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European Union Aviation Safety Agency

Annual Safety Recommendations Review 2024

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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 2023. 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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2024 Annual Safety Recommendations Review

Contents

List of Figures

Annual
Safety Recommendations
Review
2024

Abbreviation list

Abbreviation list

AB	Advisory Body
ADSB	Automatic Dependent Surveillance–Broadcast
BIS	Best Intervention Strategy
CAG	Collaborative Analysis Group
GAT	General Air Traffic
CO	Carbon Monoxide
CS	Certification Specification
EASA	European Union Aviation Safety Agency
ED	Executive Director
ENCASIA	European Network of Civil Aviation Safety Investigation Authorities
EPAS	European Plan for Aviation Safety
EU	European Union
GM	Guidance Material
HEMS	Helicopter Emergency Medical Service
ICA	Instructions for Continued Airworthiness
IFR	Instrument Flight Rules
MS	Member States
MST	Member State Task
NAA	National Aviation Authority
QMS	Quality Management System
RCF	Rolling Contact Fatigue
RMT	Rulemaking Task
SC	Standard Change
SERA	Standardised European Rules of the Air
SIA	Safety Investigation Authority/Safety Issue Assessment
SIB	Safety Information Bulletin
SMS	Safety Management System
SPT	Safety promotion Task
SR	Safety Recommendation
SSP	State Safety Program
TBO	Time Between Overhaul

Annual
Safety Recommendations
Review
2024

Chapter 1
Executive summary

Executive summary

The Annual Safety Recommendations Review provides information on the activities carried out by the Agency in the field of accident and incident investigation and follow-up in 2023. 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 17th edition includes:

- General statistical data on the safety recommendations addressed by Safety Investigation Authorities to the Agency in 2023;
- Information on the replies that the Agency has provided in response to safety recommendations in 2023;
- The 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 recommendations 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 to help prevent future occurrences.

During 2023, Safety Investigation Authorities from 13 EU Member States, 2 Non-EU Member States, and 1 Military entity addressed 56 safety recommendations to the Agency in the context of its remit. The total number of safety recommendations addressed to the Agency is higher than in the previous three years.

The majority, 60%, of safety recommendations addressed to the Agency were related to procedures or regulations. Recommendations related to aircraft, equipment, or facilities constituted 13%. Recommendations related to personnel constituted 17%. The remaining 10% were related to QMS, SMS, and SSP topics.

The processing and follow-up of safety recommendations in a systematic manner constitutes one of the Agency's key responsibilities. In 2023, the Agency provided 85 formal replies to 83 safety recommendations:

- 44 of these were final replies (closing safety recommendations) with 7 of these replies assessed as 'agreed' by the Agency, and 23 assessed as 'partially agreed'. The remaining closing replies were categorised as either 'Closed-Disagreement', 12, or not responsible, 2;
- The remaining 41 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, 6 of the final responses provided by the Agency were deemed to be "adequate" or "partially adequate" (1 and 5 respectively), and 8 responses was considered "not adequate". With respect to the remaining replies sent in 2023, the Agency awaits the Safety Investigation Authorities' (SIA) assessments.

Annual
Safety Recommendations
Review
2024

Chapter 2
Introduction

Introduction

Within the European Union (EU), the principles governing the investigation of accidents and serious incidents are defined in Regulation (EU) No 996/2010[1] 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 of 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, also known as 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;
- Subsequent replies are provided as necessary to update the Safety Investigation Authority of progress;
- Safety recommendations are subject to a continuous internal monitoring process until all agreed corrective actions are closed;
- The Agency receives assessments of its replies 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 to improve and uphold aviation safety. The Agency also supports effective cooperation in safety investigation by working with the European Network of Civil Aviation Safety Investigation Authorities (ENCASIA), particularly 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 safety recommendations for which it is the addressee.

The first edition of this Review was issued in 2007. This 17th edition reviews the work undertaken in 2023 and presents:

- General statistical data on the safety recommendations addressed by Safety Investigation Authorities to the Agency in 2023;
- Information on the replies that the Agency has provided in response to safety recommendations in 2023;
- The main safety issues that have been addressed through the actions taken.

1 As amended by Regulation (EU) No 376/2014 and Regulation (EU) 2018/1139

A process designed to identify, assess and mitigate safety risks at a 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. To facilitate this process, the Agency, the Member States (MS) and industry work together in Collaborative Analysis Groups (CAG) and Advisory Bodies (ABs).

The Annual Safety Review published by the Agency highlights the main and most visible elements of 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 potential deficiencies in the aviation system and propose solutions to mitigate the associated safety risks.

Annual
Safety Recommendations
Review
2024

Chapter 3

Safety Recommendations received in 2023

Safety Recommendations received in 2023

3.1 Overview of Safety Recommendations received in 2023

During 2023, a total of 56 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 2014 to 2016, the annual number of safety recommendations addressed to the Agency remained relatively high. In 2017, this amount fell by around half. Despite a marginal increase in 2018 and 2019, there was a general downward trend between 2020 and 2022. However, 2023 saw again an increasing trend in the amount of recommendations received.

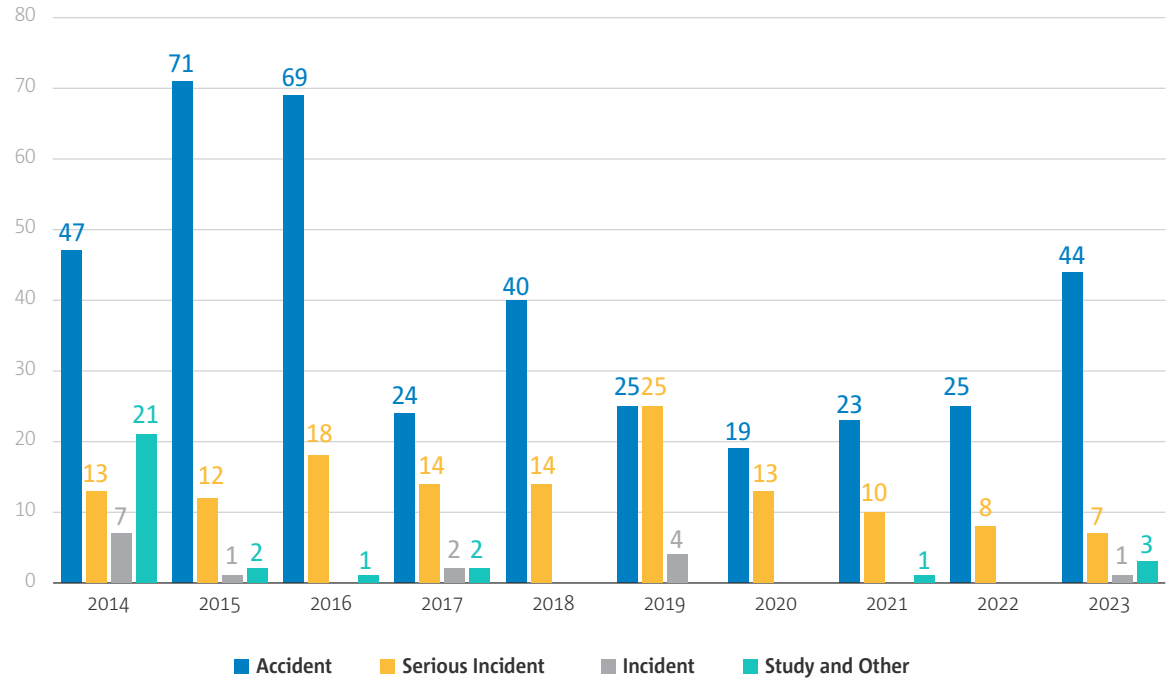
NB: 1 SR was addressed to EASA by a military investigation authority in 2023 (this is not visible in the chart)

Figure 1: Safety Recommendations addressed to EASA per year

In 2023, the majority of safety recommendations addressed to the Agency were issued by EASA Member State SIAs. The number of safety recommendations in general reflects the factors identified in recent years, namely proactively identifying safety concerns and addressing them before they would be raised during an investigation, as well as 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 2023, the safety recommendations addressed to the Agency related to 56 occurrences, comprising 44 accidents (plus one investigated by a military investigation agency), 7 serious incidents, and 1 incident. The remaining 3 recommendations were raised in the context of a study.

Figure 2 shows the total number of safety recommendations received by occurrence class since 2014.



NB: 1 SR was addressed to EASA by a military investigation authority in 2023 (this is not visible in the chart)

Figure 2: Annual Safety Recommendations by occurrence class 2014-2023

These 56 occurrences involved the aircraft categories and operation types listed in the table below.

Type of Operation	Aircraft Category							
	Fixed Wing					Rotorcraft	Lighter than Air	Grand Total
	Large Aeroplane	Small Aeroplane	Powered Sailplane (Glider)	Non-Powered Sailplane (Glider)	Ultralight/ Microlight	Large Helicopter	Hot Air Balloon	
Commercial Air Transport	**11**	**4**	**0**	**0**	**0**	**0**	**1**	**16**
Airline	11							**11**
Air taxi		4						**4**
Sightseeing							1	**1**
Other								**0**
Non-Commercial Operations	**0**	**18**	**1**	**2**	**2**	**9**	**0**	**32**
Business						8		**8**
Flight Training/ Instructional		15	1	2				**18**
Pleasure		2				1		**3**
Test Flight		1*						**1**
Flying Displays					2			**2**
Specialised Operations (Aerial Work)	**0**	**3**	**5**	**0**	**0**	**0**	**0**	**8**
Airshow/Race			5					**5**
Parachute drop		2						**2**
Towing		1						**1**
State Operations	**0**	**0**	**60**	**0**	**0**	**1**	**0**	**1**
Search and Rescue						1		**1**
Grand Total	**11**	**25**	**6**	**2**	**2**	**10**	**1**	**57**

NB:1 Compare total 57 above with 56 SRs received in 2023. 1 SR involved 2 different aircraft categories / operation types

FRAN-2023-021 was issued in connection with a mid-air collision between two aircraft in different categories / operation types (Cessna Citation 525 CJ_F-HGPG_Embraer ERJ170_F-HBXG)

* The accident involving a small aeroplane wich crashed during a test flight was investigated by a military authority

Figure 3: Safety Recommendations received in 2023 by Type of Operation and Aircraft Category

There were no recommendations issued relating to UAVs.

3.2 Origin of the Safety Recommendations received in 2023

During 2023, Safety Investigation Authorities from 13 EU Member States, 2 Non-EU Member States, and 1 Military entity addressed 56 safety recommendations to the Agency in the context of its remit. The total number of safety recommendations addressed to the Agency is higher than in the previous three years.

Figure 4 shows the contribution of the different SIAs to the total number of safety recommendations addressed to the Agency in 2023.

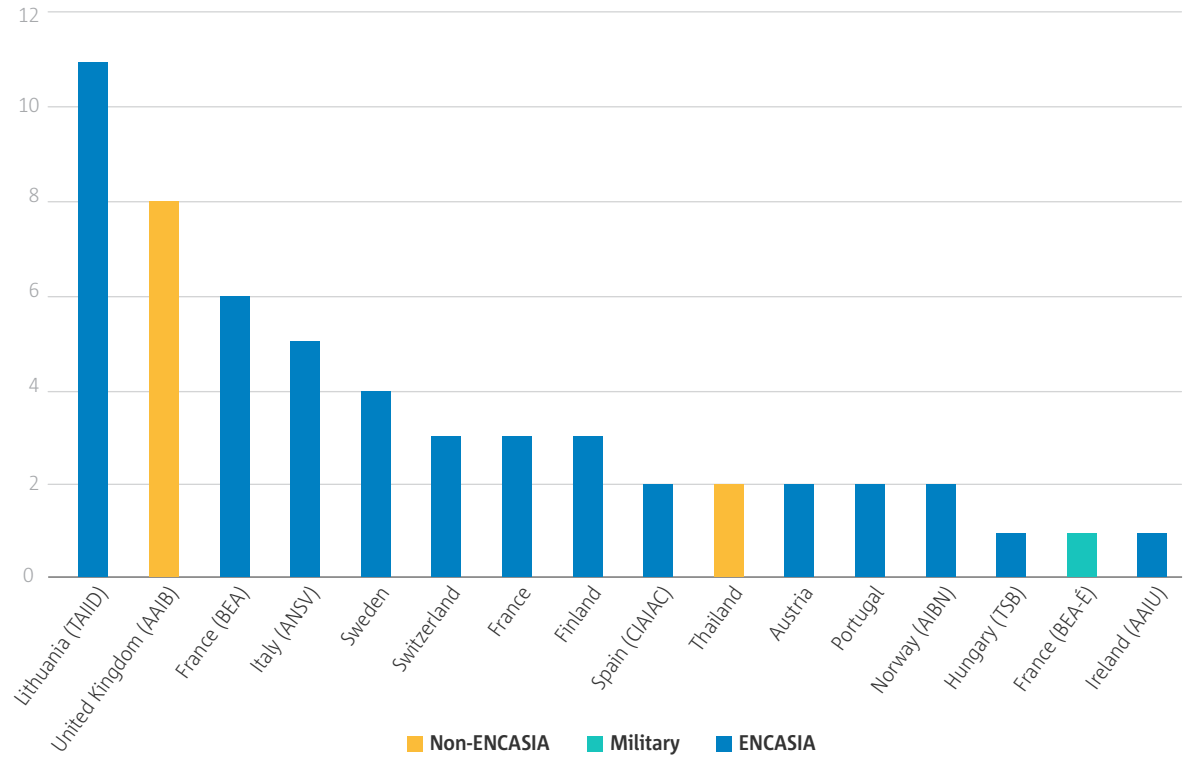


Figure 4: States' contribution to Safety Recommendations received in 2023

The individual break-down of Safety Recommendations can be found in Appendix A.

3.3 Involvement in accident and serious incident investigations

Below are listed some of notable events in 2023 in which the Agency was involved:

Accident involving an ATR-72, 9N-ANC on 15.01.2023 in Nepal

- A fatal accident involving an ATR-72 in Nepal in January in which the aircraft crashed after the inadvertent movement of both condition levers to the feathered position in flight, which resulted in feathering of both propellers and subsequent loss of thrust, leading to an aerodynamic stall and collision with terrain.

Accident involving a Boeing 737-800, 9H-QDU, on 21.01.2023 in Germany

- When leaving the airplane, a lady carrying her infant fell from the aircraft stairs. An ultrasound later revealed that the infant's skull had been fractured.

Accident involving a Boeing 747-400F, LX-OCV on 14.05.2023 in Luxembourg

- A Boeing 747-400F experienced a GEAR TILT and GEAR DISAGREE caution at take-off and the crew was unable to retract the landing gear. They performed an air turnback to LUX, and upon landing, the right body gear truck separated from the aircraft.

Incident involving an Airbus 350-900, F-HTYO, on 28.05.2023 in Japan.

- Shortly after take-off the crew experienced multiple radar failures, the radar failure was the consequence of radome disbonding and/or delamination that prevented the normal movement of the weather radar plate.

Serious incident involving an Airbus 330-343, HB-JHL on 11.07.2024, investigation led by the Swiss Investigation Board

- Fumes / Smell for an unknown reason on board (PAN PAN and 7700 squawk), descent to 10.000 ft over the UK, and diversion to Paris. The crew later reported that some of the PBE (portable breathing equipment) did not work as expected, and was difficult to extract from the packaging.

Accident involving a Eurocopter EC135T1, N109BC, on 28.08.2023 in the USA

- A Eurocopter EC 135T1 suffered an inflight fire shortly after take-off from Pompano Beach Airpark (PPM/KPMP), in August, Florida. The pilot tried to return but crashed into an occupied residential building in Pompano Beach. One occupant onboard and one person on the ground died. The two remaining helicopter occupants (the pilot and a medic) and four persons on the ground were taken to hospital.

Accident involving an Airbus 321-253NX, G-OATW on 04.10.2023 in the UK

- A cabin window was seen to be loose shortly after take-off and several windowpanes were missing after the aircraft landed. The windowpanes fell out because they had been damaged by infrared energy emitted by high-intensity lights during a filming event the previous day.

Accident involving a PILATUS PC-24, C-FMHR, on 04.11.2023 in Canada

- A non-fatal occurrence involving a Pilatus PC-24 in which the crew experienced a loss of control in flight because of the failure of the rudder trim and rudder mass balance with partial blockage of the rudder.

In addition, several investigations launched in previous years were still on-going or completed in 2023, and were actively supported by the Agency either through the monitoring of progress and / or provision of 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 2023.

Annual
Safety Recommendations
Review
2024

Chapter 4

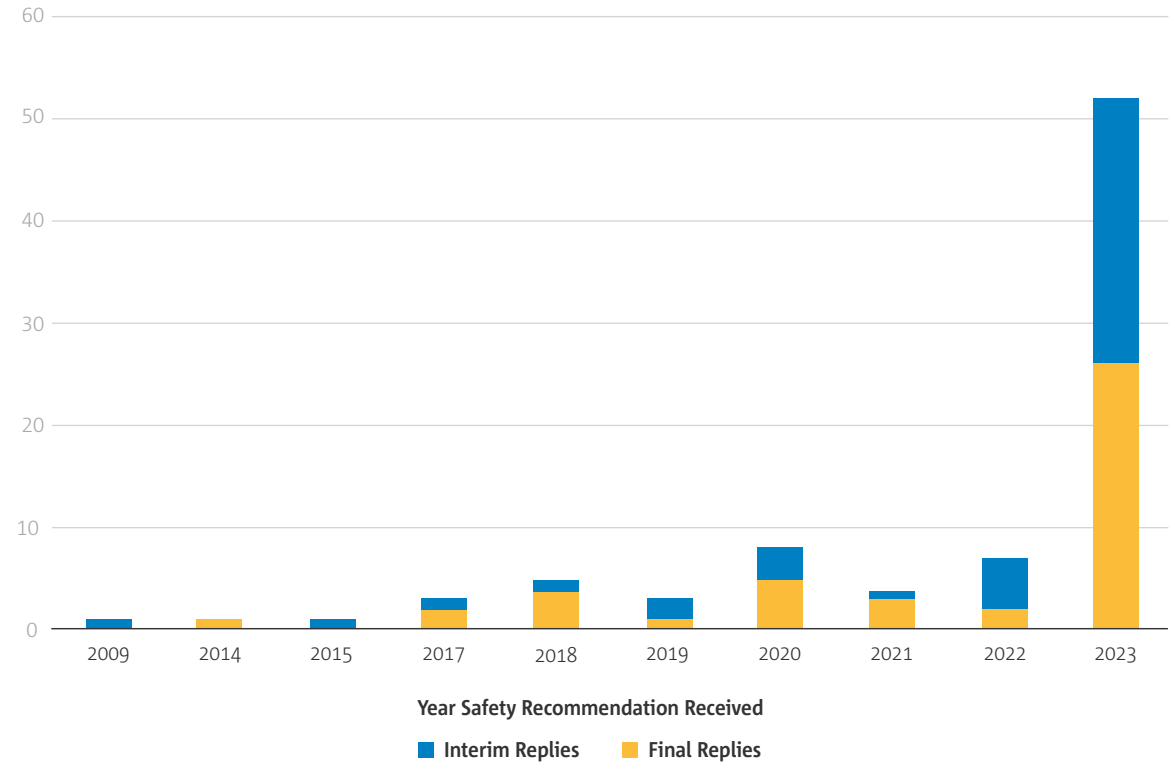
Safety Recommendations replies in 2023

Safety Recommendations replies in 2023

4.1 Overview of Safety Recommendations replies in 2023

In 2023, the Agency issued 85 formal replies to 83 safety recommendations. As updates are provided, several reply letters can be issued for the same recommendation within a year. The vast majority of replies produced in 2023 were the Agency's responses to safety recommendations first received that year.

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.



In 2023, the Agency issued 85 replies to 83 safety recommendations

NB: this includes 2 replies to SRs addressed to EASA by a military investigation authority

Figure 5: EASA replies issued in 2023, by year of receipt of safety recommendation

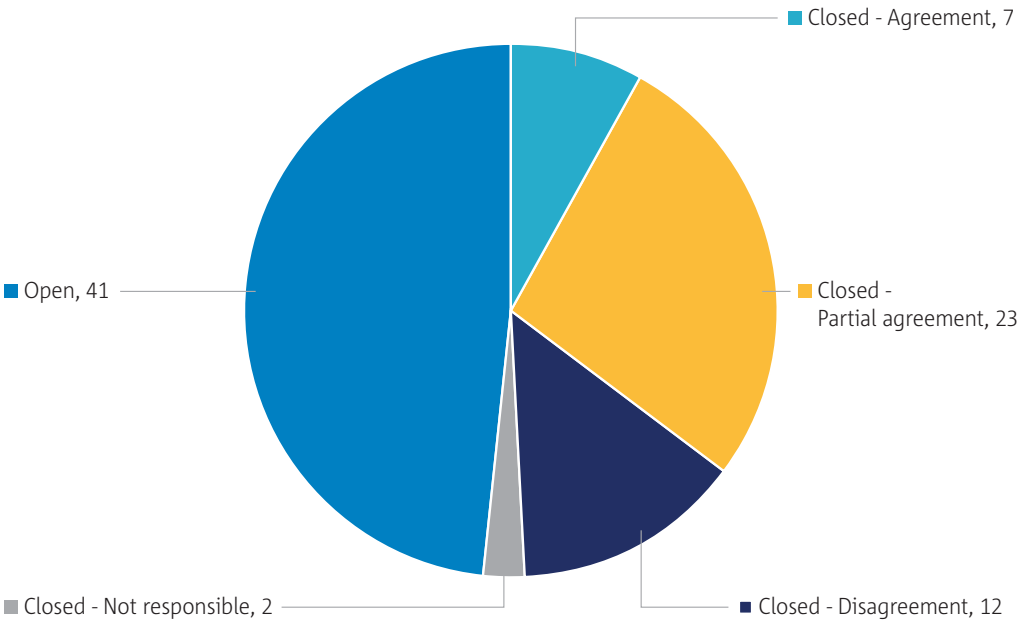
4.2 Status of Safety Recommendations replies issued in 2023

Each final reply closing a safety recommendation and the response assessment by the originator is classified according to the categories[2] given in Annex C.

Among the 85 replies that were sent by the Agency in 2023, (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 30 cases, either by directly applying the recommended actions as was the case for 7 of them or, for the remaining 23, by partially agreeing but taking corrective actions other than those recommended;
- In a further 12 cases, the safety recommendations were evaluated and the safety benefit was not agreed.
- In additional two cases, the actions requested through the safety recommendation were not within the scope of responsibility of the Agency.

Figure 6 below shows this distribution:



NB: this includes 2 replies to SRs addressed to EASA by a military investigation authority

Figure 6: Safety Recommendation Replies sent in 2023 [status, total number]

2 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, 41 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, intermediate and final, since 2019.

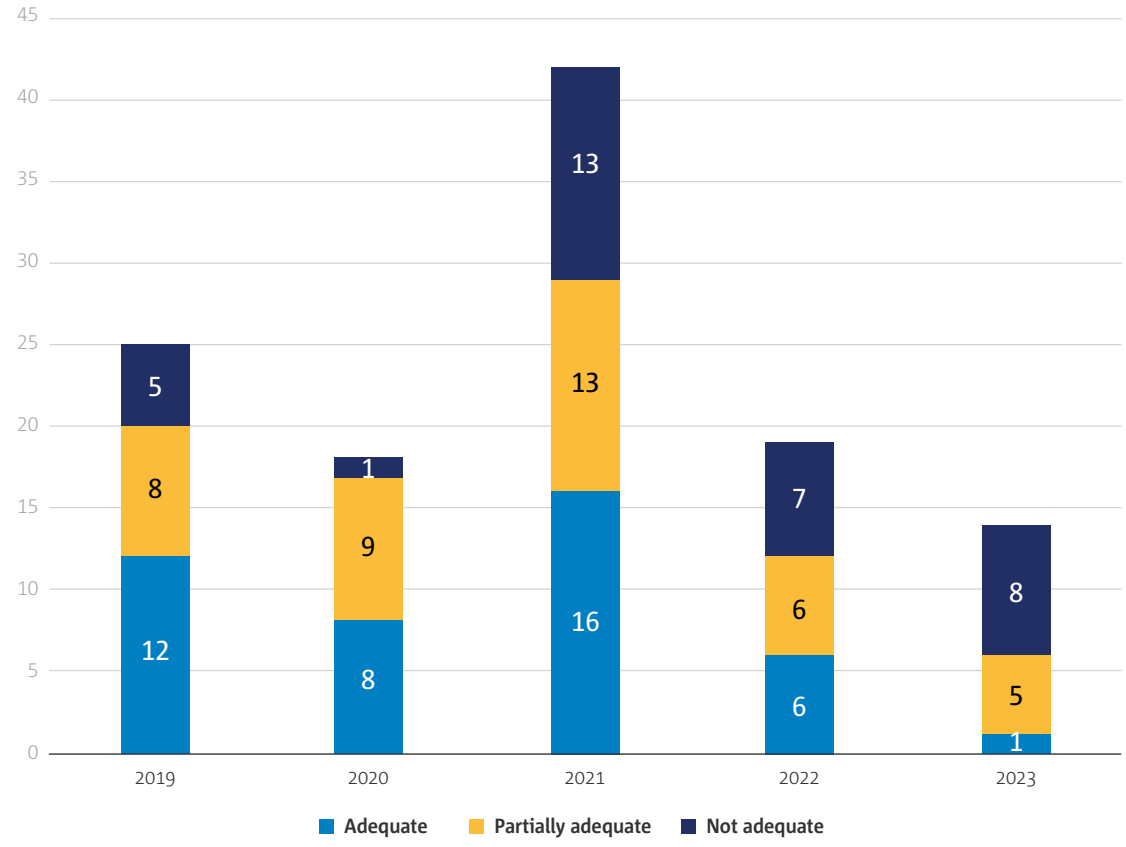


Figure 7: Reply assessment received from the originator on the EASA Replies since 2019

Figure 8 shows the total number of reply assessments that EASA received from the SIAs based on the 44 final replies (not interim replies) sent in 2023. As assessed, 2 of the responses provided by the Agency were deemed to be “partially adequate”, and 8 responses were deemed as “not adequate”. With respect to the remaining replies sent in 2023, EASA awaits the SIAs’ assessment.

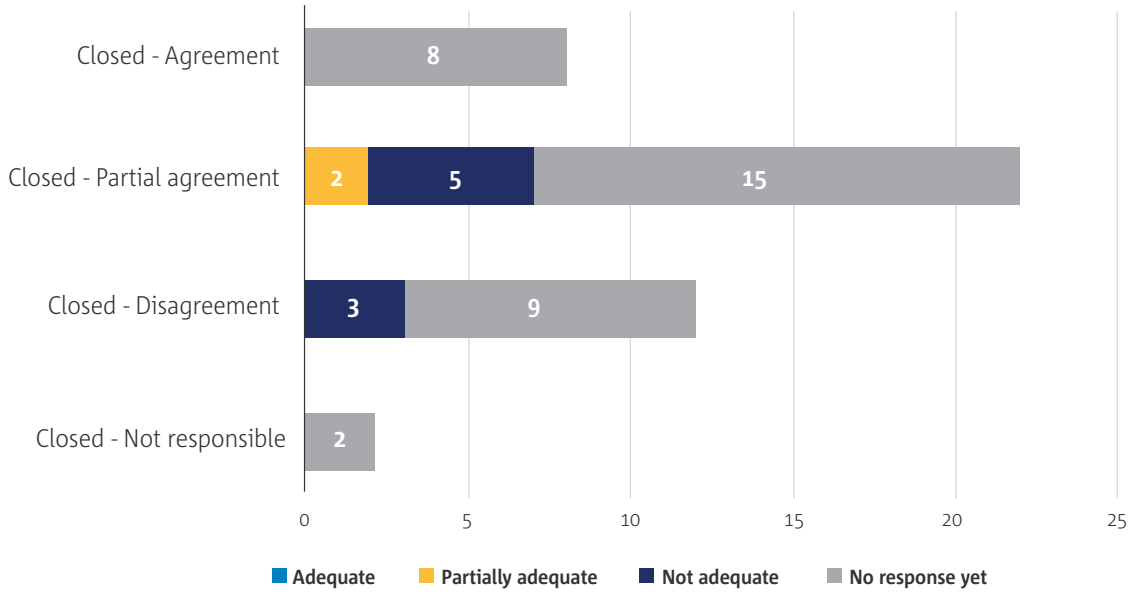


Figure 8: Assessment received by EASA on the Final Replies sent in 2023

Annual
Safety Recommendations
Review
2024

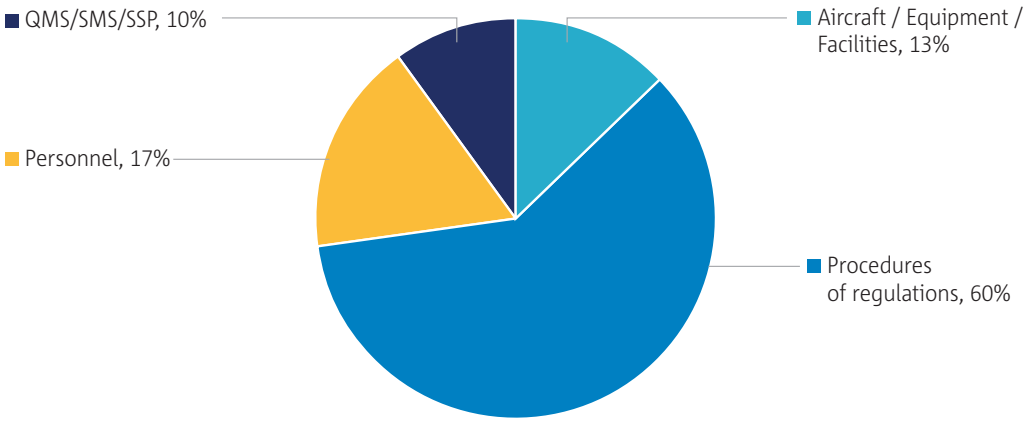
Chapter 5

Overview of key safety topics processed and actions carried out in 2023

Overview of key safety topics processed and actions carried out in 2023

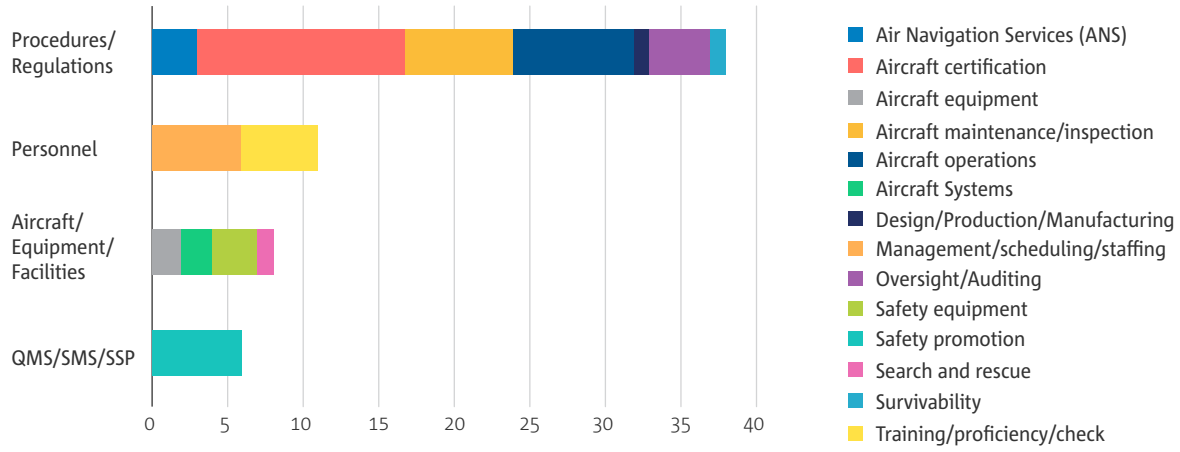
In 2023, Safety Investigation Authorities from 13 EU Member States, 2 Non-EU Member States, and 1 Military entity addressed 56 safety recommendations to the Agency in the context of its remit.

Figures 9 and 10 provide a breakdown of the safety recommendation topics and areas. The processing of safety recommendations in a systematic manner constitutes one of EASA's key responsibilities.



NB: this includes 1 SR addressed to EASA by a military investigation authority

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



NB: this includes 1 SR addressed to EASA by a military investigation authority

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

Among the actions taken in 2023, some key safety topics are outlined below with accompanying information on the actions that the Agency has taken. The description highlights the safety issues that were identified by the safety recommendations, together with the actions taken by the Agency to mitigate the risks and improve safety.

5.1 In-flight electronic conspicuity

Aircraft are equipped with transponders to assist in identifying them on air traffic control radar. Collision avoidance systems have been developed to use transponder transmissions as a means of detecting aircraft at risk of colliding with each other. Aircraft operating IFR/GAT in Europe with a maximum certified take-off mass exceeding 5 700 kg or capable of reaching a maximum cruising true airspeed greater than 250 knots are required to carry and operate Mode S Level 2 transponder(s) with Mode S Elementary Surveillance (ELS), Enhanced Surveillance (EHS) (for fixed wing aircraft) and ADS-B 1090MHZ Extended Squitter (ES) capabilities.

Aircraft that are not required to be equipped with a transponder would also benefit from the enhanced protection the transponder provides. So far however, cost effective solutions for smaller aircraft are not readily available. However, some investigations have resulted in safety recommendations related to this topic. Considering the development of the available technology as well as the increasing number of Unmanned Aircraft Systems (UAS) operations, the Agency has committed to addressing this issue.

iConspicuity (or in-flight electronic conspicuity plus) means in-flight capability to transmit the position of aircraft and/or to receive, process and display positions of other aircraft in real time with the objective of enhancing pilots' situational awareness of surrounding traffic. It is an umbrella term for a range of technologies and solutions, regardless of whether they are airborne or ground-based, that can enhance airspace users' and other affected stakeholders' awareness of other aircraft in their vicinity or in a given airspace.

EASA has proposed a strategy composed of a set of EPAS tasks comprising of existing rulemaking tasks which will be implemented through new safety promotion (SPT), research (RES) and member state tasks (MST). Optimal safety benefits are expected to be achieved through synergies of all proposed actions, while utilising the U-space regulatory framework as a catalyst for safety improvements.

The following bullet points summarise the collective actions which are planned to be implemented for Anti-collision and traffic awareness systems for aircraft with maximum take-off mass less than 5700 kg or fewer than 19 passengers:

- EASA, with the support of technical partners, to demonstrate and validate the feasibility of achieving interoperability of different iConspicuity devices/systems through a network of stations while respecting data privacy requirements.
- EASA to analyse 'Net Safety Benefit' and 'Operational Safety Assessment' concepts for the use of iConspicuity devices/systems in Flight Information Services.
- EASA to facilitate the installation of iConspicuity devices in all EASA certified aircraft types and promote their use by airspace users at a user-affordable cost.
- EASA to actively support initiatives enhancing interoperability of iConspicuity devices/systems.
- EASA to promote good practices in airspace design that reduce 'airspace complexity' and 'traffic congestion' with the aim of reducing the risk of collisions involving uncontrolled traffic.
- Member States to consider 'airspace complexity' and 'traffic congestion' as safety relevant factors in airspace changes affecting uncontrolled traffic, including the changes along international borders.
- EASA to ensure technical and operational compatibility of U-space and iConspicuity solutions.
- EASA to conduct a Safety Issue Assessment (SIA) of airspace infringements.
- EASA to explore the use of iConspicuity data for enhanced safety monitoring of Airborne Collision Risk.

5.2 Ballistic parachute systems

Aircraft ballistic parachutes are parachutes ejected from their casing by a small explosion. The advantage of the ballistic parachute over a conventional parachute is that it ejects the parachute canopy, usually by a small rocket, causing it to open rapidly, thus making it ideal for attaching to light aircraft, hang gliders and microlights, where an emergency may occur in close proximity to the ground. In such a situation, a conventional parachute would not open quickly enough.

Should an accident occur where the system would not deploy, an armed parachute equipped with a rocket could pose a risk to those present at the accident site, such as first responders.

The Agency has received safety recommendations which seek to revise the requirements so that aircraft equipped with a ballistic parachute reflect this in the flight plan as part of point SERA.4005, Contents of a flight plan, "Emergency and survival equipment" and to initiate, at the European level, an awareness, information and training campaign directed at general aviation users and emergency services personnel on the existence, identification, location and deactivation of ballistic rescue parachute systems in the event of an accident or incident.

An amendment of the Standardised European Rules of the Air (SERA) was recently proposed by the Agency and adopted by the European Commission Implementing Regulation (EU) 2023/1772 of 12 September 2023, amending Implementing Regulation (EU) No 923/2012 as regards the operating rules related to the use of Air Traffic Management and Air Navigation Services systems and constituents in the Single European Sky airspace, and repealing Regulation (EC) No 1033/2006. Point (3) of the Annex to the amending Regulation also contains an amendment to point SERA.4005 Content of a flight plan, as follows:

'SERA.4005 Content of a flight plan

(a) A flight plan shall include all information considered relevant by the competent authority as regards the following:

(...)

(14) emergency and survival equipment, including ballistic parachute recovery system.'

The Agency is also currently working on two separate safety promotion campaigns addressing the topic of ballistic parachute systems, one intended for an audience of General Aviation pilots and aircraft owners, and one aimed at Emergency Services (first responders).

The plan is to liaise with National Aviation Authorities (NAA) and ENCASIA (the European Network of Civil Aviation Safety Investigation Authorities) and offer them the opportunity to be involved in these Safety Promotion campaigns, in order to help disseminate the information throughout the states participating in the work of EASA (commonly referred to as 'EASA Member States').

5.3 Carbon Monoxide (CO) Risk in Small Aeroplanes and Helicopters

CO is a colourless, odourless gas produced from the incomplete combustion of carbon-containing materials. Piston-engine aircraft produce high concentrations of CO that are conveyed away from the aircraft through the exhaust system. Poor sealing of the cabin, or leaks into the heating or ventilation system from the exhaust, can provide pathways for CO to enter the cabin. Whilst piston engines produce the highest concentration of CO, exhausts from turbine engines also contain CO. If the aircraft occupants breathe in air that is contaminated with an excessive quantity of CO, it can cause incapacitation.

The issue was highlighted in a safety recommendation following a fatal accident to a general avaiation aircraft. As a consequence of this, the Agency has published Safety Information Bulletin (SIB) 2020-01R1 'Carbon Monoxide Risk in Small Aeroplanes and Helicopters', as revised on 19 October 2021, that aims to reduce the risk to an acceptable level by informing stakeholders of the dangers of exposure to CO and by providing recommendations on the prevention of CO exposure, detection of CO and actions to take if CO is detected in flight. It also 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 further 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).

The Agency will also continue using safety promotion channels to further highlight to members of the general aviation community the dangers of CO poisoning and the safety benefit of carrying or installing CO detectors on board aircraft. Moreover, EASA will continue monitoring the data on reported occurrences and the safety risks related to CO poisoning, as part of the safety risk monitoring programme of EASA.

5.4 Helicopter emergency medical service (HEMS)

An investigation into an event involving helicopter emergency medical services led to a safety recommendation for EASA to issue Guidance Material (GM) in order to enchance safety in operations in specific geographical areas where the orography and sudden changes in visibility can make conduct of the flight problematic, and to require the monitoring of controls and instruments as a preventive measure. Subsequently, the Agency published on 28 June 2023 an Executive Director (ED) Decision 2023/007/R on helicopter emergency medical service (HEMS) performance and public interest sites.

The objective of this Decision is to facilitate the implementation of the new requirements introduced into Commission Regulation (EU) 965/2012 (the 'Air OPS Regulation') by Commission Implementing Regulation (EU) 2023/1020 (the 'HEMS Regulation').

In particular, there are new provisions in point SPA.HEMS.120 which introduces updated operating minima, notably at paragraph (c).

The amendments introduced by the HEMS Regulation and the acceptable means of compliance (AMC) and guidance material (GM) established in this Decision will modernise the European Union (EU) aviation regulatory framework applicable to helicopter emergency medical services, and are expected to increase safety and foster efficiency and proportionality, while keeping the economic impact on HEMS operators to a minimum.

5.5 Certification specifications and acceptable means of compliance for small and large rotorcraft

The Agency had received a number of safety recommendations related to certification specifications and acceptable means of compliance for small and large rotorcraft.

On 7 February 2023, EASA published Executive Director (ED) Decision 2023/001/R issuing CS-27 Amendment 10 and CS-29 Amendment 11 addressing two topics highlighted by these recommendations.

Regarding the design integrity of helicopter critical parts after being subjected to any unusual event, Acceptable means of compliance (AMC) AMC1 27.1529 and AMC1 29.1529 have been created, 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.

Regarding the detection of different modes of component structural degradation and how these can affect crack initiation and propagation, and hence fatigue life, Acceptable means of compliance (AMC) AMC1 27.571 and AMC1 29.571 have been created, with regard to the fatigue tolerance evaluation of rotor drive system components subject to rolling contact fatigue (RCF).

For CS-29 rotorcraft, AMC1 29.571 provides that the fatigue tolerance evaluation of rotor drive system principal structural elements (PSEs) should include, when applicable, the effect of RCF considering:

- damage threats such as dents, scratches, corrosion, loss of pre-load in bearings or joints, surface and sub-surface material defects;
- residual stress coming from surface treatments and other manufacturing processes and all other applicable loading conditions.

As it is difficult to totally preclude cracking initiated by RCF, a fail-safe approach is recommended wherever possible, such that cracking of the affected structural element(s) is detected prior to its residual strength capability falling below the required levels prescribed.

Annual
Safety Recommendations
Review
2024

Chapter 6
Conclusions

Conclusions

In 2023, a total of 56 safety recommendations were addressed to the Agency. The safety recommendations were issued by the Safety Investigation Authorities of 13 different EU Member States, 2 Non-EU Member States and 1 Military entity.

The majority, 60% of the safety recommendations were related to procedures or regulations. Recommendations related to aircraft, equipment, or facilities constituted 13%. Recommendations related to personnel constituted 17%. The remaining 10% were related to QMS, SMS, and SSP topics.

In 2023 the Agency provided 85 replies in response to 83 safety recommendations:

- 44 of these were final replies (closing safety recommendations) with 7 of these replies assessed as 'agreed' by EASA, and 23 assessed as 'partially agreed'. In 2 cases, the reply was assessed as 'Not Responsible'. Additional 12 replies were assessed as 'disagreement';
- The remaining 41 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, 6 of the responses provided by the Agency were deemed to be "adequate" or "partially adequate" and 8 responses was deemed as "not adequate". With respect to the remaining replies sent in 2023, the Agency awaits the SIAs' assessment.

The number of replies provided is close to the number of replies provided in 2022. The 44 closing replies sent in 2023 resulted in a number of safety recommendations currently open for the Agency similar to the previous year. 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 identified within the European safety risk management process.

Annual
Safety Recommendations
Review
2024

Annex A

List of 2022 Safety Recommendations Replies

AUST-2014-005

Cessna F150L, OE-ATV, 21/06/2012

The blow of a fuse in aircraft where glass fuses are used, is only detectable during the flight through the outage of the affected systems/circuits. The control (check) and restoration of the electrical systems through check and replacement of the glass-fuse is more time consuming than if automatic fuses were used. The failure of any of the electrical systems is in itself an adverse condition which renders the orderly continuation of the flight improbable and can lead to a mandatory emergency landing.
EASA and FAA should check if in the airworthiness requirements CS-23 and C-VLS respectively FAR-23 for the securing of electrical consumers, the use of automatic fuses instead of glass fuses should be envisaged, if the failure of the affected systems can cause an emergency landing. This would contribute to faster in-flight re-powering of the intact electrical systems after the cease of the overload. For those aircraft in which removable glass fuses are used it should be ensured that the numbering, type, rating and safe stocking place of spare fuses is clearly identifiable by the pilot and their availability is part of the pre-flight check. Fuse holders should be modified in design to prevent the confusion of type and rating of the replacement fuses by pilots or maintenance staff.

Final reply sent on 01/06/2023:

On 7 March 2023, the European Union Aviation Safety Agency (EASA) issued Executive Director (ED) Decision 2023/002/R on CS-23 Amendment 6 (Certification Specifications for Normal-Category Aeroplanes) and Acceptable Means of Compliance (AMC) & Guidance Material (GM) to CS-23 Issue 4.

It is important to note that since Amendment 5, published in March 2017, CS-23 has been based on objective requirements that are design-independent. These objective requirements, due to their higher level of abstractness, are also suitable for aeroplanes within the scope of CS-VLA 'Certification Specification for Very Light Aircraft'. Therefore, CS-23 Amendment 5 has superseded CS-VLA.

CS 23.2525 'System power generation, storage, and distribution' lays down the following specifications:
'The power generation, storage, and distribution for any system must be designed and installed to:
(a) supply the power required for operation of connected loads during all intended operating conditions;
(b) ensure no single failure or malfunction will prevent the system from supplying the essential loads required for continued safe flight and landing; and
(c) have enough capacity, if the primary source fails, to supply essential loads, including non-continuous essential loads for the time needed to complete the function, required for safe flight and landing.'
The Issue 4 of AMC & GM to CS-23 includes the following elements which are in line with the intention of the safety recommendation regarding the design of electrical system protective devices:
AMC1 23.2525 'System power generation, storage, and distribution' refers to ASTM standards as an acceptable means of compliance and also highlights some variances:
F3231/F3231M-21 'Standard Specification for Electrical Systems for Aircraft with Combustion Engine Electrical Power Generation'.
'At variance with F3231-21:
(a) paragraph 4.4.2 should be replaced with the following:
4.4.2 A protective device for a circuit essential to flight safety shall not be a fuse and it may not be used to protect any other circuit.
(b) paragraph 4.4.5 should be replaced with the following:
4.4.5 If the ability to reset a circuit protective device is essential to safety in flight, a means shall be provided so that it can be readily reset in flight; refer to Specification F3117/F3117M.'
F3117-20 'Standard Specification for Crew Interface in Aircraft'
This standard includes the following:

‘5.5 Circuit Breakers and Fuses:
5.5.1 If the ability to reset a circuit breaker is essential to safety in flight, the circuit breaker must be located so that it can be readily reset in flight.
5.5.2 If the ability to reset a circuit breaker is essential to safety in flight, the circuit breaker must be labeled as to its function so it can be readily reset in flight.
5.5.3 For fuses identified as replaceable in flight, the spare fuse(s) must be readily accessible to a required pilot.
5.5.4 If the ability to replace a fuse is essential to safety in flight, the fuse must be located so it can be readily replaced in flight.
5.5.5 If the ability to replace a fuse is essential to safety in flight, the fuse must be labelled so it can be readily replaced in flight.’
AMC2 23.2525 and AMC3 23.2525, provided for applicants and EASA when using an existing certification basis, specify the following:
AMC2 23.2525 ‘System power generation, storage, and distribution’ refers to CS-23 Amendment 4, CS 25.1357 ‘Circuit protective devices’, but at variance with CS 23.1357(b) and (d), for a circuit essential to flight safety in designs applications after the date of entry into force of the AMC & GM to CS-23 Issue 4, automatic fuses or circuit breakers should be used.
AMC3 23.2525 ‘System power generation, storage, and distribution’ includes a reference to CS-VLA Amendment 1, CS VLA.1357 ‘Circuit protective devices’, but at variance with CS-VLA 1357(b) and (d), for a circuit essential to flight safety in designs applications after the date of entry into force of the AMC & GM to CS-23 Issue 4 automatic fuses or circuit breakers should be used.
The operator must ensure the presence on board of spare fuses, in compliance with point NCO.IDE.A.110 (‘Spare electrical fuses’, Annex VII (Part-NCO)), and if applicable CAT.IDE.A.110 (Annex IV (Part-CAT)) or SPO.IDE.A.110 (Annex VIII (Part-SPO)), of Regulation (EU) No 965/2012.

Status: Closed – Agreement

FINL-2015-011

Aerocomp Comp Air 8, OH-XDZ, 20/04/2014

The Safety Investigation Authority, Finland recommends that the European Aviation Safety Agency prepare specified theoretical knowledge and flight training requirements for pilots-in-command in skydiving operations. A pilot must have to complete a separate type-specific skill test in order to obtain a jump pilot rating. The training and the skill test required for a jump pilot rating must take into account aircraft-specific characteristics and their impact on safe skydiving operations.

Intermediate reply sent on 28/04/2023:

The European Union Aviation Safety Agency (EASA) 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': https://www.easa.europa.eu/en/newsroom-and-events/news/sunny-swift-operations-manual-parachute-clubs

Additional details and links to these actions can be found in the published EPAS 2023-2025: https://www.easa.europa.eu/en/document-library/general-publications/european-plan-aviation-safety-2023-2025

Status: Open

FINL-2023-001

Airbus Helicopters H145, SE-JSS, 12/02/2022

The European Aviation Safety Agency (EASA) informs helicopter operators of a need to fit slide stoppers on the landing skids for operations in winter and under slippery conditions.

Intermediate reply sent on 28/04/2023:

The European Union Aviation Safety Agency (EASA) acknowledges the intent of the Safety Investigation Authority of Finland (SIAF) to promote the installation of an optional equipment, such as slide stoppers on the landing gear, for operations in winter and under slippery conditions.

In this respect, this optional equipment has to be firstly certified, either by the Type Certificate (TC) Holder or by a Supplemental Type Certificate (STC) Holder, and then made available for installation on the helicopter type/model expected to be used for such operations in winter and under slippery conditions. This was the case for the helicopter involved in this event, because Airbus Helicopters Deutschland (AHD) had already certified anti-slip devices (i.e. the so called "*Ice-claws*" or "*Skid protectors*") and they are offered as optional kit for all MBB-BK117 models/versions.

Furthermore, the intent of the Safety Recommendation (SR) is already addressed by the existing and applicable Commission Regulation (EU) No 965/2012.

In particular, in accordance with the requirement ORO.GEN.110 ("*Operators Responsibilities*"):
"*(d) The operator shall ensure that its aircraft are equipped and its crews are qualified as required for the area and type of operation.*"

In addition, in accordance with the requirement ORO.GEN.200 ("*Management System*"):
"*(a) The operator shall establish, implement and maintain a management system that includes:*
(3) the identification of aviation safety hazards entailed by the activities of the operator, their evaluation and the management of associated risks, including taking actions to mitigate the risk and verify their effectiveness."

Therefore, amendment of the current regulatory framework is not deemed necessary as it already requires the operator to decide, after a risk assessment of its activities, if any additional optional equipment would provide a safety benefit.

Notwithstanding the above, EASA is in the process of investigating the possibility of informing the operators of the safety benefits of installing approved slide stoppers. This could be performed under the VTOL / Rotorcraft Safety Promotion Plan under European Plan for Aviation Safety (EPAS) Safety Promotion Task (SPT).0093 on the promotion of high-profile helicopter safety topics, including safety technologies and equipment.

An updated response to this SR will be provided as soon as a final decision on the feasibility of such safety promotion activity has been taken.

Status: Open

FRAN-2023-002

Embraer 500, 9H-FAM, 08/02/2021

The BEA recommends that: - whereas the large differences between the operational performance in icing and non-icing conditions of certain jet aircraft covered by CS-23 certification rules, such as the one involved in the accident; - whereas certain operators do not systematically take into account the operational constraints arising from the performance of the aeroplanes they operate in icing conditions; EASA, in coordination with the national oversight authorities, in the interest of promoting safety, make operators aware of the need to give better consideration in flight planning to the landing performance of aircraft which have significant differences in performance in icing and non-icing conditions.

Intermediate reply sent on 28/04/2023:

It is proposed that the European Union Aviation Safety Agency (EASA) makes use of European Plan for Aviation Safety (EPAS) Safety Promotion Task (SPT) 0101 on High Profile Flight Ops Issues to promote the key points from this investigation within the operator community and among National Aviation Authorities.

EASA has close collaboration with 'OPSGROUP Blog' that has more than 5,000 business operator subscribers. EASA intends to work with them and also the European Business Aviation Association (EBAA) to maximise the reach of any promotion activity.

Status: Open

FRAN-2023-003

Embraer 500, 9H-FAM, 08/02/2021

The BEA recommends that EASA consider revising the certification criteria (by applying special conditions, for example) when the differences between an aircraft's performance in icing and non-icing conditions lead to operational constraints that are difficult for crews to manage.

Final reply sent on 28/04/2023:

The European Union Aviation Safety Agency (EASA) considers that the Embraer EMB-500 Phenom 100 aeroplane provides an adequate level of safety when operating in icing conditions provided that the flight crew adheres to the applicable procedure provided in the Aeroplane Flight Manual (AFM).

In the subject accident, the flight crew chose to deviate from the AFM procedure for approach and landing in icing conditions (i.e., non-activation of the ice protection system while operating in icing conditions), possibly in order to avoid landing performance penalties and a diversion to another airport.

EASA considers that the safety risk created by such deviation could be better addressed by safety promotion rather than by modifying aeroplanes' certification criteria.

Therefore, EASA will initiate a safety promotion action with the aim of highlighting the importance of activating the ice protection systems when operating in icing conditions as required by the AFM procedure, and also to call attention to the reasons why performance penalties exist. This would be carried out as part of a wider lessons learned feature from this investigation. Please refer also to the response to Safety Recommendation (SR) FRAN-2023-002 on this matter.

In addition, EASA will discuss the following actions with Embraer (Type Certificate holder) and ANAC (Brazilian Civil Aviation Authority) to improve the safety of operations with the Phenom 100:

- consider changes to the AFM to clarify that performance degradations are linked to the actual ice accretions on protected (e.g., inter-cycle or residual ice accretion) and unprotected surfaces of the airframe, and not to the activation of the ice protection systems,
- consider changes to the AFM to better define criteria to confirm that the critical airframe surfaces are clear of ice accretion after having left icing conditions,
- follow up the ANAC analysis of the benefit of mandating the ice detection system (refer to SR FRAN-2023-001 addressed to ANAC),
- the most effective and fastest means of reminding pilots and operators of the importance of respecting the AFM limitations and best practices when operating in icing conditions.

Status: Closed – Partial Agreement

FRAN-2023-006

Robin DR400, F-BXEU, and Alpi Aviation Pioneer 300, 37AHH, 10/10/2020

The BEA recommends that EASA promote "out signal" interoperability of electronic conspicuity systems, for example through the development of an exchange-format standard and the allocation of a dedicated aeronautical frequency in order to promote safety.

Final reply sent on 01/06/2023:

The European Plan for Aviation Safety (EPAS) 2020-2024 envisages rulemaking task (RMT) RMT.0376 Anti-collision and traffic awareness systems for aircraft with maximum take-off mass less than 5700 kg or less than 19 passengers, through which the European Union Aviation Safety Agency (EASA) intended to set up a framework for reducing the risk of airborne collisions.

Before initiating RMT.0376, EASA undertook a detailed review and assessment of the airborne collision risk. The outcome of the assessment was summarised in a Best Intervention Strategy (BIS) that has been validated through a survey and a stakeholders' consultation.

The BIS concluded that a broader use of iConspicuity solutions and improvement of their interoperability together with a better airspace utilisation and design, while ensuring compatibility with the U-space regulatory framework established under Implementing Regulation (EU) 2021/664, should be at the heart of future actions.

iConspicuity (or in-flight electronic conspicuity plus) means in-flight capability to transmit position of aircraft and/or to receive, process and display positions of other aircraft in a real time with the objective to enhance pilots' situational awareness about surrounding traffic. It is an umbrella term for a range of technologies and solutions, regardless of whether airborne or on the ground, that can help airspace users and other affected stakeholders to be more aware of other aircraft in their vicinity or in a given airspace.

Therefore, EASA decided that RMT.0376 will be removed from the EPAS and replaced by a strategy composed of a set of EPAS tasks comprising existing rulemaking tasks which will be implemented through new safety promotion (SPT), research (RES) and member state tasks (MST). The best safety benefits are expected to be achieved through synergies of all proposed actions, while utilising the U-space regulatory framework as a catalyst for safety improvements.

The following bullet points summarize the collective actions which are planned to be implemented for Anti-collision and traffic awareness systems for aircraft with maximum take-off mass less than 5700 kg or less than 19 passengers:

- EASA, with support of technical partners, to demonstrate and validate feasibility of achieving interoperability of different iConspicuity devices/systems through network of stations while respecting data privacy requirements.
- EASA to analyse 'Net Safety Benefit' and 'Operational Safety Assessment' concepts for the use of iConspicuity devices/systems in Flight Information Services.
- EASA to facilitate installation of iConspicuity devices in all EASA certified aircraft types and promote their use by airspace users at user affordable cost.
- EASA to actively support initiatives enhancing interoperability of iConspicuity devices/systems.
- EASA to promote good practices in airspace design that reduce 'airspace complexity' and 'traffic congestion' with the aim to reduce the risk of collisions involving uncontrolled traffic.
- Member States to consider 'airspace complexity' and 'traffic congestion' as safety relevant factors in airspace changes affecting uncontrolled traffic, including the changes along international borders.
- EASA to ensure technical and operational compatibility of U-space and iConspicuity solutions.
- EASA to conduct a Safety Issue Assessment (SIA) of airspace infringements.
- EASA to explore the use of iConspicuity data for enhanced safety monitoring of Airborne Collision Risk.

Collectively, the aforementioned EASA actions serve as a multi-pronged final response which address the safety concern for mitigating airborne collision risks.

Status: Closed – Partial Agreement

FRAN-2023-008

BOMBARDIER CL-600-2E25 (CRJ-1000), F-HMLD, 20/10/2021

EASA, without waiting for the ICAO documents to be updated, develop Guidance Material (GM) designed to clarify in the SERA regulation, the phraseology to be used by controllers to inform crews of a MSAW and

ensure that the SERA is updated so that the urgency of the situation is systematically mentioned and the crew is systematically reminded of the QNH in the controller's message in the event of a MSAW.

Intermediate reply sent on 01/06/2023:

The European Union Aviation Safety Agency (EASA) maintains the existing regulatory framework for the Standardised European Rules of the Air (SERA), i.e. Implementing Regulation (EU) No 923/2012, through Rulemaking Task 0476 ('Regular update of the SERA rule (IR/AMC/GM)'). The introduction of the proposed Guidance Material (GM) will be assessed and considered in the next phase of this rulemaking task. It should be noted that the Minimum Safe Altitude Warning (MSAW) phraseology could also be used in the context of the flight information service in uncontrolled airspace, which may also be provided by flight information service officers. This adds complexity which EASA will have to consider.

The current SERA phraseology is consistent with the International Civil Aviation Organization (ICAO) PANS-ATM (Procedures for Air Navigation Services – Air Traffic Management) phraseology, which is applied worldwide. Especially for phraseology applied in a safety-critical phase of flight (in this case, final approach), there is a need to maintain global harmonisation and its common understanding and use. Any proposed amendment would therefore need to be aligned with corresponding ICAO developments. Accordingly, EASA will consider a general revision of MSAW-related phraseologies in line with further developments from ICAO.

Any potential update of the SERA phraseology, and the introduction of related amendments to SERA Acceptable Means of Compliance (AMC)/Guidance Material (GM), needs to be considered in the light of the previously mentioned factors. EASA will address these possible initiatives under the future activities of the mentioned Rulemaking Task 0476, as appropriate.

Status: Open

FRAN-2023-009

BOMBARDIER CL-600-2E25 (CRJ-1000), F-HMLD, 20/10/2021

EASA initiate international actions in conjunction with ICAO to also resolve inconsistencies and ambiguities in Doc 4444 and Doc 9432, so that they systematically specify that the urgency of the situation and the QNH information is mentioned, and move towards simple and unified phraseology, if possible.

Final reply sent on 01/06/2023:

As a recommendation to take regulatory action to amend Doc 4444 and Doc 9432 is also addressed to the International Civil Aviation Organization (ICAO), through Safety Recommendation FRAN 2023-010, the European Union Aviation Safety Agency (EASA) will monitor the implementation of any related ICAO action and assess whether any amendments to the applicable EU regulatory framework are necessary.

It is important to note that Doc 4444 and Doc 9432 are both published by ICAO, and any changes to these documents are the responsibility of ICAO.

However, if requested by ICAO, EASA is committed to providing assistance to ICAO in addressing the safety recommendation in line with the existing working arrangement between the two parties.

Status: Closed – Disagreement

ITAL-2022-001

Pilatus PC6, T7-SKY, 20/09/2020

ANSV recommends EASA to re-consider what is prescribed by Reg EU nr. 965/2012, Annex VII, Part NCO, in order to prescribe also for non commercial operators that performs parachuting activities, the use of an Ops Manual which detail the procedures and the aircraft type operations for skydiving flights, on a specific base/airport.

Intermediate reply sent on 28/04/2023:

The European Union Aviation Safety Agency (EASA) 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': https://www.easa.europa.eu/en/newsroom-and-events/news/sunny-swift-operations-manual-parachute-clubs

Additional details and links to these actions can be found in the published EPAS 2023-2025: https://www.easa.europa.eu/en/document-library/general-publications/european-plan-aviation-safety-2023-2025

Status: Open

NORW-2023-001

Diamond DA42, LN-PFM, 23/11/2021

The Norwegian Safety Investigation Authority recommends that the European Aviation Safety Authority (EASA) consider the requirements for practical training and refresher training of flight instructors, with the emphasis on spin prevention and spin recovery.

Intermediate reply sent on 28/04/2023:

The European Union Aviation Safety Agency (EASA) considers that the provisions under Commission Regulation (EU) No 1178/2011 laying down technical requirements and administrative procedures related to civil aviation aircrew and the associated Acceptable Means of Compliance (AMC) adequately meet the

intent of the Safety Recommendation, taking into account that the current requirements for flight instructors (FIs) include spin recovery training AMC1 FCL.930.FI (Exercise 11a, 11b).

The training provided to the Class Rating Instructor (CRI) is deemed sufficient to prevent a spin entry. The accident happened in an aircraft requiring class rating. The CRIs have a different training program in comparison with FIs. EASA believes that the accident is unrelated to the proposed considerations for the training of the FIs.

This being said, EASA takes note of the recommendation, and is considering enhancing spin prevention in refresher training for FIs in a future rulemaking task for a comprehensive overarching update of Subpart J (Instructors) of the above-mentioned Regulation.

Status: Open

NORW-2023-003

De Havilland DHC-8-311, LN-WFO, 20/01/2020

The Norwegian Safety Investigation Authority recommends that EASA clarifies the inadequate definitions as well as the existing inconsistency relating to icing problems and ensure that the results are harmonised with other international authorities.

Final reply sent on 28/04/2023:

The European Union Aviation Safety Agency (EASA) acknowledges that severe icing is not defined within the scope of Commission Regulation (EU) No 965/2012 and Commission Implementing Regulation (EU) 2017/373.

Nevertheless, the existing provisions in Annex IV (Part-CAT) to Commission Regulation (EU) No 965/2012 (CAT.OP.MPA.255) and the associated Acceptable Means of Compliance (AMC) clearly state that procedures related to flight in icing conditions are dependent on aircraft flight manual (AFM) limitations defined in the AFM and applied certification standards. This is consistent with the Certification Specifications (CS) for large airplanes (CS-25) on which it is deducible that 'severe icing conditions' correspond to conditions for which the airplane is not certified. The procedures to be established by the operator should notably take account of the design, the equipment, and relevant AFM limitations, as referred in point (a) to AMC1 CAT.OP.MPA.255.

EASA has therefore concluded that introducing the definition of severe icing into the regulations may not necessarily lead to clearer operational guidance on avoidance of flight in severe icing conditions, as same levels of icing may have a different effect on different aircraft. Therefore, it would not be appropriate to amend the existing rules, since the provisions of Commission Regulation (EU) No 965/2012 and Commission Implementing Regulation (EU) 2017/373 and related AMC adequately cover the content of the Safety Recommendation.

Ultimately, EASA considers this might rather be a topic for implementation at the level of the International Civil Aviation Organization (ICAO), with no immediate action on existing European Union rules.

Status: Closed – Partial Agreement

SWED-2023-001

De Havilland DHC-2 Mk III, SE-KKD, 08/07/2021

Consider introducing formal training leading to a rating for pilots in parachute operations where the rating is maintained through refresher training.

Intermediate reply sent on 28/04/2023:

The European Union Aviation Safety Agency (EASA) 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.

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Status: Open

SWED-2023-002

De Havilland DHC-2 Mk III, SE-KKD, 08/07/2021

Take measures to ensure that the oversight of non-commercial specialized aviation activities within parachute operations is conducted in such a way and to such an extent that it has an effect on compliance with the regulatory framework and thus has a safety-enhancing effect.

Intermediate reply sent on 28/04/2023:

The European Union Aviation Safety Agency (EASA) 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.

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Additional details and links to these actions can be found in the published EPAS 2023-2025: https://www.easa.europa.eu/en/document-library/general-publications/european-plan-aviation-safety-2023-2025

Status: Open

SWTZ-2021-578

Guimbal Cabri G2, HB-ZPU, 26/06/2021

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.

Final reply sent on 01/06/2023:

The manufacturing deviation on oil galley (one oil passage was drilled at an incorrect angle creating a change to the intersection point of two passages) was assessed by Lycoming and found acceptable because there is no effect on engine operation.

On the Guimbal Cabri G2 installation a problem was triggered by choosing an oil pressure sensor pick-up point at a different location than the pick-up point for the feed to the hydraulic cylinder used by Hélicoptères Guimbal to tension the rotorcraft drive belt. This caused a wrong indication of the oil pressure (2 bar difference between indicated and real oil pressure). To address this issue, Lycoming and Hélicoptères Guimbal established a location for the pressure supply and measurement to be common.

Hélicoptères Guimbal issued Service Bulletin (SB) 21-014 A which informs the operators of the problem and provides instructions on how to relocate the oil pressure sensor pick-up point to a location near the clutch system feed point.

Status: Closed – Partial Agreement

SWTZ-2023-586

Scheibe SF 25C Falke, D-KDEU, 17/10/2021

The European Union Aviation Safety Agency (EASA) should, for older aircraft that have a similar construction type as the SF 25 disk, provide specifications for maintenance during long periods of operation and high aircraft age with regard to material fatigue and - create aging.

Intermediate reply sent on 01/06/2023:

In consideration of this safety recommendation, the European Union Aviation Safety Agency (EASA) intends to issue a new Safety Information Bulletin (SIB) to address material deterioration and maintenance issues associated with ageing wooden sailplanes, including a section establishing recommendations with regard to metal parts and corrosion. Publication is planned for Q4 2023.

Status: Open

UNKG-2020-020

Embraer ERJ 190-200 LR (Embraer 195), G-FBEJ, 28/02/2019

It is recommended that the European Union Aviation Safety Agency amends the certification requirements relating to the design, contrast and conspicuity of overwing exit escape route markings on commercial air transport aircraft, to ensure that the route to be taken from wing to ground is immediately apparent to evacuating passengers, in a range of emergency scenarios.

Final reply sent on 28/04/2023:

The analysis of occurrences involving emergency evacuation from over-wing exits, including the subject incident, shows that some passengers may be confused about how to get off the wing down to the ground, because of the absence of a slide or other assisting means (typically when arriving at the wing trailing edge).

In the case of the subject incident, the flaps were not fully deployed such that the height of the wing trailing edge was in excess of 2 m i.e. higher than the certification limit of 1.8 m (as per Certification Specification (CS) 25.810(d)). This may have worsened the uncomfortable feeling of some passengers to get down from the wing. There is no complaint related to the clarity or the visibility of wing escape route markings.

The European Union Aviation Safety Agency (EASA) participated in the Emergency Evacuation Standards Aviation Rulemaking Committee (ARC) that was chartered to assist the USA Federal Aviation Administration (FAA) in carrying out the requirements of the FAA Reauthorization Act of 2018, Public Law 115-254, §337 to review aircraft evacuation certification with regard to emergency evacuation system designs and crew evacuation procedures.

The analysis of evacuation events (involving the use of over-wing exits) and of existing regulations led to the consideration of the following options:

1. Amend FAR (Federal Aviation Regulation) 25.813(c)(3)(ii)/CS 25.813(c)(5)(ii) to specify that if the exit is over a wing, and the aeroplane design does not include an off-wing assist means per FAR/CS 25.810(d), the placards must also indicate the direction of the evacuation route on the wing.

2. Review over-wing evacuation path marking requirements (FAR/CS 25.810(c)) and consider options for improving marking visibility/design to facilitate better recognition by passengers evacuating through over-wing exits of proper direction to exit from wing.

3. Reassess the requirement under FAR/CS 25.810 to define conditions that would require an escape slide. Other factors may drive different recommendations for over-wing exits (FAR/CS 25.810(d)) versus non-over-wing exits governed by FAR/CS 25.810(a).

EASA believes that the main action to investigate is the above option 3 related to the conditions that require an escape slide, as the reported concerns appear to be focused on aeroplanes not equipped with escape slides to support the evacuation from over wing exits.

Regarding option 1, the direction of the evacuation path on the wing is normally indicated by the passenger safety briefing material (to comply with Commission Regulation (EU) 965/2012, Annex IV (Part-CAT), point CAT.OP.MPA.170). EASA does not believe that adding this information on the placard located close to the overwing exit would add significant benefit. It may only be noticed by passengers seating close to the exits but not necessarily by other passengers.

Regarding option 2 (subject of this safety recommendation), EASA considers that the current certification specifications contained in CS 25.810(c) already ensure that wing escape routes are adequately designed. Therefore, EASA will not propose to modify the marking requirements provided for in CS 25.810(c).

Status: Closed – Disagreement

UNKG-2020-022

Embraer ERJ 190-200 LR (Embraer 195), G-FBEJ, 28/02/2019

It is recommended that the European Union Aviation Safety Agency, re-evaluate and reduce the 1.8 m height criteria in CS 25.810(a) and (d), for the provision of an assisted means of escape at emergency exits, to minimise passenger injuries and reduce egress time during emergency evacuations.

Intermediate reply sent on 28/04/2023:

The analysis of occurrences involving emergency evacuation from over-wing exits, including the subject incident, shows that some passengers may be confused about how to get off the wing down to the ground, because of the absence of a slide or other assisting means (typically when arriving at the wing trailing edge).

In the case of the subject incident, the flaps were not fully deployed such that the height of the wing trailing edge was in excess of 2 m i.e. higher than the certification limit of 1.8 m (as per EASA Certification Specification (CS) 25.810(d)). This may have worsened the uncomfortable feeling of some passengers to get down from the wing.

The European Union Aviation Safety Agency (EASA) participated in the Emergency Evacuation Standards

Aviation Rulemaking Committee (ARC) that was chartered to assist the USA Federal Aviation Administration (FAA) in carrying out the requirements of the FAA Reauthorization Act of 2018, Public Law 115-254, §337 to review aircraft evacuation certification with regard to emergency evacuation system designs and crew evacuation procedures.

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3. Reassess the requirement under FAR/CS 25.810 to define conditions that would require an escape slide. Other factors may drive different recommendations for over-wing exits (FAR/CS 25.810(d)) versus non-over-wing exits governed by FAR/CS25.810(a).

EASA believes that the main action to investigate is the above option 3 related to the conditions that require an escape slide, as the reported concerns appear to be focused on aeroplanes not equipped with escape slides to support the evacuation from over wing exits.

It should nevertheless be noted that the large aeroplane types for which EASA is the primary certification authority are not primarily concerned by the issue at stake, because:

- All aeroplanes with low wings configurations (Airbus, Fokker) are equipped with slides to assist the evacuation from the wing down to the ground,

- Business jets (Dassault) are not equipped with slides to assist the evacuation from the wing down to the ground. However, the height of the terminal point of the escape route is well below 1.8 m (6 feet) and the number of occupants to evacuate is very limited,

- Turboprop aeroplanes (e.g. ATR, Saab, Fokker) either do not have over-wing escape route because of high wing configuration, or the height of the terminal point of the escape route is well below 1.8 m (6 feet).

Regarding option 1, the direction of the evacuation path on the wing is normally indicated by the passenger safety briefing material (to comply with Commission Regulation (EU) 965/2012, Annex IV (Part-CAT), point CAT.OP.MPA.170). EASA does not believe that adding this information on the placard located close to the overwing exit would add significant benefit. It may only be noticed by passengers seating close to the exits but not necessarily by other passengers.

Regarding option 2, EASA considers that the current certification specifications contained in CS 25.810(c) already ensure that wing escape routes are adequately designed.

EASA considers that the assessment of option 3 requires research to be conducted to identify any different adequate conditions (including height) for requiring an escape slide.

EASA is investigating the feasibility of funding such research.

Status: Open

AUST-2009-011

Diamond DA 42, OE-FCL, 20/09/2007

Amend the certification requirements for piston engines, CS-E: After the certification of the DA 40 and DA 42 with TAE engine Centurion 1.7 and 2.0 a number of serious incidents and loss of engine power have occurred. The certification regulations should be amended in such way that before the first delivery to customers, the overall system is proven to be fully functioning over a given time period, within TBO (Time Between Overhaul), without experiencing loss of power, or major mechanical failures.

Intermediate reply sent on 24/08/2023:

Paragraph (c)(5) of Certification Specifications for Engines (CS-E) 25 'Instructions for Continued Airworthiness' states:

'Scheduling information for each part of the Engine that provides the recommended periods at which it should be cleaned, inspected, adjusted, tested and lubricated, and the degree of inspection, the applicable serviceability limits, and work recommended at these periods. Necessary cross references to the airworthiness limitations section must also be included. In addition, if appropriate, an inspection programme must be included that states the frequency of the inspections necessary to provide for the continued airworthiness of the Engine.'

However, paragraph (c)(5) of CS-E 25 and the related Acceptable Means of Compliance (AMC) do not provide any means of substantiating a time between overhaul (TBO) or time between replacements (TBR).

In practice, a project-specific certification review item (CRI) means of compliance (MoC) is agreed between the European Union Aviation Safety Agency (EASA) and applicants to define how a TBO/TBR may be substantiated. The substantiation is primarily based on the outcome of the 150-hour engine endurance test that is carried out in accordance with CS-E 440. EASA nevertheless accepts only a limited initial TBO/TBR based on this test (e.g. the credit that may be given depends on whether the design of the engine is completely new or derives from an existing design).

To substantiate TBO/TBR values higher than the commonly accepted initial TBO/TBR values, the CRI MoC may define additional means of substantiation that typically include an engine cyclic endurance test that is run on an engine representative of the type design, and using a cycle profile that is based on estimated aircraft flight profiles.

Although the process above is conducted in such a way as to ensure a robust demonstration of the TBO/TBR and therefore complies with the intent of this safety recommendation, EASA considers that it would be beneficial to introduce provisions in CS-E for the substantiation of the TBO/TBR to better ensure a rigorous and harmonised demonstration by different applicants. Also, the above-mentioned CRI process

may be well known among established applicants, but potential new applicants may not be aware of EASA's expectations.

Recognising this situation and taking into account this safety recommendation, EASA decided to address this issue as part of EASA rulemaking task RMT.0180 for which the Terms of Reference Issue 1 were published on 7 May 2021 on the EASA Website:

https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0180

EASA published Notice of Proposed Amendment (NPA) 2023-06 on 21 June 2023 for public consultation:

https://www.easa.europa.eu/en/document-library/notices-of-proposed-amendment/npa-2023-06

This NPA proposes (see Issue 3) to amend CS-E as follows: create a new paragraph in AMC E 25 (Instructions for continued airworthiness) to indicate how applicants may substantiate a TBO/TBR interval and maintenance programme. Limited credit could be granted for the CS-E 440 endurance test alone. In order to go beyond this limitation, the substantiation would require running an engine cyclic endurance test on an engine representative of the type design using a cycle profile that is based on estimated aircraft flight profiles. The number of cycles should be representative of the TBO/TBR intended to be declared and should represent a level of engine deterioration at least equivalent to that of an engine at the end of the intended TBO/TBR.

EASA will analyse the comments received during the NPA consultation. The response to this safety recommendation will be updated at a later date to communicate the final EASA decision on this topic.

Status: Open

ITAL-2019-001

AGUSTA BELL AB139, I-TNCC, 05/03/2017

ANSV recommends the European Union Aviation Safety Agency (EASA) to draw up Guidance Material (GM) applicable to daytime flights, conceptually similar to the discussed GM1 SPA.HEMS.130 (e) (2) (ii), which provide indications about the opportunity of using two pilots in specific geographical areas where the orography and the possible sudden changes in visibility can make the conduct of the flight problematic, requiring, even as a preventive measure, the monitoring of controls and instruments.

Final reply sent on 24/08/2023:

The European Union Aviation Safety Agency (EASA) published on 28 June 2023 an Executive Director (ED) Decision 2023/007/R on helicopter emergency medical service (HEMS) performance and public interest sites.

https://www.easa.europa.eu/en/document-library/agency-decisions/ed-decision-2023007r

The objective of this Decision is to facilitate the implementation of the new requirements introduced into Commission Regulation (EU) 965/2012 (the 'Air OPS Regulation') by Commission Implementing Regulation (EU) 2023/1020 (the 'HEMS Regulation').

In particular, there are new provisions in point SPA.HEMS.120 which introduces updated operating minima, notably at paragraph (c).

The amendments introduced by the HEMS Regulation and the acceptable means of compliance (AMC) and guidance material (GM) established in this Decision will modernise the European Union (EU) aviation regulatory framework applicable to helicopter emergency medical services, and are expected to increase safety and foster efficiency and proportionality, while keeping the economic impact on HEMS operators to a minimum.

Status: Closed – Agreement

ITAL-2023-001

Lange Antares 23 E, D-KVLS, 08/08/2021

EASA is recommended to take every possible and necessary action to reduce the completion time of the certification process of all gliders flying with Permit to Fly.

Final reply sent on 24/08/2023:

Since September 2018, the European Union Aviation Safety Agency (EASA) has limited the number of sailplane prototype serial numbers approved under Flight Conditions for Permits to Fly (PtF) to three serial numbers per model, for new applications for sailplane Type Certificates (TC) or major changes, when the applicant has demonstrated that the design is capable of a safe flight under the prescribed limitations and conditions. In addition, EASA has been working with the sailplane applicants to reduce the number of aircraft flying under PtF; the result is that today 8 out of 10 long-term projects have been finalised.

Looking ahead, EASA is currently developing a Certification Memorandum including an updated Policy for Flight Conditions for sailplane prototypes where it is explained that only the purposes listed under points (1) "development" and (2) "showing compliance with regulations" of 21.A.701 of Annex I (Part-21) to Regulation (EU) No. 748/2012) may be approved within a certification project. Furthermore, the purpose listed under point (13) "record breaking, air racing and similar competition" may be added only if the applicant justifies the need to conduct development flight testing under the conditions of the purpose

listed under point (13), for a limited time and under the conditions of the applicant's Flight Test and Operations Manual (FTOM).

Status: Closed – Agreement

ITAL-2023-002

Lange Antares 23 E, D-KVLS, 08/08/2021

EASA is recommended to define the criteria that link the certified certification requirements to the flight type authorizations that can be granted in the Permit to Fly.

Intermediate reply sent on 24/08/2023:

The European Union Aviation Safety Agency (EASA) is developing a Certification Memorandum (CM) including an updated Policy for Flight Conditions for sailplane prototypes. The CM intends to clarify that EASA amends the current policy for sailplanes by adding limits to the Flight conditions for Functional Reliability Tests in the number of prototypes that may be approved under flight conditions and permit to fly and the related purposes.

The number of prototype sailplanes under flight conditions and permit to fly is limited to three serial numbers per model and only purposes listed under points (1) "development" and (2) "showing compliance with regulations" of 21.A.701 of Annex I (Part-21) to Regulation (EU) No. 748/2012 may be approved within a certification project for Type Certificate (TC) and major changes. Furthermore, the purpose listed under point (13) may only be added by EASA, for a limited time, under the conditions of the applicant's Flight Test and Operations Manual (FTOM), when the applicant justifies the need to conduct development flight testing under such conditions.

Status: Open

ITAL-2023-003

Lange Antares 23 E, D-KVLS, 08/08/2021

EASA is recommended that surveillance policies be implemented on sailplanes equipped with Permits to Fly to verify that they are used within prescribed limitations.

Final reply sent on 24/08/2023:

According to point 21.A.723(a,) of Annex I (Part-21) to Regulation (EU) No 748/2012, a Permit to Fly (PtF) shall be issued for a maximum period of 12 months and shall remain valid when the conditions and restrictions associated with the PtF are complied with. When such conditions and restrictions are not

respected the permit to fly shall be revoked. In the case of a prototype sailplane, the PtF can only be issued or revoked by the National Authority of the State of Registry. (cf. points 21.1(e)(1) and 21.B.65)).

The European Union Aviation Safety Agency (EASA) does not have the mandate under Regulation (EU) 2018/1139 to implement surveillance policies to verify that the aircraft operator complies with the conditions and restrictions associated with PtFs issued by national competent authorities or revoke such PtFs. Therefore this safety recommendation should only be directed to the National Authorities for the sailplanes flying under PtF in their registries.

Status: Closed – Not Responsible

ITAL-2023-004

Lange Antares 23 E, D-KVLS, 08/08/2021

EASA is recommended to evaluate the possibility of introducing specific experimental tests into the certification process, if necessary of the crash test type, in order to verify compliance with the emergency crash landing requirements.

Intermediate reply sent on 24/08/2023:

Amendment 1 to CS-22 (Certification Specifications, Acceptable Means of Compliance and Guidance Material for Sailplanes and Powered Sailplanes) introduced a static crash test as means of compliance to point CS 22.561 (b)(2) in 2009. However, in accordance with point 21.A.101 (c) of Annex I (Part-21) of Regulation (EU) No. 748/2012 applicants for major changes to sailplanes are allowed to continue with earlier amendments of CS-22 (or JAR-22, the Joint Aviation Requirements for Sailplanes and Powered Sailplanes), unless the major change is determined to be significant. However, Part 21 does not contain any examples of what changes to a sailplane would be considered significant.

The European Union Aviation Safety Agency (EASA) is developing a Certification Memorandum (CM) that complements Part-21 with respective examples. This will support EASA to better enforce the latest requirements in more change projects. EASA expects that the application of the CM will increase the level of safety in cockpit crashworthiness in future projects.

Status: Open

LITH-2023-002

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency assesses and, if necessary, determines the requirement that the amount of fuel fuelled and the total amount of fuel on aircraft prior to each flight would be indicated in the aircraft logbook.

Intermediate reply sent on 31/03/2023:

The European Union Aviation Safety Agency (EASA) is examining the existing body of regulatory provisions and guidance material as they pertain to fuel entry requirements, and will provide a detailed update in Q2 2023.

Status: Closed – Partial Agreement

LITH-2023-002

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency assesses and, if necessary, determines the requirement that the amount of fuel fuelled and the total amount of fuel on aircraft prior to each flight would be indicated in the aircraft logbook.

Final reply sent on 14/07/2023:

The rules applicable to the given aircraft are the existing provisions of Annex Vb (Part-ML) to Commission Regulation (EU) No 1321/2014.

Annex Vb (Part-ML) and the associated Acceptable Means of Compliance (AMC) and Guidance Material (GM) do not include requirements to log fuel uplifted. The European Union Aviation Safety Agency (EASA) considers that the current provisions are appropriately adapted to the General Aviation (GA) community and their amendment would be counterproductive to ensuring proportionate rules for aircraft other than complex motor-powered aircraft.

Notwithstanding the above and among its safety promotion activities, EASA has published a safety promotion article on GA Pilot Briefing Cards that comprises a number of pre-flight items including Navigation Log, Flight Weather Briefing, Notice to Air Missions review, Mass & Balance and Fuel Calculations:

https://www.easa.europa.eu/community/topics/briefing-cards

Additional details and links to this topic can be found in the published Safety Promotion “Sunny Swift” articles:

https://www.easa.europa.eu/en/newsroom-and-events/news/sunny-swift-fuel-caution-light

https://www.easa.europa.eu/en/newsroom-and-events/news/sunny-swift-maintenance-programme-part-ml

Status: Closed – Partial Agreement

NORW-2018-006

Eurocopter EC225LP, LN-OJF, 29/04/2016

The Accident Investigation Board Norway recommends that the European Aviation Safety Agency (EASA) develop regulations for engine and helicopter operational reliability systems, which could be applied to helicopters which carry out offshore and similar operations to improve safety outcomes.

Final reply sent on 14/07/2023:

The European Union Aviation Safety Agency (EASA) has assessed the feasibility and the potential benefits of developing requirements that could be applied to large rotorcraft carrying out offshore or similar operations in hostile environments, similar to those applicable to large aeroplanes used for Extended Range Twin-engine Operations (ETOPS) and All Weather Operations (AWO).

This assessment concluded that it could be possible to apply the principles of large aeroplane ETOPS and AWO operations to large rotorcraft. However, the existence of critical parts in the design of large rotorcraft rotor and rotor drive systems constitutes a major difference compared to large aeroplane system designs. Indeed, such system critical parts, the single failure of which results in catastrophic effects, are not allowed by the certification specifications (CS) for large aeroplanes (CS-25). The probability of failure of large rotorcraft critical parts must already be minimised in compliance with the applicable certification specifications CS 29.547 and CS 29.917, and therefore an ETOPS approach would not bring additional significant safety benefits.

Future large rotorcraft designs may entail a reduced number of such critical parts, but it is not practicable to require a fail-safe design concept as is the case for large aeroplanes. Critical parts will remain present and their failures constitute the main contributor to the safety risk.

EASA will therefore not propose to develop new requirements for offshore or similar operations. The existing CS applicable to critical parts (CS 29.547 and CS 29.917), supplemented by other actions stemming from the lessons learnt from previous occurrences and continuing airworthiness activities, are considered more appropriate to improve safety of all operations.

These actions are summarised here below:

- Research on ‘Integrity improvement of rotorcraft main gear boxes (MGBs)’ (RES.0008 in the European Plan for Aviation Safety (EPAS)). Depending on the conclusion and recommendations, this may be followed by a rulemaking action,
- Creation in CS-29 Amendment 11 of an acceptable means of compliance (AMC) AMC1 29.571 addressing the fatigue tolerance evaluation of rotor drive system components subject to rolling contact fatigue (RCF),
- Introduction in CS-29 Amendment 10 of CS for the effectiveness demonstration of chip detection systems and related AMC and guidance material (GM),
- Verification of certification assumptions and operational reliability:
    - Certification Memorandum (CM) CM-S-007 issued in 2015. The purpose of this CM was to supplement the existing guidance for compliance with 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. A rulemaking action has been

initiated to require the development of a continued integrity verification programme (CIVP) based on CM-S-007 (refer to Notice of Proposed Amendment (NPA) 2022-01).

- In CS-29 Amendment 11, AMC1 29.1529 was created 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, this AMC includes provisions to ensure that applicants provide ICA elements to address abnormal events in operation, maintenance or during transportation of components.
- Creation of AMC3 21.A.3A(a) to Regulation (EU) No 748/2012 (ED Decision 2021/001/R) to provide a methodology for the design approval holder, so that the 'collection', 'investigation' and 'analysis' functions of its continued airworthiness system include specific means to analyse the collected failures, malfunctions, defects or other occurrences, and the related available information, to identify adverse trends, to investigate the associated root cause(s), and to establish any necessary corrective action(s). It should also allow the determination of reportable occurrences as required under point 21.A.3A(b) — see GM 21.A.3A(b). In addition, for parts whose failure could lead to an unsafe condition, the 'analysis' function of the system should ensure that reports and information sent, or available, to the design approval holder are fully investigated so that the full nature of any damage, malfunction, or defect and its effect on continuing airworthiness is understood. This may then result in changes to the design, to the instructions for continued airworthiness (ICAs), and/or in the establishment of a mitigation plan to prevent or minimise such occurrences in the future, as necessary, and is not limited to those requiring the involvement of EASA under point 21.A.3A(c),
- CARI 29-01: This Continuing Airworthiness Review Item (CARI) was issued to all holders of CS-29 rotorcraft Type Certificates (TC). The CARI was used to gather data providing confidence that the MGB planet gear and chip detection system designs in service did not feature any clear characteristic that made them susceptible to catastrophic failure due to undetected cracking, thus excluding any potential unsafe condition.

Status: Closed - Disagreement

SING-2019-002

Airbus A330, 9V-SSE, 07/02/2018

The European Aviation Safety Agency require the engine manufacturer to address the current C-Scan ultrasound inspection process so as to improve detection success of potential defect sizes that could lead to the failure of the fan blade.

Intermediate reply sent on 24/08/2023:

Since the issuance of the Non-Modification Service Bulletin (NMSB) number RB.211−72−AH465 Revision 5, which is mandated through the European Union Aviation Safety Agency (EASA) Airworthiness Directive 2018-0188R1 issued on the 5th of September 2018, Rolls-Royce has been working on introducing a new water-coupled phased array ultrasonic inspection technique. It also intends to change the post-processing software of the C-scan ultrasonic inspection technique. Rolls-Royce has revised and issued the NMSB

RB.211−72−AH465 on three occasions – revisions 6, 7 and 8 – to allow for a controlled service introduction, and to obtain in-service feedback on the effectiveness of the revised inspection method.

Rolls-Royce is currently processing the feedback from the controlled service introduction before finalising the refinement of the inspection methods. Once concluded, EASA will consider the need to amend, or supersede, Airworthiness Directive 2018-0188R1 in order to mandate the use of the improved blade inspection techniques.

Status: Open

SWTZ-2017-525

AGUSTA A109, HB-ZRV, 26/02/2015

BAZL and EASA should take measures, to make aware helicopters crews of the danger of an imminent or developing vortex condition near the ground with an acoustic warning.

Final reply sent on 24/08/2023:

The Vortex Ring State (VRS) is a particular aerodynamic condition for helicopters typically occurring in near-vertical or vertical descent when the relative upward air velocity equals the downward induced main rotor airflow. In this condition, the downward induced flow is recirculated into the main rotor, which results in an unsteady turbulent airflow over a large area of the rotor disk with a toroidal shape, and the rotor efficiency is lost as most of the power developed by the engine(s) is wasted in circulating air around the rotor.

The condition of VRS is therefore a complex aerodynamic phenomenon that generates highly turbulent airflow around the rotor at relatively low air speed and it depends on many factors. Namely, weight of the helicopter and its airspeed and vertical speed, air density on the day and the aerodynamic peculiarities of the rotor design. Currently available sensors and technology are not able to measure all parameters involved for a sufficiently reliable detection of an actual VRS condition.

One inherent problem is that the rotor air downwash at low helicopter airspeed impairs the air data sensors whose output measurement becomes unreliable when such information would be required for an accurate VRS detection and warning system. Added to this, is the difficulty of acquiring very precise vertical speed and also air density information.

A further difficulty is the dependency on the specific aerodynamic rotor design characteristics of each helicopter type.

For the reasons described above, the European Union Aviation Safety Agency (EASA) considers that no suitable technical solution is currently available to accurately and without error detect true VRS conditions, and that it is therefore premature given the current state- of-the-art to regulate the installation of VRS detectors on helicopters.

However, EASA has recently certified a new heavy rotorcraft equipped with modern Integrated Modular Avionics which features a novel VRS prediction and alerting function. To prevent inadvertent entry into VRS, pilots are traditionally trained to avoid high rates of descent at low speed. Therefore, this new system is not a VRS detector and cannot provide an absolute alert for all possible VRS conditions. It is rather a means of providing situational awareness to alert the crew when approaching a potentially dangerous

combination of rate of descent and airspeed. It should also not be misunderstood as a novelty transposable as a universal design solution on all helicopters, since it is based on the specific hardware and software of a particular helicopter type.

For this first application, EASA has already developed a dedicated Certification Review Item (in the form of Interpretative Material / Means of Compliance), which is intended to serve as specific certification material in the future, should other helicopter manufacturers apply for approval of similar innovations.

In addition, EASA launched a helicopter VRS experimental research programme. Details are published at:

https://www.easa.europa.eu/en/research-projects/vrs-helicopter-vortex-ring-state-experimental-research

On the one hand, this research aims at providing a better understanding of the complex VRS phenomenon on different kinds of helicopter rotor designs (e.g. rigid vs. non-rigid rotor), the analytical and simulation prediction methods, and flight test techniques for its determination. On the other hand, it will also provide an indication of best practices for recovery manoeuvres from fully established VRS conditions. The outcome should be a key element for EASA in the assessment of the need for possible future changes to certification specifications, pilot training regulations and/or associated guidance material.

In conclusion, while EASA believes it is premature to regulate the VRS domain in the current state of knowledge and technology, it is already engaged in supporting and evaluating innovation from the industry, and is also investing its research efforts into potential regulatory developments in the future where this would deliver proportionate safety benefits.

Status: Closed – Partial Agreement

SWTZ-2018-001

Airbus A330-343, HB-JHB, 21/11/2014

The European Aviation Safety Agency Safety (EASA), together with the aircraft manufacturer, shall ensure that cabin altitude below -2060 ft will be displayed to flight crews in an appropriate form.

Final reply sent on 14/07/2023:

The European Union Aviation Safety Agency (EASA) has reviewed the pressurization system architecture and associated operational procedures in collaboration with the aircraft manufacturer in order to evaluate the need to display cabin altitude below -2060 ft to flight crews.

As an outcome of this review, EASA and the aircraft manufacturer have reached an agreement to update the Aircraft Flight Manual (AFM) for the A330 and A340 aircraft. This update includes the addition of a caution message to inform the flight crew of potential indications loss and providing instructions to restore the display of these indications.

Within the Abnormal Procedures section of the AFM, the operational procedures "CAB PR - SYS 1+2 FAULT" and "CAB PR - SAFETY VALVE OPEN" have been revised. The following amber caution message has been incorporated:

"Below FL190, in the case of the cabin altitude is below -2060ft, the cabin altitude and the cabin differential pressure values may not be available for display on the CAB PRESS SD page in manual pressurization mode.

Consequently, maintain the cabin vertical speed switch in the UP position to increase the cabin altitude and recover the display."

EASA's assessment is that adherence to the existing operational procedures complemented by the amber caution message is considered sufficient to restore the level of protection.

By explaining the circumstances under which the Cabin Pressure Controller (CPC) display may be lost and providing instructions for its recovery, this approach will assist flight crews in resolving general abnormal cabin over-pressurization scenarios.

In light of the above, EASA considers the aforementioned AFM amendment to be an appropriate and effective mitigation measure.

Status: Closed – Partial Agreement

SWTZ-2023-537

Ikarus C 42 B, D-MSON and D-MUHH, 23/08/2015

The European Union Aviation Safety Agency (EASA) should take appropriate measures to ensure that systematic theoretical and practical training and a corresponding authorization are required to perform formation flights.

Final reply sent on 24/08/2023:

The European Union Aviation Safety Agency (EASA) has assessed this safety recommendation from the perspective of both air operations and airspace requirements.

Air Operations Requirements:
The aircraft type involved in the subject accident is classified as falling under point 1.(e) of Annex I to Regulation (EU) 2018/1139, having a maximum take-off mass (MTOM), as recorded by the applicable State, of no more than 472.5 kg, and being a two-seater equipped with an airframe mounted total recovery parachute system. Therefore, Regulation (EU) 2018/1139 and the associated implementing rules do not apply, and operations with this type of aircraft are instead governed by national legislation.

Therefore, since the aircraft involved in the subject accident is outside the scope of Regulation (EU) 2018/1139, any safety recommendation made on the basis of this accident is not subject to EASA rules and it should be addressed at national level.

Despite the fact that the aircraft involved in the subject accident is outside the scope of Regulation (EU) 2018/1139 and is therefore not subject to Commission Regulation (EU) No. 965/2012 on air operations (the Air OPS Regulation), EASA has performed a review of the referenced air operations rules to check if the relevant elements of the Safety Recommendation were covered.

Within the scope of Regulation (EU) 2018/1139, aircraft operators conducting civil flying displays are governed by the Air OPS Regulation and the associated Acceptable Means of Compliance (AMC) and Guidance Material (GM), in particular the following annexes thereof: Part-SPO (specialised operations) and Part-ORO (organisation requirements for air operations) or Part-NCO (non-commercial operations with other than complex motor-powered aircraft), depending on the nature of the operation and the aircraft used.

According to point (11) of Article 2 of the Air OPS Regulation, "'flying display' means any flying activity deliberately performed for the purpose of providing an exhibition or entertainment at an advertised event open to the public, including where the aircraft is used to practice for a flying display and to fly to and from the advertised event."

According to point 4a(b) of Article 6 of the Air OPS Regulation, flying displays with other than complex motor-powered aircraft may be conducted in accordance with Part-NCO, on the condition that the remuneration or any valuable consideration given for such flights is limited to recovery of direct costs and a proportionate contribution to annual costs. In all other cases, the requirements of Part-SPO apply. According to the air operations provisions, the operator is required to conduct a risk assessment of their operation(s) and to establish suitable mitigating measures through implementation of either standard operating procedures, for non-commercial SPO with complex motor-powered aircraft and for all commercial SPO (SPO.OP.230 and AMC1 SPO.OP.230), or checklists, for NCO (NCO.SPEC.105 and GM1 NCO.SPEC.105).

The mitigations should be tailored according to the level of exposure to the safety risks associated with the type of operation. This should include the necessary theoretical and practical flight crew training (point (c)(2) of AMC2 SPO.OP.230 and point (c) of GM1 NCO.SPEC.105).

Airspace requirements:
All airspace users shall comply with Regulation (EC) No. 551/2004 (the Airspace Regulation) and the associated Implementing Rules, which include Commission Implementing Regulation (EU) No. 923/2012, applicable since 4 December 2014, establishing Standardised European Rules of the Air (SERA) and operational provisions regarding services and procedures in air navigation (the SERA Regulation).

Any flying activity deliberately performed for the purpose of providing an exhibition or entertainment at a private event requires permission from the competent authority when operating at heights lower than the minimum heights for Visual Flight Rules (VFR) flights prescribed by point SERA.5005 (f), according to point SERA.3105 of the SERA Regulation.

Additionally, according to point SERA.3135 of the SERA Regulation, aircraft shall not be flown in formation except by pre-arrangement among the pilots-in-command of the aircraft taking part in the flight and, for formation flights in controlled airspace, in accordance with the conditions prescribed by the competent authority. These conditions shall include the following:

a) One of the pilots-in-command shall be designated as the flight leader;
b) The formation operates as a single aircraft regarding navigation and position reporting;
c) Separation between aircraft in the flight shall be the responsibility of the flight leader and the pilots-in-command of the other aircraft in the flight and shall include periods of transition when aircraft are manoeuvring to attain their own separation within the formation and during join-up and breakaway; and
d) For State aircraft, a maximum lateral, longitudinal and vertical distance between each aircraft and the flight leader in accordance with the Chicago Convention. For other than State aircraft, a distance not exceeding 1 km (0,5 nm) laterally and longitudinally and 30 m (100 ft.) vertically from the flight leader shall be maintained by each aircraft.

EASA has therefore concluded that the current European regulatory framework applicable to formation and public demonstration flights ensures an adequate level of safety and addresses all elements emanating from the safety recommendation. These provisions may be re-enforced through national legislation which should take into consideration any specific limitations.

Status: Closed – Disagreement

SWTZ-2023-538

Ikarus C 42 B, D-MSON and D-MUHH, 23/08/2015

The European Union Aviation Safety Agency (EASA) should take appropriate measures to ensure that internationally standardised guidelines are applied in all member states for public flight demonstrations. These guidelines should define the conditions for obtaining a demonstration permit (display authorisation), describe the theoretical and practical training and the testing of the knowledge and flying skills of the pilots. In addition, the requirements for issuing special formation demonstration permits should be defined therein.

Final reply sent on 24/08/2023:

The European Union Aviation Safety Agency (EASA) has assessed this safety recommendation from the perspective of both air operations and airspace requirements.

Air Operations Requirements:
The aircraft type involved in the subject accident is classified as falling under point 1.(e) of Annex I to Regulation (EU) 2018/1139, having a maximum take-off mass (MTOM), as recorded by the applicable State, of no more than 472.5 kg, and being a two-seater equipped with an airframe mounted total recovery parachute system. Therefore, Regulation (EU) 2018/1139 and the associated implementing rules do not apply, and operations with this type of aircraft are instead governed by national legislation.

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commercial SPO (SPO.OP.230 and AMC1 SPO.OP.230), or checklists, for NCO (NCO.SPEC.105 and GM1 NCO.SPEC.105).

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Additionally, according to point SERA.3135 of the SERA Regulation, aircraft shall not be flown in formation except by pre-arrangement among the pilots-in-command of the aircraft taking part in the flight and, for formation flights in controlled airspace, in accordance with the conditions prescribed by the competent authority. These conditions shall include the following:

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b) The formation operates as a single aircraft regarding navigation and position reporting;
c) Separation between aircraft in the flight shall be the responsibility of the flight leader and the pilots-in-command of the other aircraft in the flight and shall include periods of transition when aircraft are manoeuvring to attain their own separation within the formation and during join-up and breakaway; and
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EASA has therefore concluded that the current European regulatory framework applicable to formation and public demonstration flights ensures an adequate level of safety and addresses all elements emanating from the safety recommendation. These provisions may be re-enforced through national legislation which should take into consideration any specific limitations.

Status: Closed – Disagreement

UNKG-2020-001

Piper - PA46, N264DB, 21/01/2019

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.

Final reply sent on 24/08/2023:

Within the framework of rulemaking task RMT.0392 'Regular update of air operations rules, the European Union Aviation Safety Agency (EASA) published the Notice of Proposed Amendment (NPA) 2022-11:

https://www.easa.europa.eu/en/document-library/notices-of-proposed-amendment/npa-2022-11

This regulatory proposal was open to public consultation until 20 March 2023.

Among other measures, the NPA considered safety recommendation UNKG-2020-001 in terms of potential rulemaking as regards the carriage or installation of carbon monoxide (CO) detectors on aircraft.

In this regard, EASA conducted a more detailed impact assessment. The conclusion of the impact assessment is that Option 0 'No rulemaking' is the recommended approach to take in this respect, and that the safety issue could be more effectively addressed through other, non-regulatory means.

EASA Safety Information Bulletin (SIB) 2020-01R1 'Carbon Monoxide Risk in Small Aeroplanes and Helicopters', as revised on 19 October 2021, aims to reduce the risk to an acceptable level by informing stakeholders of the dangers of exposure to CO and by providing recommendations on the prevention of CO exposure, detection of CO and actions to take if CO is detected in flight. It also 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 further 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).

EASA will also continue using safety promotion channels to further highlight to members of the general aviation community the dangers of CO poisoning and the safety benefit of carrying or installing CO detectors on board aircraft. Moreover, EASA will continue monitoring the data on reported occurrences and the safety risks related to CO poisoning will continue to be monitored through the safety risk monitoring programme of EASA.

In addition, the topic of CO detectors was highlighted in EASA's "General Aviation Winter Preparation Update", first published on 17 December 2021 and subsequently updated each season:

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

Finally, EASA has published additional Safety Promotion material on the topic, now available in multiple languages, in the form of a 'Sunny Swift' article:

https://www.easa.europa.eu/en/newsroom-and-events/news/sunny-swift-co-intoxication

Status: Closed – Partial Agreement

AUST-2023-001

Theo Schröder Fire Balloons G60/24, OE-RTS, 12/11/2022

Take appropriate measures to prevent the pilot from falling out of the basket during landing. It is recommended to equip and retrofit all balloons with a restraint system, no matter in which function and equipment the balloon is operated. Furthermore, it would be necessary to equip balloons used in a DTO for training pilots with restraint systems for student pilots and flight instructors as well.

Intermediate reply sent on 20/11/2023:

The balloon type involved in the subject occurrence has a separate compartment for the pilot and was consequently equipped with a pilot restraint system in accordance with BOP.BAS.320 of Annex II (Part-BOP) to Regulation (EU) 2018/395. However, the restraint system was not used during this occurrence (as is mandated by BOP.BAS.175). Therefore, the European Union Aviation Safety Agency (EASA) concludes that the current operational rules for balloons would have been effective in preventing the occurrence.

The current formulation of BOP.BAS.320, which extended the requirement for a pilot restraint system to include balloons equipped with turning vents, resulted from a consultation with relevant subject matter experts and stakeholders as a part of Rulemaking Task 0674. EASA is reviewing the available safety data to evaluate potential further actions.

Status: Open

FINL-2023-001

Airbus Helicopters H145, SE-JSS, 12/02/2022

The Safety Investigation Authority Finland recommends that the European Aviation Safety Agency (EASA) informs helicopter operators of a need to fit slide stoppers on the landing skids for operations in winter and under slippery conditions.

Intermediate reply sent on 20/12/2023:

The European Union Aviation Safety Agency (EASA) acknowledges the intent of the Safety Investigation Authority of Finland (SIAF) to promote the installation of an optional equipment, such as slide stoppers on the landing gear, for operations in winter and under slippery conditions.

In this respect, this optional equipment has to be firstly certified, either by the Type Certificate (TC) Holder or by a Supplemental Type Certificate (STC) Holder, and then made available for installation on the helicopter type/model expected to be used for such operations in winter and under slippery conditions.

This was the case for the helicopter involved in this event, because Airbus Helicopters Deutschland (AHD) had already certified anti-slip devices (i.e. the so called “Ice-claws” or “Skid protectors”) and they are offered as optional kit for all MBB-BK117 models/versions.

Furthermore, the intent of the Safety Recommendation (SR) is already addressed by the existing and applicable Commission Regulation (EU) No 965/2012.

In particular, in accordance with the requirement ORO.GEN.110 (“Operators Responsibilities”):
“(d) The operator shall ensure that its aircraft are equipped and its crews are qualified as required for the area and type of operation.”
In addition, in accordance with the requirement ORO.GEN.200 (“Management System”):
“(a) The operator shall establish, implement and maintain a management system that includes:

(3) the identification of aviation safety hazards entailed by the activities of the operator, their evaluation and the management of associated risks, including taking actions to mitigate the risk and verify their effectiveness."

Therefore, amendment of the current regulatory framework is not deemed necessary as it already requires the operator to decide, after a risk assessment of its activities, if any additional optional equipment would provide a safety benefit.

Notwithstanding the above, the global rotorcraft community recognises the importance of safety technologies appropriate to different operational activities performed by rotorcraft. Through the Vertical Aviation Safety Team (VAST), EASA is working at global level on a voluntary safety rating scheme for Rotorcraft that is similar to the European New Car Assessment Programme (Euro NCAP) for cars that would help to speed up the implementation of new technologies. A feasibility study and basic concept are just being finalized for presentation to the industry at Heli-Expo 2024 in February. Further decisions on implementation of the voluntary safety rating scheme will be considered after that at the VAST Steering Committee of which EASA and also the U.S. Federal Aviation Administration are members. During implementation, EASA intends to work with the other stakeholders to identify how slide stoppers as a specific piece of equipment to support winter operations could be integrated into the scheme.

In terms of specific safety topics performed under the European Plan for Aviation Safety (EPAS) Safety Promotion Task SPT.0093 on the promotion of high-profile helicopter safety topics, these are based on accident analysis and the EASA Safety Risk Management process that identifies the top risks to this part of the industry. In 2023, the main focus topics have been Inadvertent Instrument Meteorological Conditions (IMC), Unintended Yaw, Technology and Hoists/ Sling Loads. Topics planned for 2024 include more work on Hoists / Sling Loads and best practice on Unintended Yaw (specifically to extend to all kinds of helicopter including shrouded rotor), cable collisions / wire strikes, loose items in the cockpit, training, pre-flight planning and preparation, knowledge of aircraft systems and procedures, operational management of landing sites and off-site landings.

Status: Open

FINL-2023-022

Diamond DA42, OH-DAN, 19/08/2022

The Safety Investigation Authority Finland recommends that the European Union Aviation Safety Agency monitors and ensures that the actions prescribed in its airworthiness directives has the adequate and desired effect.

Final reply sent on 20/11/2023:

Under point 21.A.3A of Annex I (Part 21) to Regulation (EU) No 748/2012, each design organisation holder of a Type Certificate or any other relevant approval issued by EASA under Part 21 shall establish and maintain a system for collecting, investigating and analysing in-service occurrence reports of which it is aware in order to identify adverse trends or to address deficiencies and to extract occurrences whose reporting to EASA is mandatory when they have resulted or may result in an unsafe condition.
These Part 21 requirements apply without prejudice to Articles 4 and 13 of Regulation (EU) No 376/2014, which prescribe to design organisations established in a Member State in a consistent manner the same obligation to collect, assess and report occurrences.

With such a mandatory reporting scheme, design organisations must therefore report to EASA all occurrences that they identify as (potential) unsafe condition.
This applies both to the initial reporting of new occurrences, and to the subsequent reporting of other similar occurrences after a corrective action(s) has been taken pursuant to point 21.A.3B of Part 21 (action(s) then mandated by an EASA airworthiness directive (AD)).

Pursuant to Article 13.2(b) of Regulation (EU) No 376/2014, design organisations must also establish a process to monitor the implementation and effectiveness of the corrective or preventive actions taken to address actual or potential aviation safety deficiencies.

Hence, the monitoring of the adequacy of corrective actions mandated by an AD is a responsibility assigned in the first place to the design organisation as technical originator and holder of these actions, and therefore best placed to technically assess their effectiveness. Furthermore, the design organisation is also required, by point 21.A.3B(c)(2) of Part 21, to disseminate the detailed accomplishment instructions for the actions it has defined. The system is robust and reliable as long as the design organisation properly fulfils its mandatory reporting obligation if in-service occurrences continue to occur after corrective action(s) has already been taken.

To ensure that design organisations adequately comply with the above rules, EASA maintains oversight of the design organisations it has approved, in accordance with Articles 13.6 and 13.7 of Regulation (EU) No 376/2014 as well as in accordance with points 21.B.431, 21.B.432 and 21.B.433 of Part 21.
Practically, this is performed as part of oversight programmes and planning cycles through assessments, audits, inspections and, if needed, unannounced inspections.
When a non-compliance is detected during oversight or by any other means (e.g. through exchange of information between competent authorities of the Member States and EASA pursuant to Article 9 of Regulation (EU) No 376/2014), it is notified to the design organisation with request of corrective action of its system to address the non-compliance(s) identified.

EASA considers that this regulatory framework is adequate and does not envisage rulemaking action to modify it.

Regarding the case of the Type Certificate Holder involved in this serious incident, EASA is working with this design organisation to ensure that they comply with the above-mentioned requirements. EASA also intends to conduct a specific audit on this topic to ensure that the design organisation takes any required corrective action.

Status: Closed – Partial Agreement

FINL-2023-024

Diamond DA42, OH-DAN, 19/08/2022

The Safety Investigation Authority Finland recommends that the European Aviation Safety Agency ensures that type certificate holders regularly notify operators of any recurrent or serious safety findings related to applicable aircraft types.

Final reply sent on 20/11/2023:

Regulation (EU) No 376/2014 on the reporting, analysis and follow-up of occurrences in civil aviation, Article 13 provides the following:

"1. Each organisation established in a Member State shall develop a process to analyse occurrences collected in accordance with Articles 4(2) and 5(1) in order to identify the safety hazards associated with identified occurrences or groups of occurrences.
Based on that analysis, each organisation shall determine any appropriate corrective or preventive action, required to improve aviation safety.
2. When, following the analysis referred to in paragraph 1, an organisation established in a Member State identifies any appropriate corrective or preventive action required to address actual or potential aviation safety deficiencies, it shall:
(a) implement that action in a timely manner; and
(b) establish a process to monitor the implementation and effectiveness of the action."

Communication to inform and advise operators is one possible action that an organisation, such as a type certificate holder (TCH), can use when addressing a safety issue identified, for instance after the analysis of reported occurrences.

Similarly, TCH organisations subject to Regulation (EU) No 748/2012, laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations, can decide to use such communication to operators in the frame of:

- Actions decided to correct an identified deficiency in the design or production of a product per point 21.A.3A (e) and (f) of Part 21 (Annex I to Regulation (EU) No 748/2012),
- Actions decided to control a safety risk identified by the safety management element of the design management system established by design organisations in compliance with point 21.A.239 of Part 21.

The European Union Aviation Safety Agency (EASA) considers that the existing regulatory framework is adequate to fulfil the intent of this safety recommendation, and it is not envisaged to create new prescriptive requirements.

In the case of the Diamond DA42 safety issue 'In-flight detachment of passenger door', previously identified by EASA as an unsafe condition, the Airworthiness Directive AD No 2010-0235, and the associated Mandatory Service Bulletins and Aeroplane Flight Manual revisions, provided a source of information for the operators to be aware of this safety issue.

Status: Closed – Partial Agreement

FRAN-2020-006

Airbus A380, F-HPJE, 30/09/2017

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.

Intermediate reply sent on 20/11/2023:

Since 2022, EASA has started gradually to re-engage with the activities of the industry working groups addressing the issue described in the Safety Recommendation. While the technical investigation

progresses, the following plan is outlined. The Aerospace Industries Association (AIA) Rotor Integrity Steering Committee (RISC) and the Jet Engine Titanium Quality Committee (JETQC) are targeting to deliver during the 1st half of 2024 a white paper on an interim approach for managing Ti cold dwell. This interim approach will in a second step be superseded as a higher fidelity approach becomes available. EASA will continue to follow the activities of the two Committees.

Status: Open

FRAN-2023-021

Cessna Citation 525 CJ, F-HGPG, 12/01/2022

The BEA recommends that EASA continues and successfully completes the analysis of the risk posed by the failure of a barometric system, endeavouring to consider the system as a whole, and draws conclusions as necessary in terms of safety actions.

Intermediate reply sent on 05/10/2023:

The European Union Aviation Safety Agency (EASA) is actively addressing this Safety Recommendation concerning the risks associated with the failure of a barometric system as part of EASA's ongoing efforts within Safety Issue SI-2002, which focuses on 'Deconfliction with aircraft operating with a malfunctioning or non-operative transponder'. This safety issue is acknowledged in the 2023-2025 edition of the European Plan for Aviation Safety (EPAS) Volume III, which is published at:

https://www.easa.europa.eu/en/document-library/general-publications/european-plan-aviation-safety-epas-2023-2025

Currently, EASA is in the process of conducting a comprehensive Safety Issue Assessment (SIA) specifically related to the concerns raised in this recommendation. Subsequently, EASA intends to perform an in-depth impact analysis to evaluate the added value of potential safety actions. This analysis will be documented in an EASA Best Intervention Strategy (BIS) report on this safety issue, on which EASA's Advisory Bodies will be consulted.

EASA recognises the importance of timely progress updates, and expects to provide a further update on activities regarding this Safety Recommendation in 2024.

Status: Open

IRLD-2021-040

Sikorsky S92, EI-ICR, 14/03/2017

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.

Final reply sent on 20/12/2023:

The European Union Aviation Safety (EASA) delivered safety promotion material on the Human Factor (HF) in rotorcraft design through the following campaigns. This work looked specifically at reporting and analysis to help organizations identify the most common risks and HF issues for their operation and then specific safety topics:

- Occurrence Reporting – to promote the importance of reporting and occurrence investigation to identify safety risks at the organizational level and identify suitable mitigations. (https://www.easa.europa.eu/community/topics/occurrence-reporting-rotorcraft-community).
- Top Rotorcraft Safety Risks – to highlight to organizations the most common risks that they should mitigate in their management systems specific promotion was made on the Rotorcraft part of the EASA Annual Safety Review (https://www.easa.europa.eu/community/topics/easa-annual-safety-review-helicopters)
- Top Risks for Air Ambulance Operations – a follow-up was provided specifically on Air Ambulance Operational Risks (https://www.easa.europa.eu/community/topics/10-biggest-threats-air-ambulance-helicopters).
- Technology in Rotorcraft operations (https://www.easa.europa.eu/community/topics/rotorcraft-safety-technologies-vast-report).
- Cable collisions (https://www.easa.europa.eu/community/topics/cable-collisions).
- Bird strikes and wearing a helmet (https://www.easa.europa.eu/community/topics/easa-video-importance-wearing-helmet)
- Unintended IMC – 4 part campaign (1 – Before Take-off - https://www.easa.europa.eu/community/topics/uimc-take,
  2 – After Take-off - https://www.easa.europa.eu/community/topics/uimc-after-take,
  3 – In Flight - https://www.easa.europa.eu/community/topics/uimc-recovery-flight,
  4 – Night Ops - https://www.easa.europa.eu/community/topics/uimc-night-operations)

In terms of rulemaking activity, 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, is expected to reduce the probability of human factors and pilot workload issues leading to an accident or incident.
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2021010r.

Status: Closed – Partial Agreement

IRLD-2023-001

BOEING 737 800, EI-EMM, 11/12/2021

EASA undertakes a safety promotion campaign to highlight to passengers and crew, the behaviours which will minimize their personal risk of falling whilst embarking or disembarking an aircraft.

Intermediate reply sent on 05/10/2023:

The European Union Aviation Safety Agency (EASA) plans to launch a safety promotion activity addressing both the risk and potential mitigations of passengers or crew falling during embarkation or disembarkation to airlines and airports through the Conversation Aviation magazine and the EASA Air Ops Community Site. EASA would then also provide promotional material for airlines to use themselves with their passengers and also promote that material to the general public through the EASA Light website. This material would

then also be made available to the National Aviation Authorities (NAAs) for their own promotion at national level.

Status: Open

ITAL-2023-005

Lange Antares 23 E, D-KVLS, 08/08/2021

EASA is recommended to evaluate the possibility of including requirements in CS 22 that could increase the probability of survival not only in the event of an emergency crash landing but also in an accident that occurs in a context that is not attributable to an emergency landing.

Final reply sent on 05/10/2023:

Point CS 22.561 of Certification Specifications for Sailplanes and Powered Sailplanes (CS-22) addresses not only emergency landings but also survivable crash landing scenarios (typically impacts following recovery from emergency situations close to the ground), in particular as specified by CS 22.561(b) (see also AMC 22.561). The conditions specified in this paragraph are considered to be most representative of the wide envelope of possible crash loads and impact directions.

CS 22.561(b) was amended at CS-22 Amendment 1 issued by ED Decision 2008/008/R dated 24 Sept 2008, in particular:

- The crash landing occupant ultimate inertia forces prescribed by CS 22.561(b)(1) were significantly increased,
- CS 22.561(b)(2), that prescribes an ultimate load acting on the forward part of the fuselage, and that takes into account typical sailplane attitude and vertical speed at impact when using a Sailplane Parachute Rescue System (SPRS), was amended to significantly increase the load, to provide a limitation on the forward location of the load application point, and to add a 5 degrees side angle combined with the 45 degrees angle to the longitudinal axis.

The background of this amendment is explained in European Union Aviation Safety Agency (EASA) Notice of Proposed Amendment (NPA) 2007-12 (https://www.easa.europa.eu/en/document-library/notices-of-proposed-amendment/npa-2007-12).

It is EASA's expectation that the changes introduced to CS 22.561 at its Amendment 1, which have also remained part of the referenced point at later amendments of CS-22, will provide improved occupant protection and increased safety in the future, keeping in mind that its effect is not yet fully visible. Indeed, for the time being only 5 certified sailplane types have the amended CS 22.561 version (Amendment 1 or later amendment) in their certification basis, and another type is still in the certification process.
Further increasing the load levels stipulated in CS 22.561 may bring into consideration scenarios with excessively severe impacts that are not survivable, while at the same time imposing severe structural design requirements that will substantially penalise the weight and the performance of the sailplane. EASA therefore considers that such change to the provisions of CS-22 is not suitable.

Finally, regarding the accident of the subject aircraft, EASA considers that the impact forces were very high, such that no reasonable change to the crashworthiness requirements could have made the accident survivable.

Status: Closed – Disagreement

SLOV-2020-001

Piper PA32R, N710CC, 14/07/2016

EASA member states should conduct coordinated activities, via national aviation authorities on a yearly basis, with the goal of pointing out and increasing awareness about differences between criteria for flight execution in the categories of commercial and non-commercial flight operations with light aircraft in general aviation category (based on above-mentioned activities and content) as a promotion of flight safety.

Final reply sent on 20/12/2023:

The European Union Aviation Safety Agency (EASA) has produced specific videos and other material to raise awareness of the top risks in both commercial and general aviation flight operations identified in the EASA Annual Safety Review.

Through the Safety Promotion Network with the National Aviation Authorities (NAAs), EASA has also been supporting states in developing specific material tailored towards the needs of their national audiences including these examples in Norway (https://luftfartstilsynet.no/en/aviation-market/non-scheduled-flights/) and in Denmark (https://delefly.dk).

Status: Closed – Partial Agreement

SPAN-2017-038

RANS S6, EC-YDQ, 15/07/2016

It is recommended that the European Aviation Safety Agency (EASA) lay out the measures required so that aircraft equipped with a ballistic parachute reflect this in the flight plan as part of point SERA.4005, Contents of a flight plan, “Emergency and survival equipment”.

Final reply sent on 20/11/2023:

An amendment of the Standardised European Rules of the Air (SERA) was recently introduced by Commission Implementing Regulation (EU) 2023/1772 of 12 September 2023 amending Implementing Regulation (EU) No 923/2012 as regards the operating rules related to the use of Air Traffic Management and Air Navigation Services systems and constituents in the Single European Sky airspace and repealing Regulation (EC) No 1033/2006. Point (3) of the Annex to the amending Regulation also contains an amendment to point SERA.4005 Content of a flight plan, as follows:

‘SERA.4005 Content of a flight plan

(a) A flight plan shall include all information considered relevant by the competent authority as regards the following:

(…)

(14) emergency and survival equipment, including ballistic parachute recovery system.’

Status: Closed – Agreement

SWED-2023-003

Bell 206B, SE-JER, 26/06/2022

The EASA is recommended to inform concerned parties about the risks of unanticipated yaw in an appropriate way.

Intermediate reply sent on 09/10/2023:

The topic of Unanticipated Yaw has already been identified as a safety issue in Rotorcraft through the European Union Aviation Safety Agency's (EASA) own analysis. It is the safety topic of the year for 2023 and currently a safety promotion video is under development for completion and launch at 'European Rotors', an event which will take place on 27 – 30 November 2023 in Madrid, Spain.

As the safety topic of the year, Unintended Yaw will feature as the key topic of discussion in the ESPN-R Safety Workshop at European Rotors, which is the deliverable in 2023 for European Plan for Aviation Safety (EPAS) SPT.0096 – "Organise an Annual Safety Workshop". The topic will then be further promoted across the Global Helicopter Community through both the Vertical Aviation Safety Team (VAST) and also EASA's own platform, the Rotorcraft Community Site.

Status: Open

SWED-2023-004

UC-1 Twin Bee, N747HJ, 18/07/2022

EASA is recommended to produce and distribute safety-promoting materials for seaplane operations to relevant parties.

Intermediate reply sent on 20/11/2023:

Each year, in preparation for the summer flying season, the European Union Aviation Safety Agency (EASA) hosts a General Aviation Season Opener Campaign. For 2024, this will involve a series of webinars targeted to different pilot groups and also a series of safety summaries with the key safety topics and actions for pilots. EASA intends that one webinar and safety summary for 2024 would cover the key risks of Seaplane operations. The exact contents would be agreed with the relevant EASA stakeholders from the National Aviation Authorities and industry as the planning develops. These outputs would be supported with follow up articles, posters, videos and a podcast that would be published on the EASA General Aviation Community Site.

Status: Open

THAI-2023-001

Airbus A330-321, HS-TEF, 08/09/2013

The European Union Aviation Safety Agency should consider improving the content of the ADs to have more distinction especially, the superseded ADs that might be open to misinterpretation in details of each AD from the accomplishment of previous ADs with no further actions required, as mentioned that 'Unless already accomplished, the following measures are required as indicated' in the Required action(s) and Compliance time(s).

Final reply sent on 20/12/2023:

The European Union Aviation Safety Agency (EASA) considers that any aspect of an Airworthiness Directive (AD) may always be open to interpretation, either inadvertently or mistakenly. Therefore, EASA continually strives to write its ADs to avoid the risks of misinterpretation and misunderstanding as much as possible.

In the specific case of a superseded AD, the "Reason" paragraph systematically justifies the issuance of the new AD and also whether actions from previous AD(s) are retained or not, so that a clear description is always provided.

The standard wording *"Required as indicated, unless accomplished previously"* is still stated in all EASA ADs at the beginning of the Required Action(s) and Compliance Time(s) section. It has been used in one form or another in most ADs worldwide (not only EASA - e.g. the U.S. Federal Aviation Administration) issued for a long time, and this is the first time EASA is aware of a serious misinterpretation of this nature. The exact meaning and purpose of such a standard text used in all EASA ADs (either in new ADs or supersedure ADs) is also explained in the publicly available work instruction published at: https://www.easa.europa.eu/en/document-library/certification-procedures/easa-ad-writing-instructions

Although self-explanatory, it aims to give credit for actions taken which may meet the requirements of the AD before it becomes effective (e.g. in the event of early completion of the actions of a Service Bulletin as mandated by the AD itself).

Notwithstanding the above, EASA has decided, for the sake of greater clarity, to reconsider its standard wording and improve it for all future EASA ADs from January 2024 to read as follows: *"Required as indicated by this AD, unless the actions required by this AD have been already accomplished"*.

EASA may also consider publishing new FAQs in the future should questions arise regarding this improved text.

Status: Closed – Partial Agreement

THAI-2023-002

Airbus A330-321, HS-TEF, 08/09/2013

EASA should advise the main landing gear bogie beam designer to consider improving its design when encountering problems occurred during operation. that required additional inspection and caused issuance of several ADs.

Final reply sent on 20/12/2023:

On the A330 programme, the airworthiness activities on the main landing gear (MLG) bogie beam have resulted in numerous design evolutions, as well as a more stringent nature and regime of inspections. The latest mandated modifications and inspections have demonstrated a certain efficiency, considering the significant reduction of in-service occurrences since their implementations.

Several airworthiness directive (AD) revisions, such as AD 2013-0267R1, 2014-0120R1, and 2022-0025R2, or supersedures, for example, AD 2013-0267, 2016-0108, or 2014-0222, issued in response to field reports, demonstrate the systematic interactions between the Operators and the Authority / Manufacturer.

Through the continuing airworthiness process, the European Union Aviation Safety Agency (EASA) continuously monitors the safety level of any aircraft certified Type Design and promptly takes action to restore it as soon as issues may affect its integrity. This includes requiring design enhancements, reinforced maintenance tasks, and updated documentation whenever necessary.

EASA is confident that this process is efficient in considering valuable operator feedback and meets the expectations of this Safety Recommendation.

Status: Closed – Partial Agreement

UNKG-2023-001

Leonardo AW169, G-VSKP, 27/10/2018

It is recommended that the European Union Aviation Safety Agency amend Certification Specification 29.602 to require type design manufacturers to provide the results of all relevant system and flight testing to any supplier who retains the sole expertise to assess the performance and reliability of components identified as critical parts within a specific system application, to verify that such components can safely meet the in-service operational demands, prior to the certification of the overall system.

Intermediate reply sent on 20/11/2023:

The European Union Aviation Safety Agency (EASA) is reviewing the proposal contained in this safety recommendation and the existing regulatory framework. EASA will then decide if a rulemaking or other action is needed. This response will be updated as soon as an orientation is decided on this matter, which is anticipated to happen by Q1 2024.

Status: Open

UNKG-2023-002

Leonardo AW169, G-VSKP, 27/10/2018

It is recommended that the European Union Aviation Safety Agency introduce additional requirements to Certification Specification 29 to specifically address premature rolling contact fatigue failure across the full operating spectrum and service life of bearings used in safety critical applications.

Intermediate reply sent on 20/11/2023:

The European Union Aviation Safety Agency (EASA) is reviewing the proposal contained in this safety recommendation and the existing regulatory framework. EASA will then decide if a rulemaking or other action is needed. This response will be updated as soon as an orientation is decided on this matter, which is anticipated to happen by Q1 2024.

Status: Open

UNKG-2023-003

Leonardo AW169, G-VSKP, 27/10/2018

It is recommended that the European Union Aviation Safety Agency amend Certification Specification 29.602 to define the airworthiness status of life limits on non-structural critical parts and how they should be controlled in service.

Intermediate reply sent on 20/11/2023:

The European Union Aviation Safety Agency (EASA) is reviewing the proposal contained in this safety recommendation and the existing regulatory framework. EASA will then decide if a rulemaking or other action is needed. This response will be updated as soon as an orientation is decided on this matter, which is anticipated to happen by Q1 2024.

Status: Open

UNKG-2023-004

Leonardo AW169, G-VSKP, 27/10/2018

It is recommended that the European Union Aviation Safety Agency define the airworthiness status of life limits and how they should be controlled for existing non-structural critical parts approved to Certification Specification 29.602 requirements, already in service.

Intermediate reply sent on 20/11/2023:

The European Union Aviation Safety Agency (EASA) is reviewing the proposal contained in this safety recommendation and the existing regulatory framework. EASA will then decide if an action is needed toward rotorcraft under EASA responsibility as primary certification authority. This response will be updated as soon as an orientation is decided on this matter, which is anticipated to happen by Q1 2024.

Status: Open

UNKG-2023-005

Leonardo AW169, G-VSKP, 27/10/2018

It is recommended that the European Union Aviation Safety Agency amend Certification Specification 29.602 to require manufacturers to implement a comprehensive post removal from service assessment programme for critical parts. The findings from this should be used to ensure that reliability and life assumptions in the certification risk analysis for the critical part or the system in which it operates remain valid.

Intermediate reply sent on 20/11/2023:

The European Union Aviation Safety Agency (EASA) is reviewing the proposal contained in this safety recommendation, the existing regulatory framework, and other actions recently made on the matter. EASA will then decide if a rulemaking or other action is needed. This response will be updated as soon as an orientation is decided on this matter, which is anticipated to happen by Q1 2024.

Status: Open

UNKG-2023-006

Leonardo AW169, G-VSKP, 27/10/2018

It is recommended that the European Union Aviation Safety Agency require manufacturers to retrospectively implement a comprehensive post removal from service assessment programme for critical parts, approved to Certification Specification 29.602 requirements, already in service. The findings from this should be used to ensure that the reliability and life assumptions in the certification risk analysis for the critical part or the system in which it operates remain valid.

Intermediate reply sent on 20/11/2023:

The European Union Aviation Safety Agency (EASA) is reviewing the proposal contained in this safety recommendation and the existing regulatory framework. EASA will then decide if an action is needed toward rotorcraft under EASA responsibility as primary certification authority. This response will be updated as soon as an orientation is decided on this matter, which is anticipated to happen by Q1 2024.

Status: Open

UNKG-2023-007

Leonardo AW169, G-VSKP, 27/10/2018

It is recommended that the European Union Aviation Safety Agency amend Certification Specification 29.602 to provide guidance and set minimum standards for the calculation of design load spectrums for non-structural critical parts. They must encompass, with an appropriate and defined safety margin, the highest individual operating load and combination of dynamic operating loads, and the longest duration of exposure to such loads that can be experienced in operation.

Intermediate reply sent on 20/11/2023:

The European Union Aviation Safety Agency (EASA) is reviewing the proposal contained in this safety recommendation and the existing regulatory framework. EASA will then decide if a rulemaking or other action is needed. This response will be updated as soon as an orientation is decided on this matter, which is anticipated to happen by Q1 2024.

Status: Open

UNKG-2023-008

Leonardo AW169, G-VSKP, 27/10/2018

It is recommended that the European Union Aviation Safety Agency amend the relevant requirements of Certification Specification 29 and their Acceptable Means of Compliance to emphasise that where potentially catastrophic failure modes are identified, rather than rely solely on statistical analysis to address the risk, the wider system should also be reviewed for practical mitigation options, such as early warning systems and failure tolerant design, in order to mitigate the severity of the outcome as well as the likelihood of occurrence.

Intermediate reply sent on 20/11/2023:

The European Union Aviation Safety Agency (EASA) is reviewing the proposal contained in this safety recommendation and the existing regulatory framework. EASA will then decide if a rulemaking or other action is needed. This response will be updated as soon as an orientation is decided on this matter, which is anticipated to happen by Q1 2024.

Status: Open

UNST-2020-035

AEROSPATIALE AS350, N350LH, 11/03/2018

After the actions requested in Safety Recommendation A-19-32 are completed, require owners and operators of existing AS350-series helicopters to incorporate the changes. (Safety Recommendation A-19-32 addressed to Airbus: Modify the floor-mounted FSOL in AS350-series helicopters to include protection from inadvertent activation due to external influences).

Final reply sent on 05/10/2023:

In response to this Safety Recommendation (SR), and in collaboration with Airbus Helicopters (AH), the European Union Aviation Safety Agency (EASA) took action to enhance the safety of the AS350 helicopter series by improving the floor-mounted Fuel Shut-Off Lever (FSOL) design to prevent inadvertent activation due to external influences.

AH has developed and approved under its Design Organisation Approval (DOA) privileges a modification (MOD 075101) of the metallic top plate of the FSOL. Initially, MOD 075101 was applicable to AS350 B2 and AS350 B3 helicopter models. Subsequently, the modification was extended to include AS350 B, AS350 B1, AS350 BA, AS350 BB, and AS350 D helicopter models.

To ensure widespread implementation of the FSOL design improvement, AH released Service Bulletin (SB) AS350-76.00.24, making the MOD 075101 retrofit available to all applicable owners and operators. The service bulletin was later updated to reflect the expanded applicability to all AS350 models.

While the original FSOL design is not considered unsafe by EASA and, as such, there is no need to issue an Airworthiness Directive (AD) under point 21.A.3B of Annex I (Part-21) to Regulation (EU) No. 748/2012, EASA nonetheless welcomes and supports the FSOL design improvement developed by AH. This modification will elevate the level of protection against inadvertent activation resulting from external influences.

Consequently, EASA has recommended the installation of MOD 075101 through the issuance of the EASA Safety Information Bulletin (SIB) ref. 2021-05 ("Fuel Shut-Off Lever Modification") dated 19/03/2021, with a subsequent revision on 08/04/2022 to account for the extended applicability of MOD 075101 to all AS350 affected models.

EASA notes the National Transportation Safety Board (NTSB) assessment letter 67376 asking EASA to re-evaluate the undertaken actions (i.e.: SIB 2021-05) and consider mandating the MOD 075101 through an AD, particularly for operators carrying passengers in the front seat near the FSOL.

However, upon thorough assessment, EASA's position differs from the conclusions outlined in NTSB assessment letter 67376. The safety concern highlighted by the accident clearly indicates that specific operations, such as passenger photo-shooting, introduce a level of risk of external influences within the cockpit area. In light of this, EASA believes that these risks warrant a specific operational risk assessment, along with the establishment of additional ad-hoc barriers.

The FSOL design improvement represents just one potential additional barrier that can be adopted. Hence, in EASA's assessment an SIB is the appropriate means of advising operators to implement this design improvement while emphasising the need for specific risk assessments.

Taking into account the information above, EASA considers that several actions have been taken to elevate the level of protection against inadvertent FSOL activation resulting from external influences. Therefore, it is concluded that this Safety Recommendation has been thoroughly addressed.

Status: Closed – Partial Agreement

ASTL-2019-001

ATR72, VH-FVR, 20/02/2014

The ATSB recommends that EASA take further action to review the current design standard (CS-25) in consideration of effect that dual control inputs may have on control of aircraft.

Intermediate reply sent on 27/01/2023:

The European Union Aviation Safety Agency (EASA) is currently assessing the Safety Issue SI-0010 "Inappropriate flight control inputs" within the frame of the Safety Risk Management (SRM) process. It includes the assessment of effects that simultaneous flight control inputs by both pilots may have on control of aircraft. Among other aspects, it will also evaluate crew's response to overspeed events.

An updated Safety Recommendation reply will be issued following the finalisation of the SI-0010 report.

Details of the Safety Issue SI-0010 can be found in the European Plan for Aviation Safety (EPAS) Volume III which is published on EASA's website:
https://www.easa.europa.eu/en/document-library/general-publications/european-plan-aviation-safety-2023-2025

Status: Open

DENM-2021-001

Dassault Falcon 900EX, OE-IMI, 03/12/2020

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.

Intermediate reply sent on 27/01/2023:

The European Union Aviation Safety Agency (EASA) and the manufacturer reviewed the content of the Aircraft Flight Manual (AFM) and concluded that the use of the Brake Anti-Ice System is already correctly documented. In fact, the contexts in which the use of the Brake Anti-Ice System is deemed "necessary" are operational considerations and those are clarified in the dedicated operational documentation (CODDE 2).

Notwithstanding this, in cooperation with EASA, the manufacturer intends to modify the operational manual (CODDE 2) including more explicit and more direct instruction on the usage of the Brake Anti-Ice System. Changes are expected to be incorporated in the next revision of the F900EX CODDE 2 planned for May 2023.

As a mitigation action until the revised CODDE 2 is published, Dassault Falcon has issued an updated Falcon Service Advisory FSA-32-44-003-R05-A "Transport Category Airplanes Equipped with Carbon Brakes: Recommendations to Prevent Freezing". The update reminds operators of the appropriate procedures and the importance of applying them.

Status: Open

DENM-2021-002

Dassault Falcon 900EX, OE-IMI, 03/12/2020

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.

Final reply sent on 27/01/2023:

In cooperation with the European Union Aviation Safety Agency (EASA), the manufacturer has evaluated the failure scenario for blocked wheels, including the potential impact of tyre debris and analysis of the lateral excursion. EASA agrees with the manufacturer that the result of the re-evaluated failure scenario does not constitute an unsafe condition.

The Significant Event Review has been updated with those additional considerations and no further action is deemed necessary.

Status: Closed – Agreement

FRAN-2022-013

CESSNA 525, N222NF, 14/08/2020

The BEA recalls the safety recommendation made in 2010 which, to date, has not been applied: “Consequently the BEA recommends to EASA that procedures in the flight manual relating to situations of doubtful or erroneous altitude be completed or developed by manufacturers” Consequently, the BEA recommends again that: Whereas the investigation carried out 10 years later shows that there are still incomplete procedures on what to do in the event of inconsistent altitude information; EASA, in liaison with the primary airworthiness authorities of the aeroplanes, implement the recommendation by not limiting itself to the particular case of the Pilatus PC12.

Intermediate reply sent on 27/01/2023:

The Cessna 525A was certified by the Federal Aviation Administration (FAA) in June 2000 on the basis of the airworthiness requirements applicable at the time. The FAA retains the responsibility of primary certification authority for the type. The occurrence aircraft (N222NF) is registered in the US and should therefore comply with 14 CFR (Code of Federal Regulations) Section 23 requirements.

Nevertheless, based on this Safety Recommendation the European Union Aviation Safety Agency (EASA) has raised a Continuing Airworthiness Review Item (CARI) to the Type Certificate Holders of CS-23 (Certification Specifications for Normal, Utility, Aerobatic and Commuter Aeroplanes), CS-27 (Certification Specifications for Small Rotorcraft) and CS-29 (Certification Specifications for Large Rotorcraft) aircraft as well as Supplemental Type Certificate Holders for avionics and/or air data systems for these aircraft. The CARI requires the design approval holder to review the operating procedures for air data mismatch or mis-compare and to report the results to EASA. Specifically, the CARI asks to ensure that:

If it is possible for the crew to determine a good air data source, the procedure includes selecting the good altitude source on the ATC (Air Traffic Control) transponder.
If it is not possible for the crew to determine a good air data source, the procedure should make it clear that all air data sources should be considered erroneous.
In the case that all air data sources are considered erroneous, there is a procedure for continued safe flight and landing that includes informing the ATC of the degraded situation and turning off the altitude reporting on the ATC transponder.

The design approval holders are expected to accomplish the review and report to EASA by the end of March 2023.
It is also highlighted that current airworthiness requirements (i.e. CS 23.2510 and associated Guidance Material) have already been amended to prevent these kind of issues from happening on newly certified aircraft.

Status: Open

HUNG-2023-001

Airbus A320, HA-LYD, 04/01/2020

In the course of the safety investigation the IC has found out that EU legislation does not provide sufficient guidelines for operators in the design and content of safety briefing cards. The Transport Safety Bureau of Hungary recommends that European Aviation Safety Agency (EASA) provide to offer comprehensive guidelines for air operators concerning safety briefing card content and design. By adopting the above proposal, safety briefing cards are expected to become more informative and therefore more useful in fulfilling their primary purpose.

Final reply sent on 31/03/2023:

Mandated design and content of safety briefing material is addressed under Commission Regulation (EU) No 965/2012 on air operations, and the associated Acceptable Means of Compliance (AMC) and Guidance Material (GM).

In particular, point CAT.OP.MPA.170 of Annex IV (Part-CAT) to Commission Regulation (EU) No 965/2012 mandates that the operator provides passengers with a safety briefing card on which picture-type instructions indicate the operation of emergency equipment and exits likely to be used by passengers.

In addition, point (a) of GM2 CAT.OP.MPA.170 stipulates that the information on the safety briefing material should be presented in a clear and unambiguous manner in a form easily understandable to passengers.

Furthermore, point (c) of GM2 CAT.OP.MPA.170 specifies that the safety briefing card should be designed, and the information should be provided, in a size easily visible to the passenger. The safety briefing card should be stowed in a location from which it is easily visible and reachable to the seated passenger and from where it cannot easily fall out. Information should be presented in a pictographic form and should be consistent with the placards used in the aircraft. Written information should be kept to the necessary minimum. The safety briefing card should only contain information relevant to safety.

The European Union Aviation Safety Agency (EASA) has therefore concluded that it would not be appropriate to amend the existing rules, since the provisions of Commission Regulation (EU) No 965/2012 and related AMC and GM adequately cover the intent of the Safety Recommendation.

Status: Closed – Disagreement

ITAL-2022-008

AIRBUS HELICOPTER AS350, I-AMVV, 07/01/2020

ANSV recommends [EASA] to request the manufacturer Airbus Helicopters to evaluate the possibility of implementing retro-vision systems that would provide the pilot with the fullest and widest possible view of the left side of the AS350 helicopter, currently only partially available.

Final reply sent on 27/01/2023:

The European Union Aviation Safety Agency (EASA) has evaluated, in conjunction with Airbus Helicopters, the possibility of implementing retro-vision systems (e.g. orientable mirrors) to provide the pilot with the fullest and widest possible view of the Left Hand (LH) side area of the AS350 helicopter.

Although such design solutions already exist and may be implemented on the AS350 helicopter, they are normally used to monitor the area beneath the helicopter, especially to improve pilot view during cargo hook operations, whereas they do not improve the pilot's view of the helicopter LH side area.

In any case, the operator should have provisions in place for the control of third parties on the ground (such as in AMC1 CAT.OP.MPA.105 and AMC1 SPO.OP.100) taking into account helicopter safety zones as defined in the applicable Flight Manual and should also develop appropriate procedures for boarding and disembarking including safety briefings (such as in ORO.GEN.110(f) and AMC1 SPO.OP.135). This should include a visual check carried out by a task specialist, a technical crew member or by the pilot himself / herself with or without the support of additional optional equipment (e.g. orientable mirrors or other alternative means).

EASA acknowledges that the Agenzia Nazionale per la Sicurezza del Volo (ANSV) may consider a retro-vision system as an extra safety net.

However, in EASA's assessment, such a system would not necessarily represent an additional safety net and may even erode or replace existing provisions that, when applied correctly, are more effective than a retro-vision system.
Based on the above-mentioned assessment, EASA considers that the safest and most effective way to address the risk identified in the Safety Recommendation is to implement and adhere to Standard Operating Procedures for embarking/disembarking occupants with rotors turning and subsequent take-off, which are best suited for the specific operational context of the helicopter.

Status: Closed – Partial Agreement

ITAL-2022-009

AIRBUS HELICOPTER AS350, I-AMVV, 07/01/2020

ANSV recommends [EASA] to request the manufacturer DART Aerospace to evaluate the possibility of modifying the closing mechanisms of its baskets, in order to remove protrusions potentially dangerous during ground operations around helicopters equipped with such products.

Intermediate reply sent on 27/01/2023:

Transport Canada Civil Aviation (TCCA) is the Primary Certification Authority for DART Aerospace baskets design.

Nevertheless, following this Safety Recommendation (SR), the European Union Aviation Safety Agency (EASA), as Validating Authority only for the above-mentioned optional installation, has proactively initiated coordination with both TCCA and DART Aerospace (i.e. the basket design holder) to evaluate the possibility of modifying the basket closing mechanism, in order to protect the hook of the opening lever or remove protrusions that are potentially dangerous during ground operations.

As an observation, EASA would like to highlight that the modification of the basket closing mechanism would be seen as a design improvement.

Moreover, EASA considers that the need for a design improvement of the basket closing mechanism is not linked to this specific accident and, therefore, the safety concern highlighted in this SR is not considered to be an unsafe condition that would warrant Airworthiness Directive (AD) action under point 21.A.3B of Annex I (Part-21) to Regulation (EU) no. 748/2012.

Status: Open

LITH-2023-001

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency assesses and determines the time at which the aircraft's flight time should be recorded in the aircraft logbook, whether it should be the airborne time or the block time.

Final reply sent on 31/03/2023:

Provisions on aircraft flight time records are included in Commission Regulation (EU) No 965/2012 on air operations, and the associated Acceptable Means of Compliance (AMC).

NCO.GEN.150 of Annex VII (Part-NCO) to Commission Regulation (EU) No 965/2012 and notably points (a)(7), (8) and (9) of the associated AMC1 NCO.GEN.150 stipulate that the Journey Log should include the time of departure and time of arrival, as well as hours of flight.

The requirement is therefore covered by the current regulations, in line with the International Civil Aviation Organization (ICAO) Annex 6 Part II section 2.8.2.1.

Any national requirements which may contradict these provisions need to be addressed by the national competent authority.

Therefore, the European Union Aviation Safety Agency (EASA) does not consider that regulatory change would bring about any additional safety benefits.

Status: Closed – Disagreement

LITH-2023-003

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency establish a requirement for approved training organisations to set minimum periods of time intended for pre-flight operations before the flight and for post-flight operations after the flight.

Final reply sent on 31/03/2023:

The European Union Aviation Safety Agency (EASA) considers that Commission Regulation (EU) No 1178/2011 laying down technical requirements and administrative procedures related to civil aviation aircrew and the associated Acceptable Means of Compliance (AMC) already contain several provisions that set out the technical requirements around pre-flight and post-flight activities.

Commission Regulation (EU) No 965/2012, Article 5(5) requires training flights to be operated in compliance with Annex VII (Part-NCO) or Annex VI (Part-NCC) of those Regulations, as applicable. Annex I (Part-FCL) of Regulation (EU) No 1178/2011 sets out the syllabus for training flights (e.g., for the Private Pilot License under point FCL.210 and associated AMC) which clearly addresses pre-flight activities.

The relevant aspects as regards safety are to execute the pre-flight or post-flight procedure relevant to the specific flight flown and not to reach a minimum time limit, and in this respect the pilot in command is fully responsible for complying with those requirements.

Therefore, EASA does not consider that regulatory change would bring about any additional safety benefits.

Status: Closed – Disagreement

LITH-2023-004

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency establish flight and duty time limitations and rest requirements for flight instructors of approved training organizations.

Final reply sent on 31/03/2023:

The European Union Aviation Safety Agency (EASA) considers that from a regulatory perspective, the aim of this recommendation is already implemented under Commission Regulation (EU) No 1178/2011 laying down technical requirements and administrative procedures related to civil aviation aircrew and the associated Acceptable Means of Compliance (AMC), notably ORA.ATO.230 and AMC1 ORA.ATO.230(b).

In accordance with ARA.GEN.300 of Annex VI (Part-ARA) of Regulation (EU) No 1178/2011, it is the responsibility of the competent authority to verify that the Approved Training Organisation (ATO) remains in compliance with the requirements applicable to the organisations.

Therefore, EASA does not consider that regulatory change would bring about any additional safety benefits.

Status: Closed – Partial Agreement

LITH-2023-005

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency establish the requirement that upon request the approved training organisation shall provide copies of individual records of flight times, duty periods and rest periods to the instructor concerned or to another approved training organisation for flight instructor who is or becomes an employee of that organisation.

Final reply sent on 31/03/2023:

It is part of the initial Approved Training Organisation (ATO) approval procedure (point ARA.GEN.310 of Annex VI (Part-ARA) of Regulation (EU) No 1178/2011) to verify that the organisation has established a management system (as per ORA.GEN.200 of Annex VII (Part-ORA) of Regulation (EU) No 1178/2011) and the appropriate documentation, i.e. operations manual and training manuals which address the flight instructor's flight and duty times and rest periods (point ORA.ATO.120 of Annex VII (Part-ORA) of Regulation (EU) No 1178/2011).

Furthermore, the ATO has to ensure continuous compliance with all the above requirements and is subject to continuous oversight by the competent authority according to Regulation (EU) No 1178/2011, Annex VI (Part-ARA), subpart GEN, section III.

Considering the above, the European Union Aviation Safety Agency has therefore concluded that the existing provisions of Commission Regulation (EU) No 1178/2011 and related Acceptable Means of Compliance (AMC) adequately cover the intent of the Safety Recommendation.

Status: Closed – Disagreement

LITH-2023-006

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency establish the requirement that the flight instructor when undertaking duties for more than one approved training organisation maintain

his/her individual records regarding flight and duty times and rest periods and provide each approved training organisation with the data needed to schedule activities in accordance with the applicable requirements.

Final reply sent on 31/03/2023:

It is part of the initial Approved Training Organisation (ATO) approval procedure (point ARA.GEN.310 of Annex VI (Part-ARA) of Regulation (EU) No 1178/2011) to verify that the organisation has established a management system (as per ORA.GEN.200 of Annex VII (Part-ORA) of Regulation (EU) No 1178/2011) and the appropriate documentation, i.e operations manual and training manuals which address the flight instructor's flight and duty times and rest periods (point ORA.ATO.120 of Annex VII (Part-ORA) of Regulation (EU) No 1178/2011).

Furthermore, the ATO has to ensure continuous compliance with all of the above requirements and is subject to continuous oversight by the competent authority according to Regulation (EU) No 1178/2011, Annex VI (Part-ARA), subpart GEN, section III.

Considering the above, the European Union Aviation Safety Agency has therefore concluded that the existing provisions of Commission Regulation (EU) No 1178/2011 and related Acceptable Means of Compliance (AMC) adequately cover the intent of the Safety Recommendation.

Status: Closed – Disagreement

LITH-2023-007

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency establish the requirement for the national competent authority to establish requirements for the maintaining and controlling of flight instructors' flight and duty times and rest periods.

Final reply sent on 31/03/2023:

Commission Regulation (EU) No 1178/2011 laying down technical requirements and administrative procedures related to civil aviation aircrew provides that the operations manual of Approved Training Organisation (ATO) providing training for commercial pilot licence, multi-crew pilot licence and airline transport pilot licence shall include relevant information to particular groups of personnel, such as flight instructors. Among others, such general information should include flight and duty time limitations for instructors (point ORA.ATO.230 and AMC1 ORA.ATO.230(b) paragraph (a)(14)).

Moreover, the ATO's compliance monitoring system shall verify that the requirements are met (ORA.GEN.200 and AMC1 ORA.GEN.200(a)(6)).

In addition, the competent authority shall exercise oversight of organisations it has approved (ARA.GEN.300).
The European Union Aviation Safety Agency (EASA) has therefore concluded that it would not be appropriate to amend the existing rules, since the provisions of Commission Regulation (EU) No 1178/2011 and related Acceptable Means of Compliance (AMC) adequately cover the intent of the Safety Recommendation.

Status: Closed – Partial Agreement

LITH-2023-008

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency establish the requirement for the national competent authority to control how approved training organizations and flight instructors maintain and control the flight instructor's flight and duty times and rest periods.

Final reply sent on 31/03/2023:

Commission Regulation (EU) No 1178/2011 laying down technical requirements and administrative procedures related to civil aviation aircrew provides that it should be part of initial Approved Training Organisation (ATO) approval procedure and continuous oversight activity to ensure compliance with the applicable requirements.

In particular, it is part of the initial Approved Training Organisation (ATO) approval procedure (Annex VI (Part-ARA) of Regulation (EU) No 1178/2011, point ARA.GEN.310) to verify that the organisation has established a management system (as per ORA.GEN.200 of Annex VII (Part-ORA) of Regulation (EU) No 1178/2011) and the appropriate documentation, i.e operations manual and training manuals which address the flight instructor's flight and duty times and rest periods. (cf. point ORA.ATO.120 of Annex VII (Part-ORA) of Regulation (EU) No 1178/2011).

Furthermore, the ATO has to ensure continuous compliance with all of the above requirements and is subject to continuous oversight by competent authority according to Regulation (EU) No 1178/2011, Annex VI (Part-ARA), subpart GEN, section III.

Considering the above, EASA has therefore concluded that the existing provisions of Commission Regulation (EU) No 1178/2011 and related Acceptable Means of Compliance (AMC) adequately cover the intent of the Safety Recommendation.

Status: Closed – Partial Agreement

LITH-2023-009

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency define the requirement, that each approved training organization to have a minimum time period for pre-flight and post-flight duties of flight instructors.

Final reply sent on 31/03/2023:

The European Union Aviation Safety Agency (EASA) considers that there is no need to establish further requirements as Commission Regulation (EU) No 1178/2011 laying down technical requirements and

administrative procedures related to civil aviation aircrew and the associated Acceptable Means of Compliance (AMC) already contain several provisions that set out requirements around pre-flight and post-flight activities.

Regulation (EU) 965/2012, Article 5(5) requires for training flights to be operated in compliance with Annex VII (Part-NCO) or Annex VI (Part-NCC) of that Regulations, as applicable, for which the pilot-in-command is responsible. Annex I (Part-FCL) of Commission Regulation (EU) No 1178/2011 sets out the syllabus for training flights (e.g. for the PPL private pilot license under point FCL.210 and associated AMC) which clearly addresses the pre-flight activities.

The relevant aspects as regards safety are to execute the pre-flight or post-flight procedure relevant to the specific flight flown and not to reach a minimum time limit, and in this respect the pilot in command is fully responsible to for complying with those requirements.

Therefore, EASA does not consider that a regulatory change would bring about any additional safety benefits.

Status: Closed – Disagreement

LITH-2023-010

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency define the requirements and conditions under which flight instructors shall provide services to an approved training organisation if they are not permanent employees of that organisation.

Final reply sent on 31/03/2023:

The European Union Aviation Safety Agency (EASA) is governed by Regulation (EU) 2018/1139 which set outs its roles and responsibilities with regard to civil aviation safety. However, EASA is not competent for matters that relate to rendering services under contractual arrangements or that fall under the remit of national labour law of states participating in the work of EASA (commonly referred to as 'EASA Member States'). Therefore, regulating the status of the flight instructors' employment is outside EASA's remit.
As to considerations of aviation safety, reference is made to points ORA.ATO.130 and ORA.ATO.230 of Annex VII (Part-ORA) to Commission Regulation (EU) No 1178/20122 as well as their associated Acceptable Means of Compliance (AMC) that establish the requirements and conditions under which Flight Instructors provide training in accordance with the training manual of the Approved Training Organisations (ATO).

Status: Closed – Not Responsible

LITH-2023-011

Piper PA-30 Twin Comanche, LY-ARS, 08/12/2019

It is recommended that the European Union Aviation Safety Agency define the requirements and conditions under which approved training organisations use, control and are responsible for nonowned aircrafts used for training.

Final reply sent on 31/03/2023:

There are several provisions in place in Regulation (EU) No 1178/2011 laying down technical requirements and administrative procedures related to civil aviation aircrew, in Regulation (EU) No 965/2012 laying down rules on air operation as well as Commission Regulation (EU) No 1321/2014 establishing the continuing airworthiness requirements and dealing with maintenance requirements for aircraft used during training, regardless of the ownership of the aircraft.

Therefore, EASA does not consider that a regulatory change would bring about any additional safety benefits.

Status: Closed – Disagreement

NORW-2018-002

Eurocopter EC225, LN-OJF, 29/04/2016

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.

Final reply sent on 31/03/2023:

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’.

Notice of Proposed Amendment (NPA) 2022-01 was published on 14 February 2022.

Under item 9, this NPA took into account this safety recommendation and proposed to amend CS-27 and CS-29 (certification specifications and acceptable means of compliance for small and large rotorcraft).
On 7 February 2023, EASA published Executive Director (ED) Decision 2023/001/R issuing CS-27 Amendment 10 and CS-29 Amendment 11.

Acceptable means of compliance (AMC) AMC1 27.1529 and AMC1 29.1529 have been created, 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.

Status: Closed – Agreement

NORW-2018-003

Eurocopter EC225, LN-OJF, 29/04/2016

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.

Final reply sent on 31/03/2023:

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'.
Notice of Proposed Amendment (NPA) 2022-01 was published on 14 February 2022.

Under item 5, this NPA took into account this safety recommendation and proposed to amend CS-27 and CS-29 (certification specifications and acceptable means of compliance for small and large rotorcraft).

On 7 February 2023, EASA published ED Decision 2023/001/R issuing CS-27 Amendment 10 and CS-29 Amendment 11.

Acceptable means of compliance (AMC) AMC1 27.571 and AMC1 29.571 have been created, with regard to the fatigue tolerance evaluation of rotor drive system components subject to rolling contact fatigue (RCF). For CS-29 rotorcraft, AMC1 29.571 provides that the fatigue tolerance evaluation of rotor drive system principal structural elements (PSEs) should include, when applicable, the effect of RCF considering:
- damage threats such as dents, scratches, corrosion, loss of pre-load in bearings or joints, surface and sub-surface material defects;
- residual stress coming from surface treatments and other manufacturing processes and all other applicable loading conditions.

For this purpose, steps should be taken to minimise the risk of crack initiation due to RCF on PSEs (and in particular for integrated bearing races), by minimising contact pressures, specifying high standards for surface finishes, ensuring good lubrication, guaranteeing cleanliness and maintaining lubricant quality regardless of the fatigue tolerance approach selected. The applicant should verify that the selected allowables are suitable to ensure the integrity of the affected components in the operating conditions (temperature, lubrication, cleanliness, etc.) applicable to their design. Experience has demonstrated that it can be beneficial for bearings to be designed so that the reliability of any integrated race subject to the fatigue tolerance evaluation is even higher than the less critical race of the bearing. In this way, degradation of the less critical race can lead to detection of the bearing failure before cracking initiates in the integrated race. The consequences of damage to the integrated race from the debris generated in such scenarios should be considered in the evaluation.

As it is difficult to totally preclude cracking initiated by RCF, a fail-safe approach is recommended wherever possible, such that cracking of the affected structural element(s) is detected prior to its residual strength

capability falling below the required levels prescribed in CS 29.571(f). Should fatigue cracks initiate and develop into:

(1) Partial failure, such as spalling: the applicant should demonstrate that this condition will be detected at an early stage to avoid a catastrophic failure due to further fatigue failure, or loss of integrity of the affected part or any surrounding ones. Any assumptions regarding potential surface and sub-surface cracking considering possible damages or flaws, and whether a through crack may develop and its relationship with other forms of damage including spalling should be verified.
(2) Failure, such as through-cracking of a part together with any other associated damage in the system: the applicant should demonstrate that the remaining structure will withstand service loads and design limit loads without failure until the failure is detected and damaged components are repaired or replaced to avoid a catastrophic failure. Any assumptions regarding crack path development (i.e. bifurcation, multicracks, etc.) that could affect this fail-safe demonstration should be verified.

This demonstration should be performed as appropriate using experience from similar designs, functional tests, structural tests and/or reliable analyses to substantiate that the fail-safe design objective has been achieved, including residual strength demonstration. In addition, the continued safe operation of the affected mechanical system(s) should be ensured for this period considering the potential effect of the failure or partial failure taking into account any pre-existing fatigue damage accrued prior to the failure in the affected component and/or surrounding ones on stiffness, dynamic behaviour, loads and functional performance. 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. Furthermore, the instructions for continued airworthiness, prescribing the maintenance actions leading up to and following detection of potential failure or partial failure should be substantiated sufficiently to ensure timely repair or replacement of damaged components. The substantiation should consider aspects such as threshold criteria on indicators of means of detection for additional investigative actions and removal from service of the damaged parts, the overall clarity and practicality of the instructions for continued airworthiness and human factors aspects. In addition to following a fail-safe approach, inspection and retirement times may be needed in order to ensure that the assumptions supporting the fail-safety and detection of failure remain valid throughout the operational life of the component.

Status: Closed – Agreement

NORW-2018-008

Eurocopter EC225, LN-OJF, 29/04/2016

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.

Intermediate reply sent on 31/03/2023:

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'.
Notice of Proposed Amendment (NPA) 2022-01 was published on 14 February 2022.
Under item 6, this NPA took into account this safety recommendation and proposed to amend CS-27 and CS-29 (certification specifications and acceptable means of compliance for small and large rotorcraft).

The NPA proposed to create CS 27.602(c)/29.602(c) and associated acceptable means of compliance AMC1 27.602/29.602 to require the development of a continued integrity verification programme (CIVP). The content of the proposed amendments was 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).

However, several comments have been raised during the public publication of NPA 2022-01 and highlighted a need to clarify the applicability, to promote the proportionality and to better refine the concept of CIVP before introduction. A dedicated webinar was organised on 28 December 2021 to discuss those concerns with industry and National Competent Authorities (NCA). The feedback received was quite positive even if it was clear that the concept needs to be studied further. In consequence, it has been decided that this topic will not be included in the CS-27 and CS-29 amendments resulting from NPA 2022-01. A dedicated initiative will be launched to better refine the concept.

Status: Open

NORW-2022-001

Airbus Helicopters AS350 B3, LN-OFU, 31/08/2019

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.

Intermediate reply sent on 27/01/2023:

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 (SRs) 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.
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 - Phase 1 – Crash resistant fuel systems': https://www.easa.europa.eu/en/document-library/notices-of-proposed-amendment/npa-2022-10
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). The proposed amendments to Part-26 have the following different applicability criteria and dates:
— from 1 year after the entry into force of the amendments to Part-26, all newly produced rotorcraft (small (CS-27) and large (CS-29) rotorcraft) will be required to comply either with the full crash resistance requirements for fuel systems that are contained in CS 27.952, CS 29.952, CS 27.963, CS 29.963, CS 27.973, CS 29.973, and CS 27.975(b) or CS 29.975 (a) or with the CS-26 requirements that have been assessed to provide an acceptable reduction in the likelihood of a post-crash fire;
— from 7 years after the entry into force of the amendments to Part-26, all rotorcraft (CS-27 and CS-29 rotorcraft) that are operated in EASA Member States (MSs) and are designed for five or more occupants will be required to comply either with the full crash resistance requirements for fuel systems that are contained in CS 27.952, CS 29.952, CS 27.963, CS 29.963, CS 27.973, CS 29.973, and CS 27.975(b) or CS 29.975 (a) or with the CS-26 requirements that have been assessed to provide an acceptable reduction in the likelihood of a post-crash fire; and
— from 15 years after the entry into force of the amendments to Part-26, all rotorcraft (CS-27 and CS-29 rotorcraft) that are operated in EASA MSs and are designed for four or less occupants will be required to comply either with the full crash resistance requirements for fuel systems that are contained in CS 27.952, CS 29.952, CS 27.963, CS 29.963, CS 27.973, CS 29.973, and CS 27.975(b) or CS 29.975(a) or with the CS-26 requirements that have been assessed to provide an acceptable reduction in the likelihood of a post-crash fire.
EASA will analyse the comments received on NPA 2022-10 after the end of the public consultation.
These comments will be taken into account for the next step that will be the release by EASA of an Opinion to the European Commission recommending amendments to Regulation (EU) 2015/640.
EASA will update the response to this SR when the Opinion is released.

Status: Open

NORW-2022-002

Airbus Helicopters AS350 B3, LN-OFU, 31/08/2019

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.

Intermediate reply sent on 27/01/2023:

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 (SRs) 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.
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 -
Phase 1 – Crash resistant fuel systems':
https://www.easa.europa.eu/en/document-library/notices-of-proposed-amendment/npa-2022-10
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') independently of the type of operation.
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). The proposed amendments to Part-26 have the following different applicability criteria and dates:
— from 1 year after the entry into force of the amendments to Part-26, all newly produced rotorcraft (small (CS-27) and large (CS-29) rotorcraft) will be required to comply either with the full crash resistance requirements for fuel systems that are contained in CS 27.952, CS 29.952, CS 27.963, CS 29.963, CS 27.973, CS 29.973, and CS 27.975(b) or CS 29.975 (a) or with the CS-26 requirements that have been assessed to provide an acceptable reduction in the likelihood of a post-crash fire;
— from 7 years after the entry into force of the amendments to Part-26, all rotorcraft (CS-27 and CS-29 rotorcraft) that are operated in EASA Member States (MSs) and are designed for five or more occupants will be required to comply either with the full crash resistance requirements for fuel systems that are contained in CS 27.952, CS 29.952, CS 27.963, CS 29.963, CS 27.973, CS 29.973, and CS 27.975(b) or CS 29.975 (a) or with the CS-26 requirements that have been assessed to provide an acceptable reduction in the likelihood of a post-crash fire; and
— from 15 years after the entry into force of the amendments to Part-26, all rotorcraft (CS-27 and CS-29 rotorcraft) that are operated in EASA MSs and are designed for four or less occupants will be required to comply either with the full crash resistance requirements for fuel systems that are contained in CS 27.952, CS 29.952, CS 27.963, CS 29.963, CS 27.973, CS 29.973, and CS 27.975(b) or CS 29.975(a) or with the CS-26 requirements that have been assessed to provide an acceptable reduction in the likelihood of a post-crash fire.
EASA will analyse the comments received on NPA 2022-10 after the end of the public consultation.
These comments will be taken into account for the next step that will be the release by EASA of an Opinion to the European Commission recommending amendments to Regulation (EU) 2015/640.
EASA will update the response to this SR when the Opinion is released.

Status: Open

PORT-2020-001

Airbus Helicopters AS350 B3, CS-HFT, 05/09/2019

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.

Intermediate reply sent on 27/01/2023:

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 this Safety Recommendation (SR). 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.
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 -
Phase 1 – Crash resistant fuel systems':
https://www.easa.europa.eu/en/document-library/notices-of-proposed-amendment/npa-2022-10
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' (MSs) independently of the type of operation.
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). The proposed amendments to Part-26 have the following different applicability criteria and dates:
— from 1 year after the entry into force of the amendments to Part-26, all newly produced rotorcraft (small (CS-27) and large (CS-29) rotorcraft) will be required to comply either with the full crash resistance requirements for fuel systems that are contained in CS 27.952, CS 29.952, CS 27.963, CS 29.963, CS 27.973, CS 29.973, and CS 27.975(b) or CS 29.975 (a) or with the CS-26 requirements that have been assessed to provide an acceptable reduction in the likelihood of a post-crash fire;
— from 7 years after the entry into force of the amendments to Part-26, all rotorcraft (CS-27 and CS-29 rotorcraft) that are operated in EASA MSs and are designed for five or more occupants will be required to comply either with the full crash resistance requirements for fuel systems that are contained in CS 27.952, CS 29.952, CS 27.963, CS 29.963, CS 27.973, CS 29.973, and CS 27.975(b) or CS 29.975 (a) or with the CS-26 requirements that have been assessed to provide an acceptable reduction in the likelihood of a post-crash fire; and
— from 15 years after the entry into force of the amendments to Part-26, all rotorcraft (CS-27 and CS-29 rotorcraft) that are operated in EASA MSs and are designed for four or less occupants will be required to comply either with the full crash resistance requirements for fuel systems that are contained in CS 27.952, CS 29.952, CS 27.963, CS 29.963, CS 27.973, CS 29.973, and CS 27.975(b) or CS 29.975(a) or with the CS-26 requirements that have been assessed to provide an acceptable reduction in the likelihood of a post-crash fire.
EASA will analyse the comments received on NPA 2022-10 after the end of the public consultation.
These comments will be taken into account for the next step that will be the release by EASA of an Opinion to the European Commission recommending amendments to Regulation (EU) 2015/640.
EASA will update the response to this SR when the Opinion is released.

Status: Open

SPAN-2017-040

Rans S6, EC-YDQ, 15/07/2016

It is recommended that the European Aviation Safety Agency (EASA) lay out the measures required to initiate, at the European level, an awareness, information and training campaign directed at general aviation users and emergency services personnel on the existence, identification, location and deactivation of ballistic parachutes in the event of an accident or incident.

Intermediate reply sent on 31/03/2023:

The European Union Aviation Safety Agency (EASA) is currently working on two separate safety promotion campaigns addressing the topic of ballistic parachute systems, one intended for an audience of General Aviation pilots and aircraft owners, and one aimed at Emergency Services.

The plan is to liaise with National Aviation Authorities (NAA) and ENCASIA (the European Network of Civil Aviation Safety Investigation Authorities) and offer them the opportunity to be involved in this Safety Promotion task, in order to help disseminate the information throughout the states participating in the work of EASA (commonly referred to as 'EASA Member States').

Status: Open

SPAN-2023-001

Evektor EV-97 Eurostar SL, EC-LSP, 24/02/2019

It is recommended that the European Aviation Safety Agency (EASA) lay out the measures required to initiate, at the European level, an awareness, information and training campaign directed at general aviation users and emergency services personnel on the existence, identification, location and deactivation of ballistic rescue parachute systems in the event of an accident or incident.

Intermediate reply sent on 31/03/2023:

The European Union Aviation Safety Agency (EASA) is currently working on two separate safety promotion campaigns addressing the topic of ballistic parachute systems, one intended for an audience of General Aviation pilots and aircraft owners, and one aimed at Emergency Services.

The plan is to liaise with National Aviation Authorities (NAA) and ENCASIA (the European Network of Civil Aviation Safety Investigation Authorities) and offer them the opportunity to be involved in this Safety Promotion task, in order to help disseminate the information throughout the states participating in the work of EASA (commonly referred to as 'EASA Member States').

Status: Open

SPAN-2023-002

Evektor EV-97 Eurostar SL, EC-LSP, 24/02/2019

It is recommended that the European Aviation Safety Agency (EASA) should liaise with International Civil Aviation Organization (ICAO) to include standards for the design (conspicuity, coloration, visibility, and content) in the installation of ballistic rescue parachute systems. This should include, as compulsory for pyrotechnical systems, specifications of the routing of the components of the system and a thermal exposure indicator to enable emergency responders to quickly and safely disable the system, and fully alert persons to the hazards and the danger areas on the aircraft.

Final reply sent on 31/03/2023:

The European Union Aviation Safety Agency (EASA) Certification Specifications applicable to Light Sport Aeroplanes, CS-LSA, expect that installed ballistic parachute recovery systems (BPRS) comply with ASTM F2316-12 international standard 'Standard Specification for Airframe Emergency Parachutes' (refer to subpart K, CS-LSA.45).

In the past, EASA also used the same ASTM international standard in the certification basis for other small aeroplane categories by means of a Special Condition.

In 2020, ASTM F3408/F3408M-20 standard 'Standard Specification for Aircraft Emergency Parachute Recovery Systems' was issued focusing on Level 1, 2, 3, and 4 Normal Category aeroplanes (under CS-23 Amendment 5). In 2021, the standard was revised to the -21 version.

EASA will soon publish Issue 4 of the Acceptable Means of Compliance and Guidance Material (AMC/GM) to CS-23 which will include a reference to ASTM international standard F3408/F3408M-21.

It should be noted that states participating in the work of EASA (commonly referred to as 'EASA Member States') may decide to adopt certification specifications similar to those of published by EASA for aircraft that fall outside the scope of Regulation (EU) 2018/1139.

The two ASTM standards referenced above require the provision of three types of placard or label ("danger", "identifying" and "warning" placards) in order to alert rescue or other personnel at the scene of an accident or incident. The minimum sizes of the labels and the colours to be used are addressed in the standards. These minimum sizes and colours are considered to be adequate in terms of providing an alerting function when personnel are approaching the aircraft whilst still a reasonable distance away. It also includes the indication of the egress point of the rocket launcher.

The intent of the standards is that the placards should provide enough information to the emergency responders to identify the presence of the equipment and obtain the contact information required to seek advice from the manufacturer of the ballistic device. When installed according to such standards, the placards should effectively provide the necessary information in most accident scenarios. Moreover, the standards require BPRS manufacturers to 'provide on their website or by printed goods made available as requested, explanations or instruction about safing their systems or disabling their systems as required for the safety of rescue personnel arriving at the scene of an incident or accident'.

Additionally, the standards provide several specifications addressing the safe routing of system components.

As detailed in the EASA response to Safety Recommendation SPAN-2017-042 [REC 42/17], an EASA analysis of accidents performed in 2018 did not indicate a safety concern that would justify the need to raise new EASA design-related specifications.

EASA analysed this new accident and concluded that it does not highlight new concerns that would

invalidate the previous EASA conclusion.

The presence of a thermal exposure indicator would not have provided additional information regarding this accident, which did not involve a fire. In the event of a fire, the benefit of such a thermal indicator appears to be very limited as the indicator would probably be destroyed in many scenarios. Furthermore, with or without an indicator, the action to be performed (safe extraction, if possible, and destruction of the pyrotechnic device) is the same. It is therefore more important to ensure that rescue personnel are adequately trained to handle the presence of BPRS.

At the level of ICAO, discussions on this topic held few years ago have resulted in a decision not to amend the standards and recommended practices (SARP), but instead to include guidance in the Manual of Aircraft Accident and Incident Investigation, Part III — Investigation (Doc 9756). From the analysis described above, EASA did not find any new elements to justify re-opening this discussion at ICAO level..

Status: Closed – Partial Agreement

UNKG-2020-025

DHC-8-402, G-FLBE, 14/11/2019

It is recommended that the European Union Aviation Safety Agency require that the flight data recorder system fitted to DHC-8-400 series of aircraft registered in Europe record unfiltered data for the parameters representing primary flight control input positions and input forces, so that their original sensor signal values can be reliably established.

Final reply sent on 31/03/2023:

The safety concern described in the safety recommendation is not considered to be an unsafe condition that would warrant Airworthiness Directive (AD) action under Regulation (EU) 748/2012, point 21.A.3B. However, the European Union Aviation Safety Agency (EASA) has published Safety Information Bulletin SIB No.: 2023-02 on 01/02/2023.

This SIB explains that starting from DHC-8-400 serial number 4472 onwards, for which the first individual Certificate of Airworthiness was issued on July 2014, all aeroplanes were delivered with an updated Flight Signal Conditioning Unit (FSCU) that does not filter control input position parameters and input force parameters.

The SIB also observes that alternatively, the existing FSCU can be replaced with the updated one, in accordance with the Aircraft Illustrated Part Catalogue which details the qualified interchangeability conditions and the Aircraft Maintenance Manual which provides instructions on how to carry out the replacement.
The SIB is published on the EASA website, at the following link:
https://ad.easa.europa.eu/ad/2023-02.

By means of this SIB, for aeroplanes with a serial number below 4472 and not equipped with an updated FSCU, EASA recommends the implementation of SB 84-31-65 Rev B (or later revisions).

Status: Closed – Partial Agreement

Annual
Safety Recommendations
Review
2024

Annex B
Definitions

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;

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.

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

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;

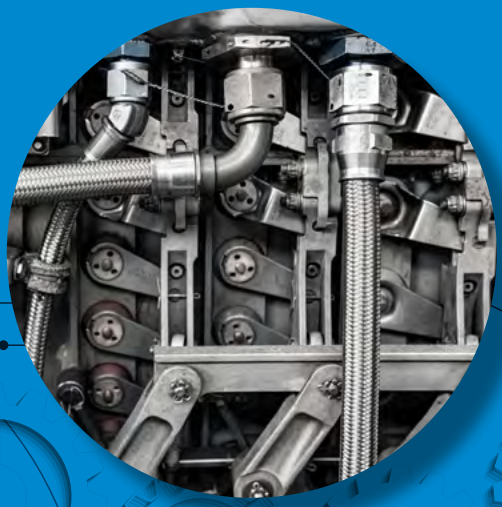
(e) participate in off-scene investigative activities such as component examinations, tests and simulations, technical briefings and investigation progress meetings, except when related to the determination of the causes or the formulation of safety recommendations.

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.

Annual
Safety Recommendations
Review
2024

Annex C

Safety Recommendations classification



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.

EASA
European Union Aviation Safety Agency

EUROPEAN UNION AVIATION SAFETY AGENCY
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