annex 6 part I (including those operating in the EU according to Commission Regulation (EU) No 452/2014). Therefore, although the issue underlying this safety recommendation is equally applicable to TCO, implementing this safety recommendation would not facilitate the investigation of serious incidents and accidents which occurred to such operators where an EU Member State would be State of Occurrence, State of Design or State of Manufacture according to ICAO Annex 13.
Given these considerations and since the issue motivating this safety recommendation is not specific to EU Member State operators or to SIAs of EU Member States, EASA would like to recommend that this safety recommendation is redirected to ICAO.

SR actual Status: **Closed**

BOEING B737, PH-BXG, 10/06/2018, Netherlands

NETH-2022-002:
EASA should carry out a safety promotion exercise, in parallel with the development of certification specifications for human factors in the design of rotorcraft cockpits, to provide operators of in-service helicopters with a best practice guide to mitigate the risks associated with human factors and pilot workload issues.

Type of response: **Intermediate**

Reply sent on 13/08/2022: In addition to the actions taken by the European Union Aviation Safety Agency (EASA) as described in the subject accident investigation report, EASA has published, in February 2020, an article entitled "Erroneous Take-Off Performance Data" which includes a video to raise awareness about the risk of erroneous data entry (See EASA web site link: https://www.easa.europa.eu/erroneous-take-performance-data)
The video outlines five key practices that flight crews are recommended to follow to reduce the likelihood of entering erroneous take-off data; in particular, point 1: "Give yourself enough time to perform calculations and enter data into the Flight Management System; beware of distractions". One way to achieve this, especially to avoid distractions, could be for the aircraft to be stationary when performing the calculations, as described in this safety recommendation.
The article on the EASA web site was further promoted in July 2020 with a blog article on the EASA Together4Safety Air Operations Community site: (https://www.easa.europa.eu/community/topics/erroneous-data-parameters). It was also shared with EASA's collaborative partners, and EASA understands that several airlines have already shared this material with their flight crews.
Before recommending to operators and their flight crews that the aircraft should be stationary when calculating, checking, and entering take-off performance data in case of last-minute changes, EASA intends to fully consider any associated additional hazards that this might generate, considering, as a minimum, human factors and crew resource management aspects. Therefore, the proposal will be added to the ongoing work on the _Best Intervention Strategy" (BIS) for "Erroneous take-off Parameters" under SI-0015 _Entry of aircraft performance data" in the Commercial Air Transport (Aeroplanes) Safety Risk Portfolio. It should be noted that the referenced BIS was initially established to consider technical solutions to prevent take-off with erroneous take-off parameters.

SR actual Status: **Open**

EUROCOPTER - EC225 LN-OJF 29/04/2016, Norway

NORW-2018-004 (AIBN):
The Accident Investigation Board Norway recommends that the European Aviation Safety Agency (EASA) revise the Certification Specifications for Large Rotorcraft (CS-29) to introduce requirements for MGB chip detection system performance.

Type of response: **Final**

Reply sent on 16/02/2022: The Terms of Reference (ToR) and the Group Composition (GC) for Rulemaking Task (RMT) 0725 'Rotorcraft chip detection system' were published on 7 April 2020 on the European Union Aviation Safety Agency (EASA) Website: https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0725

The ToR include a reference to this safety recommendation.

The specific objective of the RMT is to ensure that an acceptable minimum level of effectiveness is achieved by the chip detection systems installed in rotorcraft drive systems (rotorcraft falling under Certification Specifications CS-27 - Small Rotorcraft - and CS-29 - Large Rotorcraft - are addressed).

Ultimately, the aim is for rotorcraft rotor drive systems to feature systems that are capable of effectively detecting ferromagnetic particles indicating the incipient failure or degradation of internal gearbox components.

Two subtasks are defined in the ToR:

- Subtask 1: introducing a new objective-based certification requirement for the demonstration of the performance of a chip detection system; and
- Subtask 2: assessing whether it is necessary to implement a proportionate retroactive application of the certification requirements to the existing fleets and/or to the future production of type-certified rotorcraft.

Subtask 1 therefore addresses this safety recommendation.

On 29 January 2021, EASA published Notice of Proposed Amendment (NPA) 2021-01 dealing with subtask 1:
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2021-01

On 17 December 2021, EASA published Executive Director (ED) Decision 2021/016/R amending CS-27 and CS-29 as follows:
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2021016r

-CS 27/29.1337(e) Powerplant instruments, is amended to ensure that the chip detection systems that are installed in rotorcraft rotor drive systems are demonstrated to be effective in detecting ferromagnetic particles.
-AMC 29.917 Rotor drive system design, is amended to introduce additional considerations for chip detection systems used as compensating provisions in the design assessments performed in accordance with point (b) of CS 29.917, to be taken into account in addition to those detailed in AMC 29.1337.
-AMC1 27/29.1337(e) Powerplant instruments - Chip detections system, is created to provide acceptable means of compliance with the amended specification of CS 27/29.1337 to demonstrate the effective performance of a chip detection system, including objectives for an acceptable level of performance, and acceptable methodologies for using test and analysis.
In order to ensure a proportionate approach, AMC1 27.1337(e) allows a simplified demonstration of compliance for small rotorcraft that are not in Category-A.
-GM1 27/29.1337(e) Powerplant Instruments - Chip detection system, is created to describe the chip detection system.

SR actual Status: **Closed Agreement**

EUROCOPTER EC225, LN-OJF, 29/04/2016, Norway

NORW-2018-002:
The Accident Investigation Board Norway recommends that the European Aviation Safety Agency (EASA) assess the need to amend the regulatory requirements with regard to procedures or Instructions for Continued Airworthiness (ICA) for critical parts on helicopters to maintain the design integrity after being subjected to any unusual event.

Type of response: **Intermediate**

Reply sent on 25/04/2022: The European Union Aviation Safety Agency (EASA) decided to address this safety recommendation with the rulemaking task RMT.0128 'Regular update of CS-27&29'. The Notice of Proposed Amendment (NPA) 2022-01 was published on 14 February 2022. Under item 9, this NPA takes into account this safety recommendation and proposes to amend CS-27 and CS-29 (certification specifications and acceptable means of compliance for small and large rotorcraft) as follows: Create acceptable means of compliance (AMC) AMC1 27.1529 and AMC1 29.1529 to CS 27.1529 and CS 29.1529 regarding the instructions for continued airworthiness (ICA) addressing the definition of drive system gearboxes time between overhaul (TBO) at the time of type certification, and its development during the service life of the product. In addition, these AMCs include provisions to ensure that applicants provide ICA elements to address abnormal events in operation, maintenance or during transportation of components. The ICA should consider the nature of the components, including but not limited to critical parts, and in particular the possibility of damage that can occur during impact or overload events that may not be detectable but could subsequently lead to premature failure in operation. In such cases, scrapping the component or parts of it may be the only appropriate action to take. This response will be updated once the Executive Director Decision amending CS-27 and CS-29 is issued (by 2023).

SR actual Status: **Open**

EUROCOPTER EC225, LN-OJF, 29/04/2016, Norway

NORW-2018-003:
The Accident Investigation Board Norway recommends that European Aviation Safety Agency (EASA) amend the Acceptable Means of Compliance (AMC) to the Certification Specifications for Large Rotorcraft (CS-29) in order to highlight the importance of different modes of component structural degradation and how these can affect crack initiation and propagation and hence fatigue life.

Type of response: **Intermediate**

Reply sent on 25/04/2022: The European Union Aviation Safety Agency (EASA) decided to address this safety recommendation with the rulemaking task RMT.0128 'Regular update of CS-27&29'. The Notice of Proposed Amendment (NPA) 2022-01 was published on 14 February 2022. Under item 5, this NPA takes into account this safety recommendation and proposes to amend CS-27 and CS-29 (certification specifications and acceptable means of compliance for small and large rotorcraft) as follows: Creation of acceptable means of compliance (AMC) AMC1 27.571 and AMC1 29.571 to CS 27.571 and CS 29.571 with regard to the fatigue tolerance evaluation of rotor drive system components subject to rolling contact fatigue (RCF). For CS-29 rotorcraft, the proposed AMC includes the following steps: -the fatigue tolerance evaluation of rotor drive system principal structural elements (PSEs) should include, when applicable, the combined effect of RCF and other damage threats such as dents, scratches, corrosion, loss of pre-load in bearings or joints, surface and sub-surface material defects, etc., considering residual stress coming from surface treatments and other manufacturing processes and all other applicable loading conditions. -minimise the risk of crack initiation due to RCF in integrated races by minimising contact stresses, specifying high standards for surface finishes, ensuring good lubrication and maintaining oil quality regardless of the fatigue tolerance approach selected. -as it is difficult to totally preclude cracking initiated by RCF, a fail-safe approach is recommended wherever possible, such that failure or partial failure due to cracking of the rotor drive system structural element is detected prior to its residual strength capability falling below the required levels prescribed in CS 29.571(f). -The effectiveness and reliability of means of crack detection for the fail-safe approach, including indirect means of detection such as chip detection systems, and associated instructions for continued airworthiness should be evaluated to show that, if implemented as required, they will result in timely detection and repair or replacement of damaged components. -A continued integrity verification programme (CIVP), as prescribed in CS 29.602(c), should be implemented to monitor critical parts and may be extended to all PSEs subject to RCF to ensure assumptions supporting the compliance demonstration remain valid throughout the operational life of the component. In the meantime, EASA addresses the issue during certification projects via a dedicated Certification Review Item (CRI) providing Interpretative Material to better assess the effect of RCF. This response will be updated once the Executive Director Decision amending CS-27 and CS-29 is issued (by 2023).

SR actual Status: **Open**

EUROCOPTER EC225, LN-OJF, 29/04/2016, Norway

NORW-2018-008: The Accident Investigation Board Norway recommends that the European Aviation Safety Agency (EASA) review and improve the existing provisions and procedures applicable to critical parts on helicopters in order to ensure design assumptions are correct throughout its service life.

Type of response: **Intermediate**

Reply sent on 25/04/2022: The European Union Aviation Safety Agency (EASA) issued Certification Memorandum (CM) CM-S-007 in 2015. The purpose of this CM was to supplement the existing guidance for compliance with Certification Specification CS 27/29.602 (Critical Parts), detailing the need for post certification actions to verify the continued integrity of Critical Parts. These actions should ensure that critical parts are controlled throughout their service life in order to maintain the critical characteristics on which certification is based. In addition, the effectiveness of any associated design, maintenance and monitoring provisions, which either help ensure the continued integrity or provide advance indication of impending failure of critical parts, should be assessed.

EASA decided to address this safety recommendation with the rulemaking task RMT.0128 'Regular update of CS-27&29'. The Notice of Proposed Amendment (NPA) 2022-01 was published on 14 February 2022. Under item 6, this NPA takes into account this safety recommendation and proposes to amend CS-27 and CS-29 (certification specifications and acceptable means of compliance for small and large rotorcraft) as follows: CS 27.602(c)/29.602(c) and associated acceptable means of compliance AMC1 27.602/29.602 are introduced to require the development of a continued integrity verification programme (CIVP). The content of the proposed amendments is based on CM-S-007. The CIVP should ensure the continued validity of assumptions made during certification that could affect the integrity of critical parts. This should include but not be limited to demonstration of the continuity of the effectiveness of design, maintenance and monitoring provisions (e.g. health monitoring, usage monitoring and safety devices). This response will be updated once the Executive Director Decision amending CS-27 and CS-29 is issued (by 2023).

SR actual Status: **Open**

EUROCOPTER - EC225 LN-OJF 29/04/2016, Norway

NORW-2022-007:
The Norwegian Safety Investigation Authority recommends that EASA revise Regulation (EU) 965/2012 for lightweight flight recorders, by extending the scope to all helicopters used for commercial air transport of persons, regardless of their certificate of airworthiness date.

Type of response: **Final**

Reply sent on 16/06/2022: The safety recommendation rationale states that the new requirements to carry a lightweight flight recorder (namely CAT.IDE.H.191 and SPO.IDE.H.146 of Commission Regulation (EU) No 965/2012) do not ensure _the regulations_ intention to provide safety investigation authorities with sufficient information to understand accidents_. However, neither Regulation (EU) 2018/1139 nor Commission Regulation (EU) No 965/2012 does not state an objective to equip all types of aircraft with flight recorders, but, where they are required, they should be positioned under rules on safety related equipment and instruments.

CAT.IDE.H.191 and SPO.IDE.H.146 of Commission Regulation (EU) No 965/2012 require a lightweight flight recorder for helicopters first issued with an individual certificate of airworthiness as of 5 September 2022, whatever the date of submission for a type certificate. The corresponding standards in the International Civil Aviation Organisation (ICAO) Annex 6 (Operation of Aircraft) Part III (International Operations _ Helicopters), section 4.3.1.1 only requires such a flight recorder _when the type certification was submitted to a Contracting State on or after 1 January 2018_, effectively excluding newly-manufactured helicopters for which the type certification was submitted before 1 January 2018. Hence CAT.IDE.H.191 encompasses a wider set of light helicopters than prescribed by ICAO Annex 6 Part III. In addition, Annex 6 Part III only prescribes a flight recorder onboard light helicopters used for commercial air transport, while SPO.IDE.H.146 under Commission Regulation No 965/2012 also addresses commercial specialised operations ie aerial work.

As explained in section 4.1.2.4 of the European Union Aviation Safety Agency (EASA) Notice of Proposed Amendment (NPA) 2017-03 from Rulemaking Task (RMT) RMT.0271 _In-flight recording for light aircraft_, in-depth studies of air accident investigation reports were performed to assess the benefits of flight recorders for accident prevention. The conclusion reached was that:

while recordings indisputably provide useful data for reconstructing trajectories and flight instrument indications, as well as determining some significant events or significant contributory factors, their potential benefits for accident prevention [in the case of light aircraft] seems moderate because they do not significantly influence the number of corrective actions._ (see paragraph 2 under _results of studies_).

Hence, lightweight flight recorders are expected to bring only moderate benefits for the prevention of accidents with light helicopters.

Besides potential benefits, the impacts of requiring a lightweight flight recorder on cost and on helicopter operations need to be considered. In the framework of NPA 2017-03, an industry survey was performed, and its main results are presented under Appendix G of the NPA. Based on the data collected through this survey and other data, the cost of purchasing, testing and installing a lightweight flight recorder during production (as opposed to retrofit) was assessed to be in the range between marginally less than 5 000 ¬ and more than 20 000 ¬ per individual aircraft (please refer to section 4.5.4 of NPA 2017-03). If, however, lightweight flight recorders had to be retrofitted, the cost impact would be significantly higher. Most EU-based operators of light helicopters are small companies that only operate a few aircraft, and are therefore not in a position to _play on scales_ to get a lower unit purchase price of equipment. In addition, the average time needed to retrofit equipment is significantly greater than when this equipment is installed during the helicopter production, which translates in much higher installation costs. For older helicopter models for which no installation of a flight recorder has been foreseen by the aircraft manufacturer, it can be technically challenging to design a lightweight flight recorder installation, also considering the limited available space in a light helicopter. In addition, because the helicopter cannot be operated while the retrofit is being performed, this means loss of revenue during the retrofit time, often designated as _downtime cost_. For these reasons, the cost of retrofitting a lightweight flight recorder would probably be more than double the cost of installing the same lightweight flight recorder during production, and it could be much higher than double for some helicopter models. In addition, a flight recorder retrofit requirement would impact many more light helicopters than if this equipment is forward-fitted. The combination of increased cost per aircraft and increased number of affected aircraft would result in an overall cost impact for EU-based light helicopter operators of several sizes of order greater than created by CAT.IDE.H.191.

Given the moderate benefits for accident prevention expected from lightweight flight recorders, the very significant cost impact of requiring flight recorder retrofit for all light helicopters, and the fact that CAT.IDE.H.191 and SPO.IDE.H.146 of Commission Regulation (EU) No 965/2012 already capture more light helicopters than if these

rules strictly transposed ICAO Annex 6 Part III, the Agency does not consider it is justified to extend the scope of these rules to helicopters first issued with an individual certificate of airworthiness before 5 September 2022.

However, to facilitate investigations of light helicopter accidents, and for other potential benefits, EASA is promoting the voluntary installation of such recording devices through a dedicated webpage at:

https://www.easa.europa.eu/community/topics/flight-recorders-light-helicopters

In addition, the voluntary installation of recording devices on board already-manufactured helicopters is facilitated by Certification Specifications for Standard Changes and Standard Repairs (CS-STAN), CS-SC104a (Installation of lightweight in-flight recording systems): such recording devices may be installed by a qualified maintenance engineer without a change approval. Furthermore, EASA Safety Information Bulletin 2019-015R1 _Flight recorders on small rotorcraft_ recommends that owners and operators of small rotorcraft, registered in the States participating in the work of EASA (commonly referred to as _EASA member States_), consider installing such recording devices.

SR actual Status: **Closed Partial Agreement**

AEROSPATIALE – AS350, LN-OFU, 31/08/2019, Norway

NORW-2022-004: The Norwegian Safety Investigation Authority recommends that EASA review instruction and continuous training on the AS 350. This is to ensure that the training includes attention training that enables early recognition and recovery from a servo transparency situation based on the UPRT principles.

Type of response: **Intermediate**

Reply sent on 16/06/2022: In the opinion of the European Union Aviation Safety Agency (EASA), the specificity of the safety recommendation requires a targeted action encompassing different aspects in order to review the AS 350 type rating training with regard to servo-transparency demonstrations through the use of training devices on condition that the fidelity level of the device meets actual flight parameters in a safe and controlled training environment.

In the frame of Rulemaking Task RMT.0587 _Regular update of regulations regarding pilot training, testing and checking and the related oversight_ (https://www.easa.europa.eu/sites/default/files/dfu/ToR RMT.0587 Issue 1.pdf) EASA is drafting an NPA that will include among its topics the mitigation of helicopters high-risk in-flight manoeuvres, including the consideration of hydraulic systems-related issues such as the servo-transparency phenomenon.

In the frame of this RMT, EASA is working with industry to address specific aspects related to helicopter hydraulic system performance and limitations, which includes for instance the triggering of the servo transparency phenomenon, through the development of a dedicated Flight Simulation Training Device (FSTD) module.
The aim of this FSTD module is to build up the skills of pilots such that they are better aware of the flight conditions where the helicopter may encounter in-flight performance degradations caused by an exceedance of the capability of the helicopter flight control systems. This should allow the pilots to avoid entering into such flight conditions and also to recognise the corresponding phenomena.

This, in turn, will allow demonstration for training purposes in accordance with the requirements for this specific type including Operational Suitability Data (OSD) Flight Crew Data (FCD) while fostering the notion that such flight conditions must always be avoided regardless of the pilot_s perception of his/her ability to face them based on the training received.

Furthermore, EASA and Airbus Helicopters are specifically reviewing the AS350 OSD FCD to provide Approved Training Organisations with tailored input on how to implement appropriate training when servo transparency is demonstrated at initial type rating training by stressing the behaviour of the helicopter when a high load on the rotor is present. The next meeting between EASA and Airbus to align follow-up actions to be done in the framework of training for servo-transparency will take place in June 2022.

SR actual Status: **Open**

AEROSPATIALE - AS350 LN-OFU 31/08/2019, Norway

NORW-2022-001:
The Norwegian Safety Investigation Authority recommends that EASA requires that all helicopters, new and used, delivered or imported to Europe be equipped with crash resistant fuel systems in accordance with CS 27.952 or CS 29.952, regardless of their type certification date.

Type of response: **Intermediate**

Reply sent on 16/06/2022: On 16 December 2021, the European Union Aviation Safety Agency (EASA) published the Terms of Reference (ToR) for rulemaking task RMT.0710 _Improvement in the survivability of rotorcraft occupants in the event of an otherwise survivable crash_:

https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0710

The ToR includes a reference to this accident and indicates that EASA would take into account the safety recommendations issued by Norway.
The overall objective of this RMT is to improve rotorcraft occupant protection in the event of a survivable crash scenario and enhance safety by increasing the number of rotorcraft that are fitted with crash-resistant fuel systems (CRFS) and crash-resistant seats and structures (CRSS).

Compliance with the CRFS and CRSS requirements is expected to provide this protection to rotorcraft occupants, and will contribute to safety improvement.

To ensure an efficient process, the RMT.0710-related activities will be performed in two phases, under two different subtasks.

Subtask 1 will assess the proportionate retroactive application of the certification specifications for CRFSs to existing rotorcraft fleets and/or to the future production of already type-certified rotorcraft. If supported by the outcome of that assessment, a proportionate retroactive requirement will be proposed.

The publication of the corresponding Notice of Proposed Amendment (NPA) for public consultation is foreseen by end of 2022.

SR actual Status: **Open**

AEROSPATIALE - AS350 LN-OFU 31/08/2019, Norway

NORW-2022-002:
The Norwegian Safety Investigation Authority recommends EASA to not permit commercial passenger flights with helicopters not equipped with crash resistant fuel systems in accordance with CS 27.952 or CS 29.952, regardless of their type certification date.

Type of response: **Intermediate**

Reply sent on 16/06/2022: On 16 December 2021, the European Union Aviation Safety Agency (EASA) published the Terms of Reference (ToR) for rulemaking task RMT.0710 _Improvement in the survivability of rotorcraft occupants in the event of an otherwise survivable crash_:

https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0710

The ToR includes a reference to this accident and indicates that EASA would take into account the safety recommendations issued by Norway.
The overall objective of this RMT is to improve rotorcraft occupant protection in the event of a survivable crash scenario and enhance safety by increasing the number of rotorcraft that are fitted with crash-resistant fuel systems (CRFS) and crash-resistant seats and structures (CRSS).

Compliance with the CRFS and CRSS requirements is expected to provide this protection to rotorcraft occupants, and will contribute to safety improvement.

To ensure an efficient process, the RMT.0710-related activities will be performed in two phases, under two different subtasks.
Subtask 1 will assess the proportionate retroactive application of the certification specifications for CRFSs to existing rotorcraft fleets and/or to the future production of already type-certified rotorcraft. If supported by the outcome of that assessment, a proportionate retroactive requirement will be proposed.

The publication of the corresponding Notice of Proposed Amendment (NPA) for public consultation is foreseen by end of 2022.

SR actual Status: **Open**

AEROSPATIALE - AS350 LN-OFU 31/08/2019, Norway

NORW-2022-003 (AIBN):
The Norwegian Safety Investigation Authority recommends that EASA requires the type certificate holder Airbus Helicopters to establish a technical solution preventing or giving advance warning of servo transparency, for helicopters that are sensitive to this phenomenon.

Type of response: **Final**

Reply sent on 16/06/2022: The Norwegian Safety Investigation Authority accident report No. 2022/02 only describes the AS 350 B3e single hydraulic configuration that was installed on LN-OFU.

It does not describe the option of the dual hydraulic system (ref. OP 3346, Rotorcraft Flight Manual SUP.23) that would have meant a higher jack load (up to 350 daN in the dual body actuator extension force vs 193 daN in the single body actuator) on Main Rotor actuator, thus preventing the occurrence of servo-transparency in the actual flight conditions.
The dual hydraulic option is already available and can be considered as a viable technical solution to fulfil the intent of this Safety Recommendation (SR), in preventing servo-transparency, for newly built AS 350 B3e rotorcraft and for retrofit only through a _customized Service Bulletin (SB)_.

It is also observed that AS 350 B3e equipped with dual hydraulics does not have any training requirement (no Training Area of Special Emphasis in the Flight Crew Data) for addressing servo-transparency.
As far as the European Union Aviation Safety Agency (EASA) is aware, no accident due to servo-transparency occurred on AS 350 B3e helicopters embodying a dual hydraulic configuration.

Servo-transparency is not indicated as potential contributory factor to accidents for helicopters in such dual hydraulics configurations.
The dual hydraulic system option has an additional cost implication and brings a weight penalty, similarly to other safety improvement equipment (i.e. Crash Resistant Fuel System). These considerations may be an obstacle when choosing from among the available options at the time of helicopter delivery.

For these reasons, Airbus Helicopters has expressed a commitment to developing an improvement on single hydraulic configuration, providing a warning for incipient jack stall.

EASA is aware that Airbus Helicopters intends to apply for a major change consisting of a jack-stall warning associated with a pressure increase for the single hydraulic configuration. This design change is part of the AH Light Helicopter Safety Enhancement Plan developed in the context of the EASA Rotorcraft Safety Roadmap (https://www.easa.europa.eu/newsroom-and-events/news/rotorcraft-%E2%80%93-key-priority-safety-europe).

Based on the above, EASA considers that a technical solution is already in place (OP 3346) and the in-service experience shows its effectiveness in preventing servo-transparency.

SR actual Status: **Closed Partial Agreement**

AEROSPATIALE - AS350 LN-OFU 31/08/2019, Norway

NORW-2022-005:
The Norwegian Safety Investigation Authority recommends that EASA revise Regulation (EU) 965/2012 for lightweight flight recorders, by including requirements for further registration of data, as well as for audio and video recordings to be made and stored.

Type of response: **Final**

Reply sent on 16/06/2022: As explained in section 4.1.2.4 of the European Union Aviation Safety Agency (EASA) Notice of Proposed Amendment (NPA) 2017-03 from Rulemaking Task (RMT) RMT.0271 _In-flight recording for light aircraft_, in-depth studies of air accident investigation reports were performed to assess the benefits of flight recorders for accident prevention. The conclusion reached was that:

while recordings indisputably provide useful data for reconstructing trajectories and flight instrument indications, as well as determining some significant events or significant contributory factors, their potential benefits for accident prevention [in the case of light aircraft] seems moderate because they do not significantly influence the number of corrective actions. (see paragraph 2 under _results of studies_).

Hence, whatever their recording capabilities, lightweight flight recorders are expected to bring only moderate benefits for the prevention of accidents with light helicopters.

CAT.IDE.H.191 and SPO.IDE.H.146 of Commission Regulation (EU) No 965/2012 are fully aligned with the standards in the International Civil Aviation Organisation (ICAO) Annex 6 (Operation of Aircraft) Part III (International Operations _ Helicopters) regarding flight recorders on board light helicopters (refer to section 4.3). CAT.IDE.H.191 and SPO.IDE.H.146 will enter into force in September 2022, so that as of today there is no reliable data on the effectiveness of these rules and the associated Acceptable Means of Compliance (AMC).

The Appareo Vision 1000 that is given as an example in the safety recommendation does not fulfil the conditions set in AMC1 CAT.IDE.H.191 and AMC1 SPO.IDE.H.146 (due to not meeting minimum operational performance specifications set out in either EUROCAE ED-155 or EUROCAE ED-112), which in turn means that it cannot be deemed to be compliant with CAT.IDE.H.191 or SPO.IDE.H.146. Furthermore, the Appareo Vision 1000 cannot be considered to be a _flight recorder_: its performance is not proven to be sufficient to facilitate accident or incident safety investigations, and therefore, it does not comply with the definition of a flight recorder as stated in Annex I (Definitions) to Commission Regulation (EU) No 965/2012. The Appareo Vision 1000 cannot be used to comply with any of the flight recorder carriage requirements in Commission Regulation (EU) No 965/2012, or any of the flight recorder-related standards in ICAO Annex 6 Part III. For this reason, the accident aircraft, Airbus Helicopters AS350 registered LN-OFU, is not a valid example of a helicopter equipped with a lightweight flight recorder.

With regard to the recording of _information sufficient to determine the flight path and speed_ required in CAT.IDE.H.191 and SPO.IDE.H.146: in a similar way to the flight data recorder requirements applicable to large helicopters (CAT.IDE.H.190 and SPO.IDE.H.145), the detailed description of the information to be recorded is specified in the associated AMC. Point (a) of AMC1 CAT.IDE.H.191 and point (a) of AMC1 SPO.IDE.H.146 both contain a list of 14 flight parameters to be recorded. As this flight parameters list covers the essential parameters specified in ED-155 Annex II-B it is considered to be sufficient.

With regard to the recording of _audio and video_: the impact assessment in EASA NPA 2017-03 identified that the cost impact of requiring audio recording or image recording in addition to recording flight parameters would significantly outweigh the potential safety benefits. Requiring lightweight flight recorders to include audio and image recording capability means requiring additional sensors (cockpit area microphone, camera) and their wiring, which increases the amount of work to certify and install the flight recorder system. Unlike the Appareo Vision 1000, if a lightweight flight recorder is required to record audio and images, it must also meet the minimum operational performance specifications relating to audio and image recordings specified in EUROCAE ED-155. In addition, the Appareo Vision 1000 may be installed without a change approval according to the Certification Specifications for Standard Changes and Standard Repairs (CS-STAN), CS-SC104a (Installation of lightweight in-flight recording systems), and the audio and images recorded by this device do not need to meet any standard. On the contrary, the installation of a new recording capability for complying with a regulatory requirement is subject to a change approval (minor change approval or supplementary type certificate approval). This includes demonstrating that the quality of recorded audio and images is acceptable in operating conditions, for instance through flight tests, as specified in ED-155. Hence, requiring audio or image recording capability would significantly increase the installation cost of lightweight flight recorders.

In addition, because the Appareo Vision 1000 is optional equipment, it does not have to be maintained in serviceable condition in so far as its failure modes do not affect safe flight and landing. On the other hand, if a lightweight flight recorder is required to have audio or image recording capability, it must be maintained in

serviceable condition, which includes regular inspections of the audio and image recordings: please refer to AMC1 CAT.GEN.MPA.195(b) and AMC1 SPO.GEN.145(b). The more recording capabilities required from a flight recorder, the more serviceability tasks, the higher the serviceability cost.

In view of the foreseeable cost impact and the limited benefits of requiring audio and image recording capabilities from lightweight flight recorders, EASA considers that such requirement is not justified at this stage.

However, guidance material in Commission Regulation (EU) No 965/2012 recommends that the lightweight flight recorder records cockpit audio and images of the cockpit, as well as additional flight parameters: refer to GM1 CAT.IDE.H.191 and GM1 SPO.IDE.H.146. This is because such recording capabilities can be implemented at much lower cost if they are optional and not mandated. In addition, as explained in section 4.5.1 of NPA 2017-03 and in appendix D to NPA 2017-03, not all light helicopter operators would be able to draw safety or economic benefit from recorded audio and images, as the protection required for audio and image recordings impose constraining procedures, and analysis of audio and images is labour-intensive. With regards to recording additional flight parameters to those specified in AMC1 CAT.IDE.H.191 and AMC1 SPO.IDE.H.146: making use of additional flight parameters (for instance, through a flight data monitoring programme) does not only require airborne equipment, but also specialised software and trained personnel: this comes with significant running cost that may outweigh the potential safety or economic benefits. Therefore, it is considered more appropriate to recommend additional recording capabilities and let each operator make their own assessment.

SR actual Status: **Closed Partial Agreement**

AEROSPATIALE - AS350, LN-OFU, 31/08/2019, Norway

NORW-2022-006 (AIBN):
The Norwegian Safety Investigation Authority recommends that EASA revise Regulation (EU) 965/2012 for lightweight flight recorders, by extending the scope to all types of light helicopters used for commercial air transport of persons.

Type of response: Final

Reply sent on 16/06/2022: The safety recommendation rationale states that the new requirements to carry a lightweight flight recorder (namely CAT.IDE.H.191 and SPO.IDE.H.146 of Commission Regulation (EU) No 965/2012) do not ensure _the regulations_ intention to provide safety investigation authorities with sufficient information to understand accidents_. However, neither Regulation (EU) 2018/1139 nor Commission Regulation (EU) No 965/2012 state an objective to equip all types of aircraft with flight recorders, but, where they are required, they should be positioned under rules on safety related equipment and instruments.

As per CAT.IDE.H.191 of Commission Regulation (EU) No 965/2012, the standards in the International Civil Aviation Organisation (ICAO) Annex 6 (Operation of Aircraft) Part III (International Operations _ Helicopters), section 4.3 requires the fitment of a flight recorder only for turbine-engine helicopters with a Maximum Certificated Take-Off Mass (MCTOM) of over 2 250 kg and for helicopters with a MCTOM of over 3 175 kg. In addition, Annex 6 Part III only prescribes a flight recorder onboard light helicopters used for commercial air transport, while SPO.IDE.H.146 under Commission Regulation No 965/2012 also addresses commercial specialised operations ie aerial work.

As explained in section 4.1.2.4 of the European Union Aviation Safety Agency (EASA) Notice of Proposed Amendment (NPA) 2017-03 from Rulemaking Task (RMT) RMT.0271 _In-flight recording for light aircraft_, in-depth studies of air accident investigation reports were performed to assess the benefits of flight recorders for accident prevention. The conclusion reached was that:

while recordings indisputably provide useful data for reconstructing trajectories and flight instrument indications, as well as determining some significant events or significant contributory factors, their potential benefits for accident prevention [in the case of light aircraft] seems moderate because they do not significantly influence the number of corrective actions. (see paragraph 2 under _results of studies_).

Hence, lightweight flight recorders are expected to bring only moderate benefits for the prevention of accidents with light helicopters.

Besides potential benefits, the impacts of requiring a lightweight flight recorder on cost and on helicopter operations need to be considered. In the framework of NPA 2017-03, an industry survey was performed, and its main results are presented under Appendix G of the NPA. Based on the data collected through this survey and other data, the cost of purchasing, testing and installing a lightweight flight recorder during production (as opposed to retrofit) was assessed to be in the range between marginally less than 5 000 ¬ and more than 20 000 ¬ per individual aircraft (please refer to section 4.5.4 of NPA 2017-03). This means a non-negligible increase of purchase price when considering a helicopter with an MCTOM that is less than 2 250 kg, such as the Robinson R44. In addition, the recurrent cost to maintain the lightweight flight recorder in serviceable condition is not negligible: please refer to the serviceability tasks specified in AMC1 CAT.GEN.MPA.195(b) and AMC1 SPO.GEN.145(b).

Furthermore, the total weight of equipage, including the recording equipment, its dedicated wires, connectors and sensors, voltage/current transformers and installation kit is estimated to be between 1 and 5 kg according to the industry survey summarised in Appendix G to NPA 2017-03. A lightweight flight recorder should meet the operational performance specifications set out in EUROCAE ED-155 or ED-112 according to AMC1 CAT.IDE.H.191, including crash-and-fire testing conditions specified in these EUROCAE documents, which limits the possibilities to miniaturise the flight recorder and save weight. In addition, ETSO-2C197A1 of the certification specifications for European Standard orders (CS-ETSO) specifies that _the height (a), width (b), and depth (c) of the crash enclosure must each be 4 cm (1.5 inches) or greater_, which sets, anyway, a limit to the miniaturisation of a lightweight flight recorder. A few additional kilograms of equipment mounted on a helicopter with an MCTOM that is less than 2 250 kg may have a non-negligible effect on the helicopter range and performance. For example, the Robinson R44 (Raven I) has a maximum gross weight of 1089 kg, and a maximum payload of only 351 kg.

It should also be clarified that the Appareo Vision 1000 does not fulfil the conditions set in AMC1 CAT.IDE.H.191, which in turn means that it cannot be deemed to be compliant with CAT.IDE.H.191. In fact, the Appareo Vision 1000 cannot be used to comply with any of the flight recorder carriage requirements in Commission Regulation (EU) No 965/2012, as its performance is not proven to be sufficient to facilitate accident or incident safety investigations. For the same reason, this device does not comply with the definition of a flight recorder as stated in Annex I (Definitions) to Commission Regulation (EU) No 965/2012. Therefore, the Appareo Vision 1000 is not a relevant

example when considering the impact on cost and operation of requiring helicopters with an MCTOM of less than 2 250 kg to be equipped with a flight recorder.

Given that the benefits for accident prevention expected from lightweight flight recorders probably do not outweigh the impact on cost and operations in the case of helicopters with a MCTOM of less than 2 250 kg, the Agency does not consider that it is justified to require a lightweight flight recorder for such helicopters.

However, to facilitate investigations of light helicopter accidents, and for other potential benefits, EASA is promoting the voluntary installation of such recording devices through a dedicated webpage at:

https://www.easa.europa.eu/community/topics/flight-recorders-light-helicopters

In addition, the voluntary installation of recording devices on board helicopters with a MCTOM of less than 2 250 kg, such as the Robinson R44, is facilitated by Certification Specifications for Standard Changes and Standard Repairs (CS-STAN), CS-SC104a (Installation of lightweight in-flight recording systems): such recording devices may be installed by a qualified maintenance engineer without a change approval. Furthermore, EASA Safety Information Bulletin 2019-015R1 _Flight recorders on small rotorcraft_ recommends that owners and operators of small rotorcraft, registered in the States participating in the work of EASA (commonly referred to as _EASA member States_), consider installing such recording devices.

SR actual Status: **Closed Partial Agreement**

AEROSPATIALE - AS350 CS-HFT 05/09/2019, Portugal

PORT-2020-001 (GPIAA):
It is recommended that EASA follow its Rotorcraft Safety Roadmap publication principles, producing rulemaking documentation requiring retroactive application of the current improvements in fuel tank crash resistance for rotorcraft certified before the new certification specification for type design entered into force. Helicopters used for Commercial Operations shall be subject to this additional airworthiness requirement for operations.

Type of response: **Intermediate**

Reply sent on 16/02/2022: In November 2015, a new task has been assigned by the Federal Aviation Administration (FAA) for the Aviation Rulemaking Advisory Committee (ARAC) to provide recommendations regarding occupant protection rulemaking in
normal and transport category rotorcraft for older certification basis type designs. The scope of this task includes, among other items, Crash Resistant Fuel Systems (CRFS) to protect occupants during a crash. The European Union Aviation Safety Agency (EASA) participated in the ARAC Rotorcraft Occupant Protection Working Group (ROPWG) created to take care of this task. The final recommendations of the ROPWG are contained in the final analysis report to the ARAC (revised on 27 September 2018):
https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/ROPWG%20Task%206%20Final%20Report%20Revised%202018-09-27.pdf

On 16 December 2021, EASA published the Terms of Reference for Rulemaking Task RMT.0710, entitled 'Improvement in the survivability of rotorcraft occupants in the event of an otherwise survivable crash'. This safety recommendation and the related accident will be taken into account, a reference is included:
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0710

The report of the ROPWG will be considered during the development of a Regulatory Impact Assessment (RIA) that will assess the safety benefits of the retroactive implementation of the CRFS measures to the future production of already type-certified rotorcraft and/or a retrofit of the existing rotorcraft fleet in relation to the economic, environmental, proportionality, and social impacts of such a measure.

If the above-mentioned RIA concludes that the safety benefits of the implementation of retroactive measures for CRFS outweigh the potential economic, environmental, proportionality, and social impacts, EASA will publish a Notice of Proposed Amendment (NPA) to propose amendments to Annex I (Part-26) to Regulation (EU) 2015/640 (as regards the introduction of new additional airworthiness requirements) and to CS-26 (Certification Specifications And Guidance Material for Additional airworthiness specifications for operations).

This reply will be updated during the development of RMT.0710.

SR actual Status: **Open**

DIAMOND DA42, YR-SCF, 21/02/2019, Romania

ROMN-2021-002:
It is recommended that EASA shall require the Diamond DA42 aircraft manufacturer to review the Aircraft Manuals so that the minimum propeller RPM for feathering shall be stated always the same, in order to avoid different interpretation.

Type of response: **Final**

Reply sent on 17/06/2022: The European Union Aviation Safety Agency (EASA) has reviewed the Diamond DA42 Aircraft Flight Manual (AFM) with the Type Certificate (TC) holder. Following review, the minimum propeller RPM (revolutions per minute) for feathering stated in the AFM has been revised in accordance with this Safety Recommendation.

SR actual Status: **Closed Agreement**

AIRBUS A320, EC-MGE, 28/03/2016, Spain

SPAN-2019-001:
It is recommended that EASA amend the Certification Specifications and Guidance Material for Aerodromes Design CS-ADR-DSN so as to standardize the distances for the touchdown zone signs, whether they are markings or lights.

Type of response: **Final**

Reply sent on 21/09/2022: The European Union Aviation Safety Agency (EASA)_s Certification Specifications (CS) on the runway touchdown zone marking and lights contained in CS ADR-DSN.L.545 and CS ADR-DSN.M.695 of CS-ADR-DSN (Certification Specifications and Guidance Material for Aerodrome Design) are a direct transposition of the related Standards and Recommended Practices (SARPs) contained in paragraph 5.2.6 and 5.3.13 of the International Civil Aviation Organisation (ICAO) Annex 14, Aerodromes, Volume I, Aerodrome Design and Operations.

A similar proposal for harmonising the distances of touchdown zone markings and lights is already under evaluation by the Visual Aids Working Group (VAWG) of ICAO. EASA is engaged with the VAWG and is following the developments on this topic.
EASA has also performed a review of the SARPS of Annex 14, Volume I concerning the runway touchdown zone markings and lights and found the following:

the SARPS for the runway touchdown zone lights were introduced for the first time in Annex 14 in the 4th edition of 1964;

since their introduction in Annex 14, Volume I, the length of the runway touchdown zone lights has remained the same i.e., for a distance of 900 m from the threshold, except that on runways less than 1 800 m when the system must be shortened not to extend beyond the mid-point; what has changed is the type of runway they have to be provided for: precision approach runway vs. precision approach runway category II or III;

with the exception of minor changes in the runway length criterion, the number of pairs and the length of the touchdown zone markings has remained the same;

for certain runway lengths, a difference between the length of the touchdown zone marking and the length of the touchdown zone lights has existed since their first introduction in Annex 14.

Hence the need for a review and analysis by ICAO of the rationale behind the introduction of the runway touchdown zone markings and lights and their characteristics.

Any ICAO amendments to Annex 14 SARPs will be systematically considered by EASA for a possible transposition into the EU regulatory framework for aerodromes (e.g. under rulemaking task RMT.0591 Regular update of aerodrome rules).

Given these considerations and since the issue motivating this safety recommendation is not specific to EU Member States only, EASA would like to recommend that this safety recommendation is redirected to ICAO for a global solution.

SR actual Status: **Closed Partial Agreement**

PIPER - PA34 SE-GIC 27/06/2015, Sweden

SWED-2016-004 (SHK):
EASA is recommended to investigate the conditions for the installation of operational CCTV cameras for investigative purposes at European commercial airports that are covered by EASA's regulations under Regulation (EC) 216/2008.

Type of response: Final

Reply sent on 15/03/2022: In 2017, the European Union Aviation Safety Agency (EASA) conducted a survey amongst the competent authorities of states participating in the work of EASA (commonly referred to as 'EASA Member States') to acquire information regarding the presence of Closed-Circuit Television (CCTV) systems (also known as visual surveillance systems) at aerodromes falling within the scope of Commission Regulation (EU) No 139/2014 on aerodromes, and the way such systems are being used.

In 2018, EASA conducted two more surveys: the first one amongst the operators of aerodromes falling within the scope of Commission Regulation (EU) No 139/2014, to collect information on the provision of CCTV, and the second one amongst the safety investigation authorities (SIAs) for feedback on the safety benefits of CCTV systems at aerodromes for investigative purposes.

In the first survey, 75 aerodrome operators from 16 EASA Member States submitted replies. This accounts for approximately 20% of the aerodromes falling within the scope of Commission Regulation (EU) No 139/2014 from approx. 50% of the EASA Member States. While in the second survey, 13 SIAs submitted replies, accounting for approximately 40% for the EASA Member States.

Overall, the majority of the respondents from both surveys saw a safety benefit from using the CCTV system for investigative purposes.

In terms of the provision of CCTV systems, the results of the survey conducted amongst the aerodrome operators indicated that a high proportion of the respondents have already installed such systems, in most cases on a voluntarily basis. These CCTV systems cover one or more of the following areas: aprons, taxiways and runways, the approach and take-off paths and other areas of the aerodrome.

Furthermore, there is an increasing number of initiatives amongst EASA Member States to replace conventional tower facilities and services with remote aerodrome air traffic services (ATS), commonly known as 'remote towers'. Remote towers are already deployed at several small aerodromes and they are under test at medium-sized aerodromes. In 2019, EASA published Executive Director Decision (ED Decision) 2019/004/R on 'Guidance Material (GM) on remote aerodrome air traffic services' - Issue 2' which includes the sets of technical enablers for the remote towers solutions. One of the technical enablers are cameras which allow the visual reproduction of the aerodrome environment. This GM recommends that, for the particular case of remote aerodrome ATS, the recording and retention of data should be extended to include constituents specific to remote aerodrome ATS, including the visual presentation, the binocular functionality and other technical support systems such as the aerodrome sound reproduction. Therefore, it is expected that the proportion of aerodromes where cameras are available for accident and incident investigation purposes will further increase with the introduction of the remote towers.

In addition, in accordance with point ADR.OPS.B.030 of Annex IV to Commission Regulation (EU) No 139/2014, the aerodrome operator shall ensure that a surface movement guidance and control system (SMGCS) is provided at the aerodrome. The system selected for an aerodrome needs to be appropriate for the operational environment of the aerodrome, ranging from the very simple ones to the advanced systems necessary at large aerodromes with heavy traffic operating in low visibility conditions. The advanced surface movement guidance and control system (A-SMGCS) is used in the routing, guidance and surveillance for the control aircraft and vehicles in order to maintain the declared surface movement rate under all weather conditions within the aerodrome visibility operational level while maintaining the required level of safety.

Although not providing a visual representation of the aerodrome environment in the same manner as a camera would do, the A-SMGCS has the capability to record and replay recorded data for accident and incident investigation purposes. Recorded data includes aircraft type, flight number, speed and direction information as well the capability to re-produce the whole sequence of events. Furthermore, according to point ADR.OPS.B.026 of Commission Regulation (EU) No 139/2014, introduced by Commission Delegated Regulation (EU) 2020/2148, vehicles that operate on the manoeuvring area of an aerodrome where A-SMGCS is provided, are obliged to have a transponder installed. In this way, vehicular information is also available. Additional information on the

aerodromes located within EASA Member States where an A-SMGCS is provided can be found on SESAR's (Single European Sky ATM Research) deployment website: https://www.atmmasterplan.eu/depl/essip_objectives/map.

EASA acknowledges the potential safety benefits from using the CCTV system for investigative purposes and considers that the current proportion of aerodromes voluntarily fitted with CCTV systems, which is expected to further increase with the introduction of remote towers as well as A-SMGCS, should be able to adequately support the SIAs in their investigations of occurrences taking place at aerodromes.

SR actual Status: **Closed Partial agreement**

SWED-2021-004: Evaluate the benefit of a review of the exercises contained in the training programmes that may pose a safety risk and to decide on the best course of action to make the training organisations aware of these risks, either through dedicated safety promotion, development of best practises or developing guidance material to the existing requirements.

Type of response: **Intermediate**

Reply sent on 15/03/2022: The three major regulatory safety nets established by the provisions of Commission Regulation (EU) No 1178/2011 on aircrew licensing, can be summarised as:

- the initial certification procedure followed by the Member State competent authority;
- the requirements for training organisations; and
- the Competent Authority Management System and the Continuous Oversight provisions.

The European Union Aviation Safety Agency (EASA) believes that, if properly implemented by all stakeholders, these three regulatory safety nets together ensure an appropriate level of safety in flight training operations and fully address the issue regarding risk mitigation in pilot training; additional regulatory activities are therefore not required.

In particular, the following requirements and associated acceptable means of compliance (AMC) and guidance material (GM) establish the abovementioned comprehensive regulatory framework:

1.Initial certification procedures by the Member State competent authority:

- ARA.GEN.310 Initial certification procedure - Organisations, paragraphs (a) and (b)

o AMC1.ARA.GEN.310(a) Initial certification procedure - Organisations, paragraphs (c)(3), (c)(5) and (d).

2.Requirements for training organisations:

- ORA.ATO.105 Application, paragraphs (a)(1)(vii) and (2);
- ORA.ATO.125 Training programme;
- ORA.ATO.130 Training manual and operations manual, paragraphs (a) and (b);
- ORA.ATO.135 Training aircraft and FSTDs, paragraph (a);

o AMC1 ORA.ATO.135 Training aircraft and FSTDs, paragraphs (b)(1), (c)(1) to (c)(4);

- ORA.ATO.210 Personnel requirements, paragraph (b)

o AMC2 ORA.ATO.210 Personnel requirements, paragraph (b)(1);

- ORA.ATO.230 Training manual and operations manual, paragraph (a);

o AMC1 ORA.ATO.230(a) Training manual and operations manual: paragraph (a) The training plan points (4),(8), and (11); paragraph (b) Briefing and air exercises points (1), (2), (3) and (6);
o AMC1 ORA.ATO.230(b) Training manual and operations manual paragraph (d).

3.MS Competent Authority Management System and Continuous Oversight Provisions:

- ARA.GEN.200 Management system, paragraphs (a)(2) and (a)(5);

o AMC2 ARA.GEN.200(a)(2) Management system, paragraph (a) Qualification subparagraph (2) Additional qualification criteria points (i), (ii) and (iv), paragraph (b) Initial training programme points (7), (11) and (15).

- ARA.GEN.300 Oversight, paragraph (a)(1);paragraph(a)(2); paragraph (b)(3);

o AMC1 ARA.GEN.300(a);(b); (c) Oversight- Evaluation Of Approved Training Organisations' Operational Safety Risk Assessment; paragraph (a) General methodology for operational hazards.

- ARA.GEN.305 Oversight programme, paragraphs (a), (b)(1) and (f);

o AMC1 ARA.GEN.305(b)(1) Oversight programme - Audit, paragraphs (a) and (b);

o AMC1.ARA.GEN.305(c) Oversight programme - Oversight planning cycle, paragraphs (a), (b) and (c);
o AMC1 ARA.GEN.305(f) Oversight programme;
o AMC2 ARA.GEN.305(f) Oversight programme, paragraphs (a), (b), and (c).

As additional support to the existing provisions, and to reiterate the relevance of applicable provisions in terms of operational safety, EASA plans to table the matter during an upcoming (May/June or November/December 2022) Flight Crew Licensing Technical Body (TeB) meeting. Additional safety promotion is already planned for the instructor and ATO community to improve the general understanding

of safety management with the goal of helping organisations to ensure basic compliance (such as with the Aircraft Flight Manual (AFM) aircraft flight manual in operational procedures), to identify and manage risks effectively. EASA intends also to undertake promotion for instructors on both important safety risks and decision making. This will be the focus of a dedicated instructor session during the General Aviation Season Opener Campaign of March 2022, that will take place on March 17th, 2022: https://www.easa.europa.eu/newsroom-and-events/events/general-aviation-season-opener-2022

SR actual Status: **Open**

SCHEMPP HIRTH ARCUS M, SE-UYA , 22/08/2020, Sweden

SWED-2021-001:
Take action to ensure that the checklists for daily inspection and inspection following a hard landing are supplemented so as to allow any play or too small clearence between the rudder cable bolts and the fairings to be detected.

Type of response: **Final**

Reply sent on 07/07/2022: On 29 April 2022, the European Union Aviation Safety Agency (EASA) issued the Airworthiness Directive (AD) 2022-0076 applicable to Arcus, Arcus M and Ventus-3M powered sailplanes, with effective date 13 May 2022. The AD mandates amendment of the applicable Aircraft Flight Manual (AFM) to incorporate daily checks and checks before the next flight after a hard landing of the lower rudder attachment, in accordance with the updated AFM daily inspection instructions.

SR actual Status: **Closed Agreement**

BAE ATP, SE-MAP, 11/01/2010, Sweden

SWED-2011-016:
It is recommended that EASA should investigate the possibility of tightening requirements on aircraft design organizations in terms of demonstrating that the aircraft has full manoeuvrability during all phases of the takeoff procedure after the application of de- and anti-icing fluids.

Type of response: **Intermediate**

Reply sent on 07/10/2022: This safety recommendation is taken into account in the scope of rulemaking task RMT.0118 entitled 'Analysis of on-ground wing contamination effect on take-off performance degradation' which started with the publication of its terms of reference on 21 March 2017:

https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0118

On 25 July 2022, EASA published Notice of Proposed Amendment (NPA) 2022-08 for public consultation:

https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-08

The NPA proposes to amend the Certification Specifications (CS) and Acceptable Means of Compliance (AMC) for Large Aeroplanes (CS-25).
EASA proposes to create new CS and AMC 25.1597 to require that operating limitations, operating procedures and performance information associated with the use of de-icing and anti-icing fluids be established and provided in the Aeroplane Flight Manual (AFM).

The approval of these fluids would have to address the effect on aeroplane performance, with a particular emphasis on the take-off performance.

SR actual Status: **Open**

CESSAN 171, SE-MDN, 19/12/2020, Sweden

SWED-2021-004:

Evaluate the benefit of a review of the exercises contained in the training programmes that may pose a safety risk and to decide on the best course of action to make the training organisations aware of these risks, either through dedicated safety promotion, development of best practises or developing guidance material to the existing requirements.

Type of response: **Final**

Reply sent on 16/12/2022: The safety challenges in General Aviation (GA) and the lessons learned for instructors to pass onto their students will change over time, both based on safety investigations and other safety statistics and also depending on the specific type of flying that individual pilots are undertaking. To deal with this challenge, the European Union Aviation Safety Agency (EASA) intends to carry out the following activities as part of its annual GA safety promotion plan:

- For the GA Season Opener at the start of each year to run from late February to April, hold specific webinars and events for the instructor community to highlight the lessons learned from analysis of GA accidents and to update the key activities and messages that instructors pass to pilots. This will be followed by additional promotional material and specific material that instructors can use to support pilots based on the lessons learned and also the type of flying they might normally carry out (local flights, cross country, navigation exercise, terrain and weather challenges).
- During the year, we will continue to encourage instructors to share their experiences and lessons learned.
- Finally, at the end of the season in October / November, there will be further promotion for instructors based on the immediate lessons learned from the flying season and to look ahead to winter risks.

This approach will enable the dynamic management of safety risks based on factors such as location and the specific risks of individual pilots without the need to follow a prescriptive approach that might not work for everyone.

Examples of the 2022 test sessions on Learning from Accidents and Instructors can be found at the two hyperlinks here:

- GA Season Opener Day 2 - Learning from Accidents - YouTube
https://youtu.be/HKss_q0Wen0

- GA Season Opener Day 4 - Instructors - YouTube
https://youtu.be/rouYJj2nhn8

SR actual Status: **Closed Agreement**

OTHER (Guimbal Cabri G2) - HB-ZPU 26/06/2021 Switzerland

SWTZ-2021-578 (AAIB):
The European Union Aviation Flight Safety Agency (EASA) should take appropriate action to ensure that all operators of O-360-series Lycoming Engines identify and remedy narrowed sections of the oil duct in the accessory housing caused by possible manufacturing deficiencies.

Type of response: **Intermediate**

Reply sent on 20/01/2022: The European Union Aviation Safety Agency is analysing this safety recommendation in coordination with the Federal Aviation Administration, the State of Design of the engine. An update will be provided once a decision has been reached on the orientation to be given to this topic.

SR actual Status: **Open**

SCHEIBE - SF25 D-KDEU 17/10/2021, Switzerland

SWTZ-2021-581:
The European Union Aviation Safety Agency (EASA), in cooperation with the aircraft manufacturer Scheibe Aircraft GmbH, should take measures to ensure that motorgliders of the type SF 25 are only operated if no such corrosion phenomena exist on their controls and control linkages.

Type of response: **Intermediate**

Reply sent on 16/02/2022: The European Union Aviation Safety Agency (EASA) is working in cooperation with the aircraft manufacturer Scheibe Aircraft GmbH to take measures, if needed, to ensure that motorgliders of the type SF 25 are not operated with corrosion on the controls and control linkages. A further update will be provided.

SR actual Status: **Open**

SCHEIBE - SF25 D-KDEU 17/10/2021, Switzerland

SWTZ-2021-581:
The European Union Aviation Safety Agency (EASA), in cooperation with the aircraft manufacturer Scheibe Aircraft GmbH, should take measures to ensure that motorgliders of the type SF 25 are only operated if no such corrosion phenomena exist on their controls and control linkages.

Type of response: **Final**

Reply sent on 25/04/2022: To address this unsafe condition the European Union Aviation Safety Agency (EASA), has issued the Emergency Airworthiness Directive 2022-0043-E, dated 11 March 2022, mandating repetitive inspection to detect development of corrosion and replacement of the affected parts.

SR actual Status: **Closed**

SCHEMPP HIRTH ARCUS T, HB-2467, 19/07/2021, Switzerland

SWTZ-2022-582:
The European Union Aviation Safety Agency (EASA), in cooperation with the aircraft manufacturer Schempp-Hirth and the manufacturer of the auxiliary engine Solo Vertriebs- und Entwicklungs GmbH, should take appropriate measures to ensure that the propeller axles of all engine models of the 2350 series have sufficient structural strength. In material science, the term _structural strength_ refers to the determined fatigue strength of a component in its actual shape.

Type of response: **Final**

Reply sent on 07/11/2022: The European Union Aviation Safety Agency (EASA), in cooperation with the manufacturer of the auxiliary engine Solo Vertriebs- und Entwicklungs GmbH, has issued on 15 March 2022 the Airworthiness Directive (AD) 2022-004, further revised on 29 April 2022 that adds to the applicability of the superseded previous AD 2015-005R1 all Solo Model 2350 D engines, all manufacturer serial numbers. Current AD 2022-004 mandates a new major change to Solo 2350D through which a life limit of 30 engine operating hours of the old axles and of 50 engine operating hours of the new axles were introduced.

SR actual Status: **Closed Agreement**

SCHEMPP HIRTH ARCUS T, HB-2467, 19/07/2021, Switzerland

SWTZ-2022-583:
The European Union Aviation Safety Agency (EASA), in cooperation with the aircraft manufacturer Schempp-Hirth and the manufacturer of the auxiliary engine Solo Vertriebs- und Entwicklungs-GmbH, should define appropriate specifications concerning the maintenance of the auxiliary power unit and in particular its propeller axle.

Type of response: **Final**

Reply sent on 07/11/2022: The European Union Aviation Safety Agency (EASA), in cooperation with the manufacturer of the auxiliary engine Solo Vertriebs- und Entwicklungs GmbH, has issued on 15 March 2022 the Airworthiness Directive (AD) 2022-004, further revised on 29 April 2022 that adds to the applicability of the superseded previous AD 2015-005R1 all Solo Model 2350 D engines, all manufacturer serial numbers. Current AD 2022-004 mandates a new major change to Solo 2350D through which a life limit of 30 engine operating hours of the old axles and of 50 engine operating hours of the new axles were introduced. The engine manuals were updated to incorporate the introduction of the life limit.

SR actual Status: **Closed Agreement**

SCHEMPP HIRTH ARCUS T, HB-2467, 19/07/2021, Switzerland

SWTZ-2022-584:
The European Union Aviation Safety Agency (EASA), in cooperation with the aircraft manufacturer DG-Flugzeugbau GmbH, should take measures to ensure that gliders of the DG-800 B type are operated safely with regard to the installation of the rod ends.

Type of response: **Intermediate**

Reply sent on 07/11/2022: The European Union Aviation Safety Agency (EASA) will cooperate with the aircraft manufacturer DG-Flugzeugbau GmbH to improve the instructions for inspection and checks of the gliders DG-800B, in particular regarding the control rod ends and attaching means. A further reply can be expected by Q1 2023.

SR actual Status: **Open**

PIPER - PA46 N264DB 21/01/2019, United Kingdom

UNKG-2020-001 (AAIB):
It is recommended that the European Union Aviation Safety Agency require piston engine aircraft which may have a risk of carbon monoxide poisoning to have an Co detector with an active warning to alert pilots to the presence of elevated levels of carbon monoxide.

Type of response: **Intermediate**

Reply sent on 03/02/2022: The European Union Aviation Safety Agency (EASA) published Safety Information Bulletin (SIB) No. 2020-01 'Carbon Monoxide Risk in Small Aeroplanes and Helicopters' on 27 January 2020, to inform stakeholders about the dangers of exposure to Carbon Monoxide (CO) and to provide recommendations on the prevention of CO exposure, detection of CO and actions to take if CO is detected in flight.

EASA has subsequently updated the SIB and the resulting SIB No. 2020-01R1 was published on 19 October 2021 (https://ad.easa.europa.eu/ad/2020-01R1). The revision refers to a specific CO concentration check for the exhaust heat exchanger which should be included in the Minimum Inspection Programme, and provides recommendations on the means to accomplish this. Additional advice is given on the use of "carry-on" detectors. It also refers to an upcoming amendment to CS-SC107a which will reflect the recommendation to use active CO detectors (to be published in the next amendment to CS-STAN, which is planned for Q1 2022).

In addition, the topic of CO detectors was highlighted in EASA's "General Aviation Winter Preparation Update" which was published on 17 December 2021:
https://www.easa.europa.eu/community/topics/winter-flying

EASA also intends to create more detailed material focussing on this safety issue for publication in Q1 2022.

This safety recommendation is also being assessed within the framework of EASA rulemaking task RMT.0392 'Regular update of air operations rules.' The European Plan for Aviation Safety (EPAS) 2021-2025 indicates a planning milestone of Q1 2022 for publication of the associated Notice of Proposed Amendment.

SR actual Status: **Open**

BELL 429, G-WLTS, 02/01/2019, United Kingdom

UNKG-2020-011:
It is recommended that the European Union Aviation Safety Agency remind Minor Change applicants of the importance of verifying that new equipment does not have a detrimental effect on existing equipment with which it has a direct interface.

Type of response: **Final**

Reply sent on 25/04/2022: In 2020 the European Union Aviation Safety Agency (EASA) undertook a corrective action through a dedicated inspection of the relevant Design Organisation Approval (DOA) holder, with particular attention given to the aspects pertinent to this serious incident. The audit result did not identify any non-compliance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012 related to Avionics changes performed by the DOA holder. In terms of preventive actions, a dedicated safety-promotion article has been published in the European Union Aviation Safety Agency (EASA) Certification & Design Newsletter. It highlights that the installation of certain equipment needs an electromagnetic and audio interference test, as part of the compliance demonstration, before the approval change. The safety promotion article is published on the EASA website at the following link: https://www.easa.europa.eu/newsroom-and-events/news/design-certification-newsletter-202201 With this additional action, EASA considers it has undertaken both corrective and preventive actions, to mitigate the safety issue identified by the UK AAIB investigation.

SR actual Status: **Closed Agreement**

SAAB 2000, G-LGNO, 15/12/2014, United Kingdom

UNKG-2016-051:
It is recommended that the European Aviation Safety Agency review the autopilot system designs of aircraft certified under part 25 or equivalent regulations and require modification if necessary to ensure that the autopilot does not create a potential hazard when the flight crew applies an override force to the flight controls.

Type of response: **Final**

Reply sent on 25/04/2022: The European Union Aviation Safety Agency (EASA) has reviewed the current autopilot designs certified by EASA, and the history of similar events among the large transport aeroplanes fleet to assess the risks associated with the current designs. The review process has led to the publication of Airworthiness Directive 2018-0240 (as recommended by Safety Recommendation UNKG-2016-050) related to SAAB 2000. Additionally, Acceptable Means of Compliance (AMC) 25.1329 has been amended (as recommended by Safety Recommendation UNKG-2016-054). Apart from these actions, EASA could not identify other European Union design that is susceptible to the same situation and which would require any change. Since the analysis commenced before the United Kingdom (UK) left the European Union (Brexit), it initially included British designs. The review of the BAe 146 led the Civil Aviation Authority of the UK to issue on Feb 2022 the Airworthiness Directive (AD) number G-2022-0002, which was adopted by EASA and published at the following link: https://ad.easa.europa.eu/ad/G-2022-0002. The AD mandates the application of Service Bulletin (SB) 22-072-36262A (initial issue dated 14 September 2021) which introduce a modification to the autopilot disconnect logic to ensure disconnection when the electric pitch trim switch on either pilot control wheel is operated and thus prevent the potential unsafe condition.

SR actual Status: **Closed Agreement**

AEROSPATIALE AS332, G-WNSB, 23/08/2013, United Kingdom

UNKG-2016-017:
It is recommended that, where technically feasible, regulatory changes introduced by the European Aviation Safety Agency Rulemaking Task RMT.120 are applied retrospectively to helicopters currently used in offshore operations.

Type of response: **Intermediate**

Reply sent on 25/04/2022: Following a public consultation under Notice of Proposed Amendment (NPA) 2020-16 (rulemaking task RMT.0120), the European Union Aviation Safety Agency (EASA) published on 8 February 2022 Opinion 01/2022:
https://www.easa.europa.eu/document-library/opinions/opinion-no-012022

This Opinion proposes to amend Regulation (EU) 2015/640 on additional airworthiness specifications for a given type of operations, and in particular its Annex I (Part-26), to include the following requirements for helicopters that are operated over water for extended periods of time:

– Black/yellow marking for operating handles for all helicopters

In a capsized helicopter, passengers and flight crew will be able to identify more easily the operating handle for an emergency exit whilst underwater and in the dark.

– Black/yellow marking for emergency controls used underwater for all helicopters

Emergency controls will be marked with the method of operation, and will be marked with yellow and black stripes if they may have to be operated underwater.

– Remote life raft deployment (cockpit, cabin, from water) for large CS-29 helicopters only (ditching approval only)

It will be required for life rafts to reliably deploy in any foreseeable floating attitude, including capsize, from either inside the ditched helicopter, or if it has capsized, then survivors can deploy the life raft from outside the helicopter whilst in the water.

– Substantiated sea conditions for capsize resistance in the rotorcraft flight manual (RFM)

The flight crew and rotorcraft operators will be made aware of the sea conditions substantiated relating to the certification obtained with ditching or emergency flotation design provisions.

– The effort required to open each emergency ‘egress route’ shall not be exceptional for CS-27 Category A and CS-29 helicopters only

In a capsized helicopter, the emergency exits will be provided for passengers and flight crew to enable rapid escape, i.e. exceptional effort would not be required to open the exit after the mechanism is operated.

– The life raft attachment lines (short and long) should be of a suitable length to prevent damaging the life raft or putting the life raft in a dangerous position for all helicopters

When deployed, the life raft will be able to be retained at a distance from the helicopter to allow occupants to enter and then float at a safe distance from the ditched helicopter, lowering the risk of damage to the life raft.

– Life preservers to be within easy reach of each seated occupant for all helicopters

If not already worn during the flight, life preservers will be easily found and reached by passengers.

– Automatic illumination of emergency ditching underwater exits for CS-27 Category A and CS-29 helicopters

In a capsized helicopter, passengers will be able to find more easily the emergency exits underwater and in the dark.

– Improved ratio of passengers to emergency ditching exits (one pair of emergency exits per four passengers) for all helicopters

In a capsized helicopter, there will be an emergency underwater exit for each pair of passengers, so that they will not have to wait for more than one passenger to exit the capsized helicopter before making their underwater escape.

– Determination of the robustness of existing emergency flotation systems (EFSs) to consider possible damage

The integrity of the EFSs can be maximised when the EFS design considers the possibility of what damage could occur in the event of a water impact. An assessment of the installation and routing of EFS components, electrical connections and gas lines to maximise the possibility of a successful EFS deployment in the event of a water impact will be conducted. Design changes may be required to be implemented for newly produced helicopters as a result of this assessment.

– Automatic deployment of the emergency flotation system (EFS) for all helicopters

In the event of entry into water (ditching or water impact), the EFS must automatically deploy.

– Automatic arming of the emergency flotation system (EFS) for CS-27 Category A and CS-29 helicopters

If the system that automatically deploys the EFS is disarmed during flight (to prevent a potential safety issue from the inadvertent deployment of the EFS), then the rearming of the EFS automatic deployment system must not rely upon any pilot action. This is only applicable to helicopters where the inadvertent deployment of the EFS could cause a safety issue, or where safe flight with the EFS deployed has not been demonstrated for the full envelope.

This response will be updated once the EASA Opinion is processed by the European Commission, leading to the publication of a Regulation amending Regulation (EU) 2015/640.

SR actual Status: **Open**

AEROSPATIALE AS332, G-WNSB, 23/08/2013, United Kingdom

UNKG-2016-018:
It is recommended that the European Aviation Safety Agency amends the Certification Specifications for rotorcraft (CS 27 and 29) to require the installation of systems for the automatic arming and activation of flotation equipment. The amended requirements should also be applied retrospectively to helicopters currently used in offshore operations.

Type of response: **Intermediate**

Reply sent on 25/04/2022: In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA) (2016-01) was published on 23/03/2016 and proposed an amendment of certification specifications (CS-27 and CS-29) addressing this safety recommendation.

CS-27 and CS-29 have been amended on 14 June 2018 by ED Decision 2018/007/R. These amendments include the following new specifications:

CS 27.801(c):
'(c) An emergency flotation system that is stowed in a deflated condition during normal flight must:
(1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.
(2) have a means of automatic deployment following water entry.'

CS 29.801(c):
'(c) An emergency flotation system that is stowed in a deflated condition during normal flight must:
(1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.
(2) have a means of automatic deployment following water entry. Automatic deployment must not rely on any pilot action during flight.'

CS-27 Category A rotorcraft must also comply with CS 29.801(c), as indicated by an amendment of Appendix C to CS-27.

This means that, although CS 27 Cat. A and CS-29 rotorcraft are required to be equipped with an emergency flotation system (EFS) that includes both a means of automatic arming and a means of automatic deployment, small CS-27 rotorcraft are only required to be equipped with an emergency flotation system that has a means of automatic deployment. This difference has been adopted by EASA following the comments received on NPA 2016-01, explaining that such requirement would not be proportionate and would add significant complexity to system design for small CS-27 rotorcraft.

Following a public consultation under a second NPA 2020-16 (rulemaking task RMT.0120), EASA published on 8 February 2022 Opinion 01/2022: https://www.easa.europa.eu/document-library/opinions/opinion-no-012022

This Opinion proposes to amend Regulation (EU) 2015/640 on additional airworthiness specifications for a given type of operations, and in particular its Annex I (Part-26), to include the following requirements for helicopters that are operated over water for extended periods of time:
– Automatic deployment of the EFS for all helicopters
In the event of entry into water (ditching or water impact), the EFS must automatically deploy.
– Automatic arming of the EFS for CS-27 Category A and CS-29 helicopters
If the system that automatically deploys the EFS is disarmed during flight (to prevent a potential safety issue from the inadvertent deployment of the EFS), then the rearming of the EFS automatic deployment system must not rely upon any pilot action. This is only applicable to helicopters where the inadvertent deployment of the EFS could cause a safety issue, or where safe flight with the EFS deployed has not been demonstrated for the full envelope.
This response will be updated once the EASA Opinion is processed by the European Commission, leading to the publication of a Regulation amending Regulation (EU) 2015/640.

SR actual Status: **Open**

AEROSPATIALE AS332, G-WNSB, 23/08/2013, United Kingdom

UNKG-2016-026:
It is recommended that the European Aviation Safety Agency requires that, for existing helicopters used in offshore operations, a means of deploying each liferaft is available above the waterline, whether the helicopter is floating upright or inverted.

Type of response: **Intermediate**

Reply sent on 25/04/2022: In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA) 2016-01 was published for public comment on 23/03/2016 and proposed new certification specifications (CS-27 and CS-29) addressing this safety recommendation.

CS-27 and CS-29 have been amended on 14 June 2018 by ED Decision 2018/007/R.

These amendments include specifications in CS 27.1415(b)(1) and CS 29.1415(b)(1) which read as follows:

'Required life raft(s) must be remotely deployable for use in an emergency. Remote controls capable of deploying the life raft(s) must be located within easy reach of the flight crew, occupants of the passenger cabin and survivors in the water, with the rotorcraft in the upright floating or capsized position. (…).'

Paragraph (b)(1)(vi) of AMC 27.1415 and AMC 29.1415 provides the following acceptable means of compliance for life raft activation:

'The following should be provided for each life raft:

(…)

(C)tertiary activation: manual activation control(s) accessible to a person in the water, with the rotorcraft in all foreseeable floating attitudes, including capsized.'

Following a public consultation under a second NPA 2020-16 (rulemaking task RMT.0120), EASA published on 8 February 2022 Opinion 01/2022:
https://www.easa.europa.eu/document-library/opinions/opinion-no-012022

This Opinion proposes to amend Regulation (EU) 2015/640 on additional airworthiness specifications for a given type of operations, and in particular its Annex I (Part-26), to include the following requirements for helicopters that are operated over water for extended periods of time:

– Remote life raft deployment (cockpit, cabin, from water) for large CS-29 helicopters only (ditching approval only)

It will be required for life rafts to reliably deploy in any foreseeable floating attitude, including capsize, from either inside the ditched helicopter, or if it has capsized, then survivors can deploy the life raft from outside the helicopter whilst in the water.

This response will be updated once the EASA Opinion is processed by the European Commission, leading to the publication of a Regulation amending Regulation (EU) 2015/640.

SR actual Status: **Open**

PIPER PA46, N264DB, 21/01/2019, United Kingdom

UNKG-2020-001:
It is recommended that the European Union Aviation Safety Agency require piston engine aircraft which may have a risk of carbon monoxide poisoning to have an Co detector with an active warning to alert pilots to the presence of elevated levels of carbon monoxide.

Type of response: **Intermediate**

Reply sent on 27/06/2022: The European Union Aviation Safety Agency (EASA) published Safety Information Bulletin (SIB) No. 2020-01 _Carbon Monoxide Risk in Small Aeroplanes and Helicopters_ on 27 January 2020, to inform stakeholders about the dangers of exposure to Carbon Monoxide (CO) and to provide recommendations on the prevention of CO exposure, detection of CO and actions to take if CO is detected in flight.

EASA has subsequently updated the SIB and the resulting SIB No. 2020-01R1 was published on 19 October 2021 (https://ad.easa.europa.eu/ad/2020-01R1). The revision refers to a specific CO concentration check for the exhaust heat exchanger which should be included in the Minimum Inspection Programme and provides recommendations on the means to accomplish this. Additional advice is given on the use of _carry-on_ detectors. It also refers to CS-SC107a which has been amended to facilitate the recommendation to use active CO detectors (See Certification Specification (CS) Standard Change (SC) CS-SC107b _Installation of Carbon Monoxide (CO) Detectors_ in Executive Director (ED) Decision 2022/009/R _CS-STAN Issue 4_ which was published on 27 April 2022).

In addition, the topic of CO detectors was highlighted in EASA_s _General Aviation Winter Preparation Update_ which was published on 17 December 2021:

https://www.easa.europa.eu/community/topics/winter-flying

This safety recommendation is also being assessed within the framework of EASA rulemaking task RMT.0392 _Regular update of air operations rules._ The European Plan for Aviation Safety (EPAS) 2022-2026 indicates a planning milestone of Q3 2022 for publication of the associated Notice of Proposed Amendment.

SR actual Status: **Open**

BAE ATP, SE-MHF, 03/05/2018, United Kingdom

UNKG-2019-001: It is recommended that the European Union Aviation Safety Agency (EASA) require BAE SYSTEMS to protect the flight data recorder fitted to those ATP aircraft equipped with large freight doors from the effects of rainwater and other liquids.

Type of response: **Final**

Reply sent on 07/07/2022: The UK Civil Aviation Authority (CAA), in its role of primary certification authority for this aircraft type, has issued on 15 June 2022 the Airworthiness Directive (AD) number G-2022-0012, which has been endorsed by EASA and published at the following link: https://ad.easa.europa.eu/ad/G-2022-0012

The AD specifically refers to this Safety Recommendation (2019-001), and mandates the content of the Service Bulletin (SB) ATP-31-027, issued by BAE Systems Ltd.
The AD requires a reduction in the interval of periodic data download of the Flight Data Recorder (FDR) / Data Acquisition and Recording Unit (DARU) to confirm correct functioning of this equipment. In addition, it requires, whilst performing the FDR/DARU data download, to check and report back to BAE Systems any signs of water/moisture that might have percolated through and dripped onto the FDR/DARU from the cargo bay floor, and to make sure that the area is dry before closing up.

Furthermore, the AD confirms that BAE Systems is also working to develop a modification to provide protection of the FDR / DARU against moisture ingress.

SR actual Status: **Closed Partial Agreement**

SYKORSKY S92, G-WNSR, 28/12/2016, United Kingdom

UNKG-2018-007:
It is recommended that the European Aviation Safety Agency amend the regulatory requirements to require that Vibration Health Monitoring data gathered on helicopters is analysed in near real-time, and that the presence of any exceedence detected is made available to the flight crew on the helicopter; as a minimum, this information should be available at least before takeoff and after landing.

Type of response: **Intermediate**

Reply sent on 21/09/2022: Rulemaking task RMT.0711, which takes into account this safety recommendation, has been initiated with the publication of its Terms of Reference (ToR) and its Group Composition on 5 March 2020:

https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0711

On 11 May 2022, the European Union Aviation Safety Agency (EASA) published Notice of Proposed Amendment (NPA) 2022-03 for public consultation.

The specific objective of this NPA is to reduce the likelihood of hazardous and catastrophic failure modes by improving the incipient fault detection capabilities of current inspection procedures. This will be achieved by enabling Vibration Health Monitoring (VHM) systems to be a more integral part of the continued airworthiness regime of the rotorcraft and by ensuring that better and updated guidance is provided for the design as well as the routine and effective in-service use of these systems. It is considered that this will allow VHM systems to support the optimisation of maintenance of the rotor and rotor drive system and, thus, reduce the risk of maintenance errors.

The NPA proposes to amend CS-29 (Certifications Specifications, Acceptable Means of Compliance and Guidance Material for Large Rotorcraft).

New Acceptable Means of Compliance AMC1 29.1465 and Guidance Material GM1 29.1465 are proposed (replacing the existing AMC 29.1465) to accommodate the application and demonstration of adequate reliability and effectiveness of VHM systems that are used as the monitoring means in support of on-condition maintenance activities of elements of the rotor and rotor drive system. Additionally, some improvements to the existing AMC content are proposed to be introduced to clarify certain aspects of certification of VHM systems taking into consideration their intended application.

Paragraph (m) of the proposed amendment addresses VHM system applications relying on cockpit indications. Such features may be introduced by the applicant considering the characteristics of the failure condition(s) being monitored and customer needs. Dedicated certification guidance and considerations are provided for applicants depending on the specific purpose of the cockpit indications to be introduced. However, this material is not intended to address VHM systems that include in-flight cockpit indications requiring severe pilot actions such as landing immediately or landing within a limited interval.

This response will be updated once EASA has analysed the comments received on NPA 2022-03 and issued a Decision amending CS-29. This milestone is currently targeted for Q1 2023.

SR actual Status: **Open**

BOMBARDIER CL600, N90AG, 04/01/2002, United Kingdom

UNKG-2003-060:
It is recommended that the FAA and JAA review the current procedural approach to the pre takeoff detection and elimination of airframe ice contamination and consider requiring a system that would directly monitor aircraft aerodynamic surfaces for ice contamination and warn the crew of a potentially hazardous condition.
Responsibility has passed to EASA, recommendation should be addressed to the Agency.

Type of response: **Final**

Reply sent on 07/10/2022: This safety recommendation is taken into account in the scope of rulemaking task RMT.0118 entitled 'Analysis of on-ground wing contamination effect on take-off performance degradation' which started with the publication of its terms of reference on 21 March 2017:
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0118

On 25 July 2022, EASA published Notice of Proposed Amendment (NPA) 2022-08 for public consultation:
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2022-08

The NPA proposes to amend the Certification Specifications (CS) and Acceptable Means of Compliance (AMC) for Large Aeroplanes (CS-25).

After evaluating all viable options by means of an impact assessment, EASA proposed not to mandate 'a system that would directly monitor aircraft aerodynamic surfaces for ice contamination and warn the crew of a potentially hazardous condition'.

EASA intends to continue safety promotion actions that are expected to enhance safety by further raising awareness of the community on the procedures related to winter operations, thus mitigating the risk of take-off with unnoticed contaminated wing by icing conditions.

SR actual Status: **Closed Disagreement**

AEROSPATIALE AS332, G-WNSB, 23/08/2013, United Kingdom

UNKG-2016-017:
It is recommended that, where technically feasible, regulatory changes introduced by the European Aviation Safety Agency Rulemaking Task RMT.120 are applied retrospectively to helicopters currently used in offshore operations.

Type of response: **Final**

Reply sent on 07/11/2022: Following a public consultation under Notice of Proposed Amendment (NPA) 2020-16 (rulemaking task RMT.0120), the European Union Aviation Safety Agency (EASA) published on 8 February 2022 Opinion 01/2022, recommending to the European Commission an amendment of Regulation (EU) 2015/640 on additional airworthiness specifications for a given type of operations, to create new requirements for helicopters operated over water for extended periods of time, in line with the intent of this safety recommendation:

https://www.easa.europa.eu/document-library/opinions/opinion-no-012022

Based on this Opinion, Commission Implementing Regulation (EU) 2022/1254 of 19 July 2022 amends Regulation (EU) 2015/640 to include the following new requirements in its Annex I (Part-26):

26.410 Emergency controls operated underwater

Operators of small helicopters and large helicopters that are required, in accordance with point CAT.IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, shall ensure that all the emergency controls that need to be operated underwater are marked with the method of operation as well as with yellow and black stripes.

26.415 Underwater emergency exits

(a) Operators of small helicopters and large helicopters that are required, in accordance with point CAT.IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, shall ensure that:

(1) it is possible for occupants to easily identify the means to operate all the underwater emergency exits to facilitate egress in the case of ditching or capsize;
(2) an underwater emergency exit is available on each side of the helicopter for each unit, (or part of a unit), of four passenger seats unless the emergency underwater exit is large enough to permit the simultaneous egress of two passengers;
(3) passenger seats are located in relation to the underwater emergency exits referred to in point (2) in such a way as to facilitate the escape of passengers in the event of the helicopter capsizing and the cabin becoming flooded.

(b) Operators of small category A helicopters and large helicopters that are required, in accordance with point CAT. IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, shall ensure that:

(1) all emergency exits, including flight crew emergency exits, and any door, window or other opening suitable to be used for the purpose of underwater escape, remain operable in an emergency;
(2) an automatic means is provided to easily identify the periphery of the apertures of all underwater emergency exits in all lighting conditions; such markings must be designed to remain visible in case the helicopter is capsized or the cabin is submerged.

26.420 Emergency equipment for flight over water

(a) Operators of small helicopters and large helicopters that are required to comply with the requirements of point CAT.IDE.H.300 of Annex IV, point NCC.IDE.H.227 of Annex VI or point SPO.IDE.H.199 of Annex VIII to Regulation (EU) No 965/2012, shall ensure that each inflated life raft has a means to hold it near the helicopter, and an additional means to keep the inflated life raft attached to the helicopter further away at a distance that would not pose a danger to the life raft itself nor to the persons on board. In the event that the helicopter totally submerges, both of those life raft retention means shall break before the helicopter submerges, even when the life raft is empty.
(b) Operators of small helicopters and large helicopters that are required, in accordance with point CAT.IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, shall ensure that stowage provisions are provided that accommodate one life preserver for each helicopter occupant within easy reach of each occupant while seated, unless occupants are always required to wear them whilst on board the helicopter.
(c) Operators of large helicopters that are required by point SPA.HOFO.165(d) of Annex V to Regulation (EU) No 965/2012 to have one or more life rafts installed, shall ensure that the life raft(s):

(1) is (are) remotely deployable, with the means to deploy the life raft(s), located within easy reach of the flight crew, the occupants of the passenger cabin and any survivors in the water, with the helicopter in an upright floating or capsized position;
(2) can be reliably deployed with the helicopter in any reasonably foreseeable floating attitude, including capsize, and in the substantiated sea conditions for capsize resistance.

26.425 Provision of substantiated sea conditions

(a) A holder of a type certificate for a small helicopter or a large helicopter shall ensure that the substantiated sea conditions for capsize resistance and any associated information relating to the ditching certification or emergency flotation provisions are included in the rotorcraft flight manual (RFM) and provided to all operators.
(b) A holder of a supplemental type certificate for an emergency flotation system that is installed on a small helicopter or a large helicopter shall ensure that the substantiated sea conditions for capsize resistance and any associated information relating to the ditching certification or emergency flotation provisions are included in the RFM and provided to all operators.

26.430 Resistance of an emergency flotation system to damage

(a) Operators of small helicopters or large helicopters that have their first individual certificate of airworthiness issued on or after 9 August 2025 and that are required, in accordance with point CAT.IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, shall ensure that if the helicopter includes a stowed emergency flotation system, the effects on the successful deployment and retention of the emergency flotation system as a result of possible damage from a water impact are minimised as far as practicable in the design.

(b) Operators of small helicopters or large helicopters with stowed emergency flotation systems that are installed for the first time on or after 9 August 2025 that are required, in accordance with CAT.IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be certified for ditching, shall ensure that the effects on the successful deployment and retention of the emergency flotation systems as a result of possible damage from a water impact are minimised as far as practicable in the design.

26.431 Determination of the robustness of emergency flotation system designs

(a) An operator of a small helicopter or a large helicopter that is required, in accordance with point CAT.IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, may request the person referred to in point (b) to provide the services referred to in point (c), where both the following conditions are met:

(1) the operator is required to demonstrate compliance with point 26.430 of this Annex;
(2) the robustness of the emergency flotation system in the event of water impact has not been demonstrated as part of the type certificate or supplemental type certificate of that helicopter.

(b) The person who shall provide the services referred to in point (c) are:

(1) the type certificate holder, if the emergency flotation system is included within the type design;
(2) the supplemental type certificate holder, if the emergency flotation system is certified through a supplemental type certificate.

(c) The person referred to in point (b) shall:

(1) determine that the effects on the successful deployment and retention of the emergency flotation system as a result of possible damage from a water impact are minimised, as far as practicable;
(2) determine that the effects referred to in point (c)(1) are taken into consideration in the design of the emergency flotation system;

(3) provide an assessment to the operator.

26.435 Automatic deployment of an emergency flotation system

(a) Operators of small helicopters that are required, in accordance with point CAT.IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, shall ensure that if an emergency flotation system is installed and is stowed during flight, then it shall automatically deploy as a result of entry into water.
(b) Operators of small category A helicopters and large helicopters that are required, in accordance with point CAT.IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, shall ensure that if an emergency flotation system is installed and is stowed during flight, then it shall automatically deploy as a result of entry into water and shall not rely on any pilot action during flight.

Points 26.430 and 26.431 apply from 9 September 2022.

Points 26.410, 26.415, 26.420(a) and (b), and 26.425 apply from 9 August 2023.
Points 26.420(c) and 26.435(a) apply from 9 August 2024.
Point 26.435(b) applies from 9 August 2026.

https://www.easa.europa.eu/en/document-library/regulations/commission-implementing-regulation-eu-20221254

Finally, EASA issued ED Decision 2022/019/R of 8 September 2022 (CS-26 Issue 4), providing the means to comply with the above Part-26 requirements.

https://www.easa.europa.eu/en/document-library/agency-decisions/ed-decision-2022019r

SR actual Status: **Closed Agreement**

AEROSPATIALE AS332, G-WNSB, 23/08/2013, United Kingdom

UNKG-2016-018:
It is recommended that the European Aviation Safety Agency amends the Certification Specifications for rotorcraft (CS 27 and 29) to require the installation of systems for the automatic arming and activation of flotation equipment. The amended requirements should also be applied retrospectively to helicopters currently used in offshore operations.

Type of response: **Final**

Reply sent on 07/11/2022: In the frame of Rulemaking task RMT.0120 (_Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA) (2016-01) was published on 23/03/2016 and proposed an amendment of certification specifications (CS-27 and CS-29) addressing this safety recommendation.

CS-27 and CS-29 have been amended on 14 June 2018 by ED Decision 2018/007/R.

These amendments include the following new specifications:

CS 27.801(c):

'(c) An emergency flotation system that is stowed in a deflated condition during normal flight must:

(1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.
(2) have a means of automatic deployment following water entry.'

CS 29.801(c):

'(c) An emergency flotation system that is stowed in a deflated condition during normal flight must:

(1) be designed such that the effects of a water impact (i.e. crash) on the emergency flotation system are minimised.
(2) have a means of automatic deployment following water entry. Automatic deployment must not rely on any pilot action during flight.'

CS-27 Category A rotorcraft must also comply with CS 29.801(c), as indicated by an amendment of Appendix C to CS-27.

This means that, although CS 27 Cat.A and CS-29 rotorcraft are required to be equipped with an emergency flotation system (EFS) that includes both a means of automatic arming and a means of automatic deployment, small CS-27 rotorcraft are only required to be equipped with an emergency flotation system that has a means of automatic deployment. This difference has been adopted by EASA following the comments received on NPA 2016-01, explaining that such requirement would not be proportionate and would add significant complexity to system design for small CS-27 rotorcraft.

Following a public consultation under a second NPA 2020-16 (rulemaking task RMT.0120), EASA published on 8 February 2022 Opinion 01/2022, recommending to the European Commission an amendment of Regulation (EU) 2015/640 on additional airworthiness specifications for a given type of operations, to include new requirements for helicopters that are operated over water for extended periods of time, which are consistent with the above mentioned CS-27 and CS-29 specifications:

https://www.easa.europa.eu/document-library/opinions/opinion-no-012022

Based on this Opinion, Commission Implementing Regulation (EU) 2022/1254 of 19 July 2022 amends Regulation (EU) 2015/640 to include the following new requirements in its Annex I (Part-26):
26.435 Automatic deployment of an emergency flotation system

(a) Operators of small helicopters that are required, in accordance with point CAT.IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, shall ensure that if an emergency flotation system is installed and is stowed during flight, then it shall automatically deploy as a result of entry into water.
(b) Operators of small category A helicopters and large helicopters that are required, in accordance with point CAT. IDE.H.320(a) of Annex IV to Regulation (EU) No 965/2012, to be designed for landing on water or certified for ditching, shall ensure that if an emergency flotation system is installed and is stowed during flight, then it shall automatically deploy as a result of entry into water and shall not rely on any pilot action during flight.

Point 26.435(a) applies from 9 August 2024.
Point 26.435(b) applies from 9 August 2026.

https://www.easa.europa.eu/en/document-library/regulations/commission-implementing-regulation-eu-20221254

Finally, EASA issued ED Decision 2022/019/R of 8 September 2022 (CS-26 Issue 4), providing the means to comply with the above Part-26 requirements.

https://www.easa.europa.eu/en/document-library/agency-decisions/ed-decision-2022019r

SR actual Status: **Closed Partial Agreement**

AEROSPATIALE AS332, G-WNSB, 23/08/2013, United Kingdom

UNKG-2016-026:
It is recommended that the European Aviation Safety Agency requires that, for existing helicopters used in offshore operations, a means of deploying each liferaft is available above the waterline, whether the helicopter is floating upright or inverted.

Type of response: **Final**

Reply sent on 07/11/2022: In the frame of Rulemaking task RMT.0120 (_Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA) 2016-01 was published for public comment on 23 March 2016 and proposed new certification specifications (CS-27 and CS-29) addressing this safety recommendation.

CS-27 and CS-29 have then been amended on 14 June 2018 by ED Decision 2018/007/R (CS-27 Amendment 5 and CS-29 Amendment 5).

These amendments include specifications in CS 27.1415(b)(1) and CS 29.1415(b)(1) which read as follows:

'Required life raft(s) must be remotely deployable for use in an emergency. Remote controls capable of deploying the life raft(s) must be located within easy reach of the flight crew, occupants of the passenger cabin and survivors in the water, with the rotorcraft in the upright floating or capsized position. (…).'

Paragraph (b)(1)(vi) of AMC 27.1415 and AMC 29.1415 provides the following acceptable means of compliance for life raft activation:

'The following should be provided for each life raft:
(…)
(C)tertiary activation: manual activation control(s) accessible to a person in the water, with the rotorcraft in all foreseeable floating attitudes, including capsized.'

Following a public consultation under a second NPA 2020-16 (rulemaking task RMT.0120), EASA published on 8 February 2022 Opinion 01/2022:

https://www.easa.europa.eu/document-library/opinions/opinion-no-012022

This Opinion proposed to amend Regulation (EU) 2015/640 on additional airworthiness specifications for a given type of operations, to include new requirements for helicopters that are operated over water for extended periods of time.

Based on this Opinion, Commission Implementing Regulation (EU) 2022/1254 of 19 July 2022 amends Regulation (EU) 2015/640 to include the following new requirements in its Annex I (Part-26):

26.420 Emergency equipment for flight over water(…)

(c) Operators of large helicopters that are required by point SPA.HOFO.165(d) of Annex V to Regulation (EU) No 965/2012 to have one or more life rafts installed, shall ensure that the life raft(s):

(1) is (are) remotely deployable, with the means to deploy the life raft(s), located within easy reach of the flight crew, the occupants of the passenger cabin and any survivors in the water, with the helicopter in an upright floating or capsized position;
(2) can be reliably deployed with the helicopter in any reasonably foreseeable floating attitude, including capsize, and in the substantiated sea conditions for capsize resistance.

Points 26.420(c) applies from 9 August 2024.

https://www.easa.europa.eu/en/document-library/regulations/commission-implementing-regulation-eu-20221254

Finally, EASA issued ED Decision 2022/019/R of 8 September 2022 (CS-26 Issue 4), providing the means to comply with the above Part-26 requirements.

SR actual Status: **Closed Partial Agreement**

BOEING 757, 4X-BAU, 03/10/2000, United Kingdom

UNKG-2002-014:
It is recommended that Airworthiness Authorities such as the JAA and FAA consider implementing the measures outlined in AAIB Safety Recommendations 99-11 and 99-12 concerning requirements for tyre pressure monitoring and warning systems.
Safety recommendation 99-11: The CAA consider a requirement for the installation, on the wheels of UK registered aircraft where a potentially hazardous level of tyre under-inflation can be undetectable by external visual inspection, of a device to provide ready indication of such a condition during routine pre-flight external inspection.
Safety recommendation 99-12: The CAA consider requiring the fitment on future aircraft types on the UK Register of a system to provide continuous flight deck indication of tyre pressures and/or warning of abnormal pressures.

Type of response: **Final**

Reply sent on 07/11/2022: With the amendment 14 of Certification Specification CS-25 (effective on 20 December 2013, applicable to new certification projects of large aeroplanes), the European Union Aviation Safety Agency (EASA) introduced new certification specifications to upgrade the protection against the damaging effects of tyre and wheel failures.

After that, EASA initiated rulemaking task RMT.0586 to propose a regulatory change to better ensure that the inflation pressures of tyres of large aeroplanes remain within the pressure specifications defined by the aeroplane manufacturer.

The terms of reference and the rulemaking group composition were published on 30 May 2017 on the EASA Website:

https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0586

This safety recommendation has been taken into account in this rulemaking task.

Notice of Proposed Amendment (NPA) 2020-05 ('Tyre pressure monitoring') was published for consultation on 6 March 2020:

https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-05

Executive Director (ED) Decision 2020/024/R on amendment 26 of CS-25 was published on 22 December 2020.

https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2020024r

This therefore applies to the certification of new large aeroplane designs.

A new objective-based certification specification CS 25.733(f) has been created to require that the applicant provides a means to minimise the risk that a tyre is below its minimum serviceable inflation pressure during operation. The corresponding new Acceptable Means of Compliance AMC 25.733(f) indicates how the applicant can demonstrate compliance.

These new provisions are not prescriptive and do not universally mandate the installation of a system indicating the tyre inflation pressures in the cockpit. The applicant should use one, or a combination, of the following means:

(a) Provide a task in the Instructions for Continued Airworthiness (ICA) that requires tyres inflation pressure checks to be performed at a suitable time interval,
(b) Install a system that monitors the tyres inflation pressures and:

(1) provides an alert to the flight crew, in compliance with CS 25.1322, whenever a tyre inflation pressure is below the minimum serviceable inflation pressure, or
(2) allows the tyres inflation pressures to be checked prior to the dispatch of the aeroplane, and a tyre inflation pressure check task is included in the Aeroplane Flight Manual (AFM) pre-flight procedures.

In order to create an equivalent rule to address already certified large aeroplanes, on 8 February 2022 EASA issued Opinion No 01/2022 to the European Commission (EC) to propose an amendment of Regulation (EU) 2015/640 (including its Annex I, Part-26) on additional airworthiness specifications for a given type of operations.

https://www.easa.europa.eu/en/document-library/opinions/opinion-no-012022

Based on this Opinion, the EC issued Commission Implementing Regulation (EU) 2022/1254 of 19 July 2022 amending Regulation (EU) 2015/640.

https://www.easa.europa.eu/en/document-library/regulations/commission-implementing-regulation-eu-20221254

A new point 26.201 requires operators of large aeroplanes to minimise the risk of a tyre being below its minimum serviceable inflation pressure during operation. This requirement is applicable from 9 September 2022.

Finally, EASA issued ED Decision 2022/019/R of 8 September 2022 on CS-26 Issue 4 (Certification Specifications and Guidance Material for Additional airworthiness specifications for operations).

https://www.easa.europa.eu/en/document-library/agency-decisions/ed-decision-2022019r

A new CS 26.201 provides acceptable means to show compliance with point 26.201 of Part-26. It specifies that the operator ensures that one, or a combination, of the following means is (are) used:

(1) A task is incorporated in the aeroplane maintenance programme (AMP) that requires tyres inflation pressure checks to be performed at a suitable time interval.
(2) The aeroplane is equipped with an installed system that monitors the tyres inflation pressures and that:
(i) provides an alert to the flight crew whenever a tyre inflation pressure is below the minimum serviceable inflation pressure, or
(ii) allows the tyres inflation pressures to be checked prior to the dispatch of the aeroplane, and a tyre inflation pressure check task is included in the pre-flight procedures of the operations manual.

A ‘suitable time interval’ is the maximum time interval between two consecutive tyre inflation pressure checks.
These pressure checks are conducted daily in order to ensure that the elapsed clock time between two consecutive tyre inflation pressure checks does not exceed 48 hours.

Time intervals longer than 48 hours may be used if they are substantiated and agreed by the competent authority. Guidance is provided on the substantiation means.

SR actual Status: **Closed Partial Agreement**

BOEING - 737 N772SW 17/04/2018, United States

UNST-2019-007 (NTSB):
Expand your certification requirements for transport-category airplanes and aircraft engines to mandate that airplane and engine manufacturers work collaboratively to
(1) analyze all critical fan blade impact locations for all engine operating conditions, the resulting fan blade fragmentation, and the effects of the fan-blade-out-generated loads on the nacelle structure and
(2) develop a method to ensure that the analysis findings are fully accounted for in the design of the nacelle structure and its components.

Type of response: **Intermediate**

Reply sent on 16/02/2022: The European Union Aviation Safety Agency (EASA) analysed the lessons learnt from this accident and this safety recommendation and took several actions to improve the certification of turbine engines and large aeroplanes.

I.Certification of turbine engines
The review of the existing certification specifications and acceptable means of compliance applicable to turbine engines in Certification Specification CS-E identified the following issues:
(a) The potential release of uncontained debris in the engine forward and rearward directions is not sufficiently addressed. It is limited to a provision in Acceptable Means of Compliance (AMC) E 810 ('Compressor and Turbine Blade Failure') related to the blade containment test, requiring to report the estimated size, weight, trajectory, and velocity of any debris ejected from the intake or exhaust during the test.
(b) CS-E 520(c)(2) requires that validated data (from analysis or test or both) be established and provided to enable the aircraft manufacturer to ascertain the forces that could be imposed on the aircraft structure and systems as a consequence of the out-of-balance running and during any continued rotation with rotor imbalance after shutdown of the Engine following the occurrence of blade failure as demonstrated in compliance with CS-E 810 ('Compressor and
Turbine Blade Failure'). AMC E 520(c)(2) provides some guidance and acceptable means of compliance regarding the Engine model validation. However, it appears that the displacements and loads transmitted to the engine nacelle structure (certified at aircraft level) have not been
sufficiently addressed during the certification of some engines and aircraft.

In order to address the above analysis' findings, in the frame of Rulemaking Task RMT.0184 ('Regular update of CS-E') EASA published on 22 November 2021 Notice of Proposed Amendment (NPA) 2021-13 (https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2021-13), proposing the following changes to CS-E:

(a) CS-E 520 ('Strength'), paragraph (c)(1) is proposed to be amended to require that compressor and turbine blades are 'radially' contained after their failure, instead of the current requirement to demonstrate no Hazardous Engine effect. This would better reflect the actual design and certification practices regarding engine casing strength. The secondary effects associated with the blade failure are addressed by CS-E 810.

(b) AMC E 520(c)(2) ('Engine model validation') is proposed to be amended to:
(1) add provisions clarifying that the engine model validated data (to be provided to the aircraft manufacturer) include the dynamic displacement of nacelle attachment features;
(2) regarding engines designed for the failure of the rotor support structure following a blade failure, clarify that the effect on the engine and the aircraft structures of the most severe blade failure which would not cause the failure of the rotor structural support should also be evaluated; and
(3) specify that the engine model validation should consider any differences between the test configuration and the aircraft installation.

(c) AMC E 510 ('Safety analysis'), paragraph (3)(d)(iii) on 'Non-containment of high-energy debris' is proposed to be amended to:
(1) align with the amendment made to CS-E 520(c)(1) regarding the requirement for blades to be radially contained;
(2) add a link with the applicable certification specifications that allow to demonstrate the high level of integrity of critical parts which are considered as non-contained; and
(3) add a paragraph specifying that some engine failures may result in debris being released from the engine, forward, rearward, or otherwise outside of the containment structure.
If such failures may result in debris being released with an energy and trajectory that could cause a hazard to the aircraft, they should be considered as causing a Hazardous

Engine Effect.

(d) CS-E 810 is proposed to be amended to align with CS-E 520(c)(1) regarding the 'radial' containment requirement and clarify that Hazardous Engine Effects that may be triggered by the blade failure must not occur at a rate greater than that
defined as Extremely Remote. The current wording requiring to demonstrate that no Hazardous Engine Effect can happen is not considered as adequate as some debris may be released outside of the radial containment area and this must be addressed and mitigated.

(e) AMC E 810, paragraph (2) (c), related to the conditions
after the containment test, is proposed to be amended to:
(1) reflect the amendment made to CS-E 810; and
(2) add new sub-paragraphs explaining the elements that should be taken into account for the demonstration of the Extremely remote probability, highlighting the needed coordination with the aircraft manufacturer to ensure that the threat to the aircraft is adequately assessed, and indicating the information that should be provided in the manuals containing the instructions for installing and operating the engine.

Finally, EASA is involved in the AIA (Aerospace Industries Association) Working Group (WG) 33.94 which is also reviewing the engine related aspects of this safety recommendation. The WG is particularly focused on Fan Blade Off (FBO) loads and the blade fragmentation variability issue. EASA will consider any recommendation that this WG may issue to further improve CS-E.

II.Certification of large aeroplanes
The review of certification specifications and acceptable means of compliance for large aeroplanes showed that the structural integrity of secondary structure elements (including engine nacelle elements) is not explicitly addressed within the specifications related to the protection of the aeroplane against the FBO event and the related Sustained Engine Imbalance (SEI). Although aeroplane manufacturers generally take into account these loads for the design of their nacelle components, EASA decided to prepare a Special Condition (SC) to supplement the CS-25 provisions. This SC would be provided in case of new application for certification of a new aeroplane. It would require the following:
(a)Supplement CS 25.901(c) (on powerplant installation) to specify that the damaging effects from the FBO SEI are excepted from compliance with CS 25.1309.
(b)Supplement CS 25.1103(b), CS 25.1123, CS 25.1193(a), CS 25.1191(b) to specify that these structural elements must resist the FBO event and the related SEI conditions and remain attached to the aeroplane.
This SC will be complemented by Interpretative Material that supplement the current:
(1)AMC 25.362 ('Engine Failure Loads') and AMC 25-24 ('Sustained Engine Imbalance') to address the methods used to develop aeroplane design loads based on the FBO data provided by the engine manufacturer,
(2)AMC 20-128A ('Design Considerations for Minimizing Hazards Caused by Uncontained Turbine Engine and Auxiliary Power Unit Rotor Failure') to address the consolidation of data provided by the engine manufacturer for debris release that are not addressed by the existing rotor failure model of the AMC.

III.On-going certification projects

EASA is also reviewing, in cooperation with engine and aeroplane manufacturers, how the above-mentioned topics are addressed in the frame of on-going certification projects. The lessons learnt will be taken into account. A Special Condition may be raised if deemed necessary.

Further actions (e.g. rulemaking) may be initiated in the future based on the above actions. EASA will revise the response to this safety recommendation once progresses are made.

SR actual Status: Open

SAAB - 2000 N686PA 17/10/2019, United States

UNST-2021-053 (NTSB):
Require the submission and consideration of system safety assessments addressing the landing gear antiskid system for the certification of future transport-category airplane designs. The certification should ensure that the system safety assessments are consistent with the intent of Acceptable Means of Compliance 25.1309, System Design and Analysis, and that the assessments evaluate and mitigate the potential for human error that can lead to a cross-wiring error. (A-21-53)

Type of response: **Intermediate**

Reply sent on 16/02/2022: The European Union Aviation Safety Agency (EASA) has initiated a review of existing provisions related to the consideration of human errors (in particular maintenance errors) during design and certification activities in CS-25 (Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes).
As an initial indication, some provisions are already present in AMC 25.1309 (System design and analysis) (refer to CS-25 Amendment 27):
-Section 6.b(2) presents the principles and techniques that need to be used in the fail-safe design concept incorporated in CS-25. This includes the 'Error-Tolerance that considers adverse effects of foreseeable errors during the aeroplane's design, test, manufacture, operation, and maintenance'.
-Section 9.b(1)(v) states that the analyses done to substantiate the probabilities of failures conditions must consider, among other items, 'the effect of reasonably anticipated errors when performing maintenance actions'.
-Section 10.c specifies that 'the requirements of CS 25.1309(b) are intended to ensure an orderly and thorough evaluation of the effects on safety of foreseeable failures or other events, such as errors or external circumstances, separately or in combination, involving one or more system functions. The interactions of these factors within a system and among relevant systems should be considered'.
-Appendix 1 (Assessment methods) section f (Common cause analysis) provides the following:
o'(1) Zonal Safety Analysis. This analysis has the objective of ensuring that the equipment installations within each zone of the aeroplane are at an adequate safety standard with respect to design and installation standards, interference between systems, and maintenance errors. In those areas of the aeroplane where multiple systems and components are installed in close proximity, it should be ensured that the zonal analysis would identify any failure or malfunction which by itself is considered sustainable but which could have more serious effects when adversely affecting other adjacent systems or components.
o(3) Common Mode Analysis. This analysis is performed to confirm the assumed independence of the events, which were considered in combination for a given failure condition. The effects of specification, design, implementation, installation, maintenance, and manufacturing errors, environmental factors other than those already considered in the particular risk analysis, and failures of system components should be considered'.
EASA will further analyse the issue highlighted in this safety recommendation and consider appropriate action(s) that could be used to better mitigate the risk of human errors leading to the cross-wiring of antiskid brake system or other systems.
An update of this reply will be provided when progress is made.

SR actual Status: **Open**

SAAB - 2000 N686PA 17/10/2019, United States

UNST-2021-054 (NTSB):
Require organizations that design, manufacture, and maintain aircraft to establish a safety management system. (A-21-54)

Type of response: **Final**

Reply sent on 16/02/2022: EASA agrees with the recommendation and has started a rulemaking activity.
Rulemaking Task (RMT) RMT.0251 phase II was launched to introduce safety management system (SMS) into Part 145 and Part 21.

For organizations that maintain aircraft:
In the case of Part-145, Official Journal of the EU published on 12 November 2021 the Regulation (EU) 2021/1963 which introduces SMS in Part-145. It can be consulted at:
https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R1963&from=EN

The key dates for Part-145 SMS implementation are as follows:

- Entry into force: 2 December 2021
- Applicability date: 2 December 2022
- Closure of findings on novelties by: 2 December 2024

Related Acceptable Means of Compliance and Guidance Material (AMC/GM) are currently under final consultation by the Focus Consultation Group that was involved in the RMT.
The publication is foreseen in Q1/2022.

For organizations that design and manufacture aircraft:
This RMT is in an advanced phase, and the related Opinion was addressed to the European Commission in December 2020.
The legislative process is about to be completed and the text amending Part 21 with introduction of SMS requirements for approved production and design organisation is expected to be published in Q1/Q2 2022.

SR actual Status: **Closed Agreement**

AEROSPATIALE AS332, G-WNSB, 23/08/2013, United States

UNST-2021-052:
Identify all currently certificated transport-category airplanes for which system safety assessments for landing gear systems did not consider human error that could lead to cross-wiring of antiskid brake system components, including the wheel speed transducers, and require manufacturers of transport-category airplanes without such assessments to perform the assessments and then implement mitigations to prevent cross-wiring of antiskid brake system components.

Type of response: **Intermediate**

Reply sent on 16/02/2022: The European Union Aviation Safety Agency is analysing this safety recommendation. An update will be provided once a decision has been reached on the orientation to be given to this topic.

SR actual Status: **Open**

AEROSPATIALE AS332, G-WNSB, 23/08/2013, United States

UNST-2021-052:
Identify all currently certificated transport-category airplanes for which system safety assessments for landing gear systems did not consider human error that could lead to cross-wiring of antiskid brake system components, including the wheel speed transducers, and require manufacturers of transport-category airplanes without such assessments to perform the assessments and then implement mitigations to prevent cross-wiring of antiskid brake system components.

Type of response: **Intermediate**

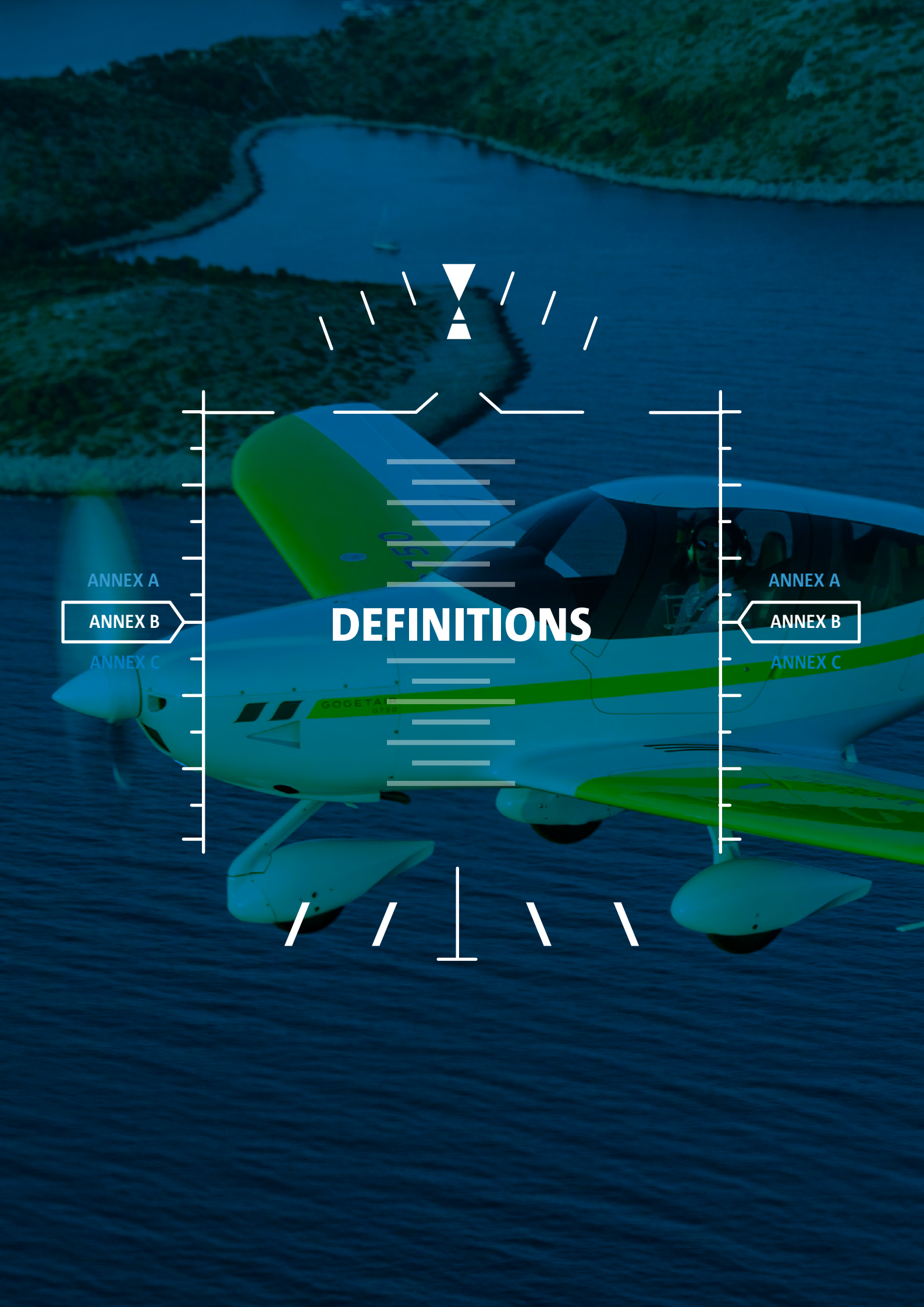
Reply sent on 07/11/2022: The European Union Aviation Safety Agency (EASA) has sent the Continuing Airworthiness Review Item (CARI) 25-10 to Airbus SAS, Airbus DS, Leonardo, ATR, Dassault, Deutsche Aircraft, Fokker, SAAB, between June and October 2022.

CARI 25-10 requests a review of the current antiskid brake system components, including the wheel speed transducers, to assess any possible electrical misconnection (i.e., due to human error, and irrespective of any support of the technical/maintenance documentation). Furthermore, it also requests assessments of the effect of cross-wiring for all cases where this has been determined to be physically possible. In addition, the current Safety Analyses are to be checked to ensure they consider the effect of such cross-wiring and if needed, the failure condition(s) are to be updated accordingly.

Depending on the criticality of the identified failure condition(s), CARI 25-10 requests the definition of the necessary mitigations preventing, or minimizing, the effect of cross-wiring.

The above-mentioned manufacturers have been asked to send their feedback to EASA within six months.

SR actual Status: **Open**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Definitions

Accident: occurrence associated with the operation of an aircraft which, in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time it comes to rest at the end of the flight and the primary propulsion system is shut down, in which:

(a) a person is fatally or seriously injured as a result of:

- being in the aircraft, or,
- direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or,
- direct exposure to jet blast,

except when the injuries are from natural causes, self- inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

(b) the aircraft sustains damage or structural failure which adversely affects the structural strength, performance or flight characteristics of the aircraft, and would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to a single engine, (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the aircraft skin (such as small dents or puncture holes) or minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike, (including holes in the radome); or

(c) the aircraft is missing or is completely inaccessible;

Incident: an occurrence, other than an accident, associated with the operation of an aircraft which affects or would affect the safety of operation;

Serious incident: an incident involving circumstances indicating that there was a high probability of an accident and is associated with the operation of an aircraft, which in the case of a manned aircraft, takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, or in the case of an unmanned aircraft, takes place between the time the aircraft is ready to move with the purpose of flight until such time it comes to rest at the end of the flight and the primary propulsion system is shut down.

A list of examples of serious incidents is given below. The list is not exhaustive and only serves as guidance with respect to the definition of 'serious incident':

- a near collision requiring an avoidance manoeuvre to avoid a collision or an unsafe situation or when an avoidance action would have been appropriate,
- controlled flight into terrain only marginally avoided,
- aborted take-offs on a closed or engaged runway, on a taxiway, excluding authorised operations by helicopters, or from an unassigned runway,
- take-offs from a closed or engaged runway, from a taxiway, excluding authorised operations by helicopters, or from an unassigned runway,

- landings or attempted landings on a closed or engaged runway, on a taxiway, excluding authorised operations by helicopters, or from an unassigned runway,
- gross failures to achieve predicted performance during take-off or initial climb,
- fires and smoke in the passenger compartment, in cargo compartments or engine fires, even though such fires were extinguished by the use of extinguishing agents,
- events requiring the emergency use of oxygen by the flight crew,
- aircraft structural failure or engine disintegration, including uncontained turbine engine failures, not classified as an accident,
- multiple malfunctions of one or more aircraft systems seriously affecting the operation of the aircraft,
- flight crew incapacitation in flight,
- fuel quantity requiring the declaration of an emergency by the pilot,
- runway incursions classified with severity A according to the Manual on the Prevention of Runway Incursions (ICAO Doc 9870) which contains information on the severity classifications,
- take-off or landing incidents. Incidents such as undershooting, overrunning or running off the side of runways,
- system failures, weather phenomena, operation outside the approved flight envelope or other occurrences which could have caused difficulties controlling the aircraft,
- failure of more than one system in a redundancy system mandatory for flight guidance and navigation.

Safety investigation: process conducted by a safety investigation authority for the purpose of accident and incident prevention which includes the gathering and analysis of information, the drawing of conclusions, including the determination of cause(s) and/or contributing factors and, when appropriate, the making of safety recommendations;

Safety recommendation: proposal of a safety investigation authority, based on information derived from a safety investigation or other sources such as safety studies, made with the intention of preventing accidents and incidents.

Safety Recommendation of Global Concern (SRGC)[3]: is defined as a safety recommendation made to a State civil aviation authority, to a regional certification authority, or to ICAO regarding a systemic deficiency having a probability of recurrence with potential for significant consequences and requiring timely action to improve safety.

An SRGC would meet one or more of the following criteria:

a) the deficiency underlying the recommendation is systemic and not solely a local issue;

b) the probability of recurrence of the accident and the adverse consequences are high;

c) the risk to persons, equipment and/or environment is high;

d) the urgency for taking effective remedial safety action is high;

e) there is a history of recurrence of the relevant deficiency;

f) the deficiency underlying the recommendation constitutes a risk to the airworthiness, design, manu facture, maintenance, operation and/or regulation of the involved aircraft type;

[3] Source: ICAO Manual of Aircraft Accident and Incident Investigation (Doc 9756 -2014), Part IV Reporting, Chapter 1.6 RELEASE AND DISTRIBUTION OF SAFETY RECOMMENDATIONS.

g) the deficiency underlying the recommendation constitutes a risk to more than one aircraft type, to more than one operator, to more than one manufacturer and/or to more than one State; and

h) the mitigation of the risks associated with the deficiency will require coordinated efforts of more than one entity of the air transport industry, such as civil aviation authorities, manufacturers and operators.

Safety Recommendation of Union-wide Relevance (SRUR): a safety recommendation identified by the European Network of Civil Aviation Safety Investigation Authorities according to Article 7 (g) of Regulation (EU) No 996/2010.

A safety recommendation of Union-wide Relevance (SRUR) would meet one or more of the following criteria:

- The deficiency underlying the safety recommendation is systemic, not related to a specific aircraft type, operator, manufacturer component, maintenance organization, air navigation service and/or approved training organisation, and not solely a national issue, or;
- There is a history of recurrence across Europe of the relevant deficiency.

Technical Adviser (Article 8 of REGULATION (EU) No 996/2010)

1. Safety investigation authorities shall, provided that the requirement of no conflict of interest is satisfied, invite EASA and national civil aviation authorities of the Member States concerned, within the scope of their respective competence, to appoint a representative to participate:

(a) as an adviser to the investigator-in-charge in any safety investigation under Article 5(1) and (2), conducted in the territory of a Member State or in the location referred to in Article 5(2) under the control and at the discretion of the investigator-in-charge;

(b) as an adviser appointed under this Regulation to assist accredited representative(s) of the Member States in any safety investigation conducted in a third country to which a safety investigation authority is invited to designate an accredited representative in accordance with international standards and recommended practices for aircraft accident and incident investigation, under the supervision of the accredited representative.

2. The participants referred to in paragraph 1 shall be entitled, in particular to:
(a) visit the scene of the accident and examine the wreckage;
(b) suggest areas of questioning and obtain witness information;
(c) receive copies of all pertinent documents and obtain relevant factual information;
(d) participate in the read-outs of recorded media, except cockpit voice or image recorders;
(e) participate in off-scene investigative activities such as component examinations, tests and simulations, technical briefings and investigation progress meetings, except when related to the determination of the causes or the formulation of safety recommendations.

3. EASA and the national civil aviation authorities shall support the investigation in which they participate by supplying the requested information, advisers and equipment to the safety investigation authority in charge.


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ANNEX C

Safety Recommendations classification

This classification has been established in the scope of the safety recommendations taxonomy working group in cooperation with representatives from European Safety Investigation Bodies, Eurocontrol, the European Joint Research Center (JRC) and EASA. The aim of this group was to initiate a taxonomy dedicated to recommendations.

This activity took place in 2007 and is being used to implement a safety recommendation database developed by the JRC.

In addition to common definitions, the taxonomy also defines a unique pre-defined format for referencing safety recommendations. This format is composed by 4 digits originating state name followed by the year it was issued and then a three digits number (ex: UNKG-2007-001 for recommendation #1 issued by United Kingdom in 2007). Consequently, all references comply with this taxonomy foreseeing that existing safety recommendations will be imported in a central database and shared with a community of users.

Recommendation assessment: assessment given to a safety recommendation by the addressee as defined below:

- **Agreement:** safety recommendation for which the safety concern is agreed by the addressee and subsequent action is planned or implemented.
- **Partial agreement:** safety recommendation considered relevant by the addressee but not applicable and for which a safety issue has been recognised and a new orientation has been given to the recommended action.
- **Disagreement:** safety recommendation considered not relevant or not applicable by the addressee.
- **No longer applicable:** safety recommendation has been superseded or has become no longer applicable.
- **Not Responsible:** safety recommendation wrongly allocated or not in the scope of responsibility of the addressee.
- **More information required:** safety recommendation for which more information is required by the addressee before any action initiated. Additional information should be sent by the originator.
- **Unknown:** safety recommendation which was issued before any tracking implementation status and for which insufficient information to assign any other status has been received.

Response assessment: The classification of the response as determined by the originator (when a response is received):

- **Adequate:** safety recommendation for which appropriate action is planned or implemented or sufficient evidence of completed action satisfying the objective has been received by the originator.
- **Partially adequate:** safety recommendation for which the planned action or the action taken will reduce but not substantially reduce or eliminate the deficiency or for which a safety issue has been recognised and a new orientation has been given to the recommended action.
- **Not adequate:** safety recommendation for which no action has been taken or proposed that will reduce or eliminate the deficiency, or for which the proposed action is considered not applicable/ unacceptable.

- **Response is awaited:** safety recommendation for which no response has been received.
- **Response received awaiting assessment:** response to the safety recommendation has been received by the originator and is awaiting assessment.
- **Superseded:** if the recommendation has been superseded by another recommendation.
- **Unknown:** the safety recommendation is one which was issued before any tracking implementation status and for which insufficient information to assign any other status has been received.

Status of a safety recommendation: progress of the implementation of the response to a recommendation as defined below:

- **Open safety recommendation**: safety recommendation for which the reply has not yet been defined or the appropriate action addressing the safety concern is still in progress.
- **Closed safety recommendation:** safety recommendation for which appropriate action has been taken and completed addressing the safety issue.


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EASA
European Union Aviation Safety Agency

EUROPEAN UNION AVIATION SAFETY AGENCY
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