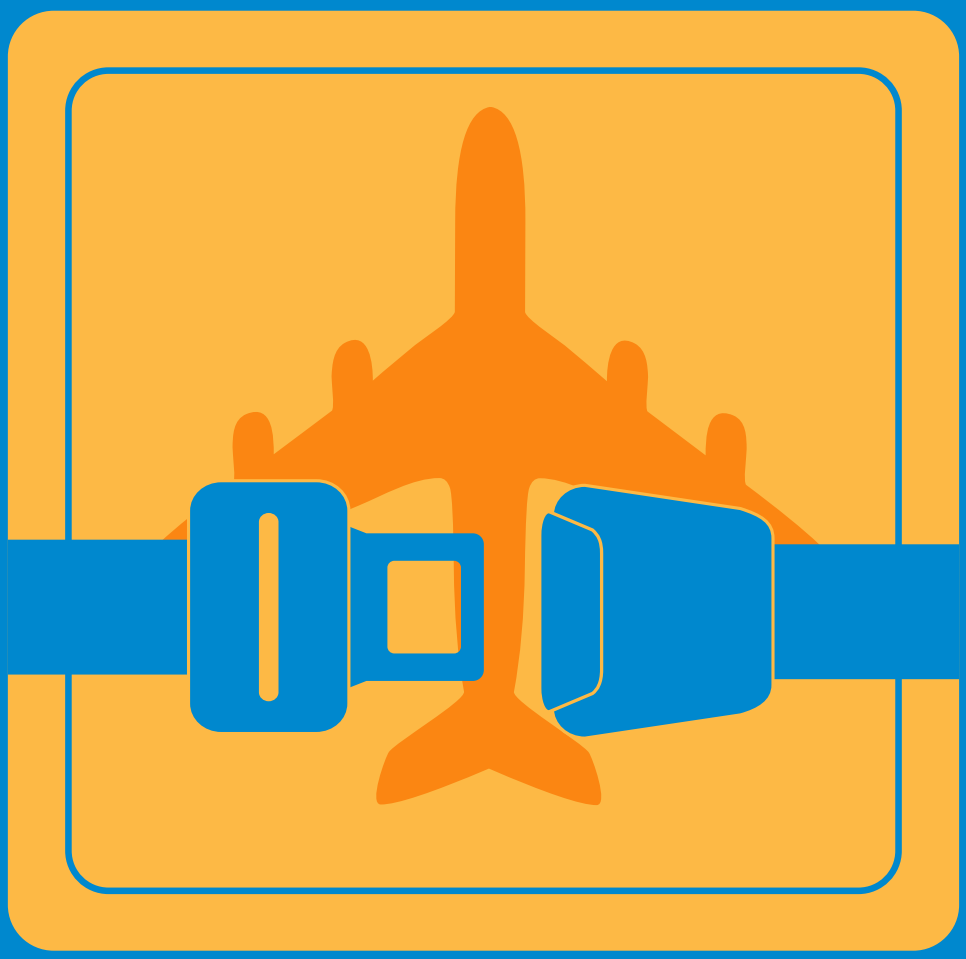
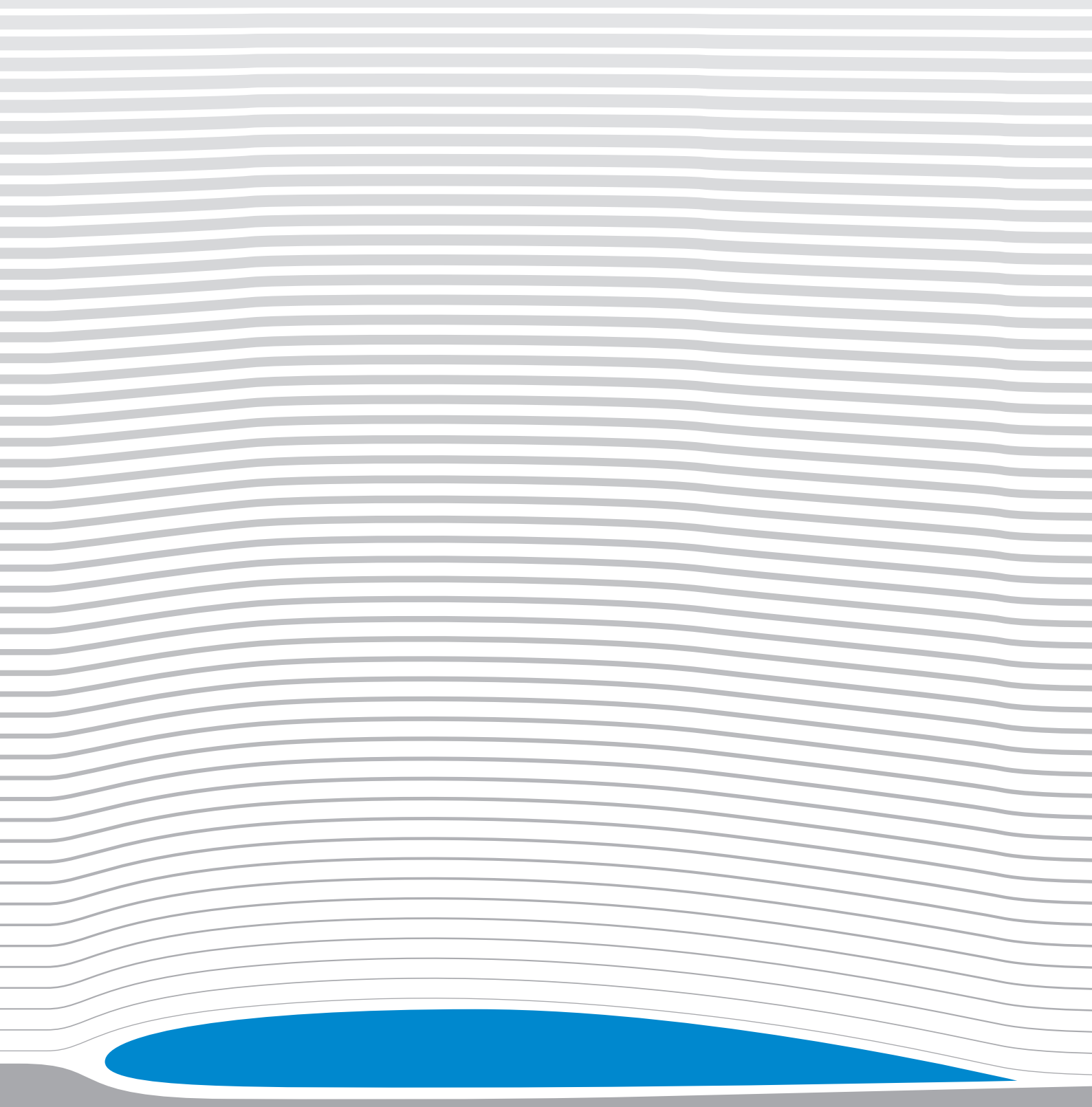
EASA
European Aviation Safety Agency

Annual Safety Recommendations Review

2015





EUROPEAN AVIATION SAFETY AGENCY
SAFETY ANALYSIS AND RESEARCH DEPARTMENT

Designed in Luxembourg

Strategy & Safety Management Directorate
Safety Intelligence & Performance Department

Annual Safety Recommendations Review 2015

Disclaimer:

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The Annual Safety Recommendation Review is produced by the European Aviation Safety Agency (EASA). This edition provides an overview of the safety recommendations that have been addressed to EASA in 2015. It also presents the replies produced during the year.

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

Apart from its safety related information character, this review is also expected to provide relevant information related to raised safety concerns, both for EASA itself, as well as its stakeholders, including the European public.

Contents

Abbreviation list

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AD	Airworthiness Directive
AFM	Aircraft Flight Manual
AMC	Acceptable Means of Compliance
ANSV	Italian National Agency for the Safety of Flight
BEA	Bureau d'Enquête et d'Analyse pour l'Aviation Civile
BPRS	Ballistic Parachute Recovery Systems
CAT	Commercial Air Transport
CM	Certification Memo
CRI	Certification Review Item
CRM	Crew Resource Management
CS	Certification Specifications
CS-LSA	Certification Specifications for Light Sport Aeroplanes
CVR	Cockpit voice recorder
DSB	Dutch Safety Board
ELT	Emergency Locator Transmitter
ENCASIA	European Network of Civil Aviation Safety Investigation Authorities
EPAS	European Plan for Aviation Safety
ETOPS	Extended Operation
ETSO	European Technical Standard Order
EU	European Union
FAA	Federal Aviation Administration
GM	Guidance Material
GP	Glide Path
HOFO	Helicopter Offshore Operations
ICAO	International Civil Aviation Organization
ICCAIA	International Coordination Council for Aerospace Industry Associations
ILS	Instrument Landing System
LOC-I	Loss of control-inflight
MOPSC	Maximum Operational Passenger Seating Configuration
MS	Member states
NCO	Non-Commercial operations with Other than complex motor-powered aircraft
RE	Runway Excursion

Introduction

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At the European Union level, the principles governing the investigation of accidents and serious incidents are defined in Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation.

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

Regulation (EC) No 216/2008, which established EASA, states that "Results of air accident investigations should be acted upon as a matter of urgency, in particular when they relate to defective aircraft design and/or operational matters, in order to ensure consumer confidence in air transport".

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

- EASA delivers the first response to incoming recommendations within 90 days;
- The safety recommendations process is subject to continuous internal monitoring until all corrective actions are closed;
- The Agency receives assessments of its responses from Safety Investigation Authorities and can identify when opinions diverge. In this context, EASA considers the assessment given by the safety investigation authority on the appropriateness of the mitigation measures when closing the recommendation.

All safety recommendations must be taken into full consideration by all stakeholders to whom they are addressed. In this context, the Agency maintains transparency with respects to its decisions and actions, in line with its safety mission.

The Annual Safety Recommendations Review provides an overview on the follow-up performed by EASA in response to recommendations addressed to the Agency by Safety Investigation Authorities in relation to the investigation of Accidents and Serious Incidents or with respect to safety studies.

The first edition of this review was issued in 2007. This 9th edition shows the 2015 activity and presents:

- general statistical data of the safety recommendations addressed by safety investigation authorities to EASA in 2015.
- replies that EASA has given in 2015 to safety recommendations and safety issues that have been processed with actions taken.

Since 2011 a process to assess and mitigate safety risks at European level has been established. At the heart of this system is the concept of safety risks management, namely hazards identification, risks assessment and decision-making on the best course of action to mitigate those risks. EASA, Member States (MS) and industry work closely together in this process. At European level, this process is coordinated by the Agency and documented in the European Plan for Aviation Safety (EPAS).

The EPAS identifies the key safety issues as well as the safety actions to resolve or mitigate the hazards.

Safety recommendations are one of the key inputs to the safety risk management process. They provide information on the hazards as well as proposed solutions to mitigate the associated safety risks to the aviation system.

Safety Recommendations received in 2015

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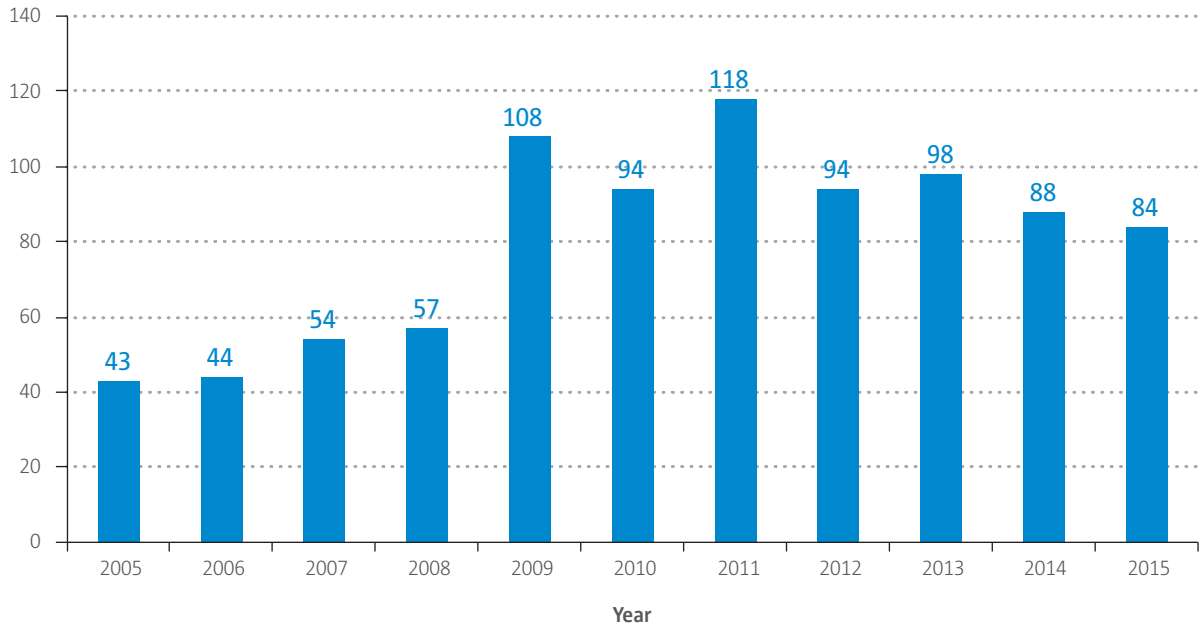
Overview of Safety Recommendations received in 2015

During 2015 EASA received a total of 84 safety recommendations. Figure 1 shows the total annual number of safety recommendations that the Agency has received in the last 10 years. The exchange of safety recommendations and the role of EASA in that regard is enforced by the adoption of Regulation (EU) No 996/2010 and the issuance of safety recommendations addressed to EASA started to develop just before this regulation came into force in 2010.

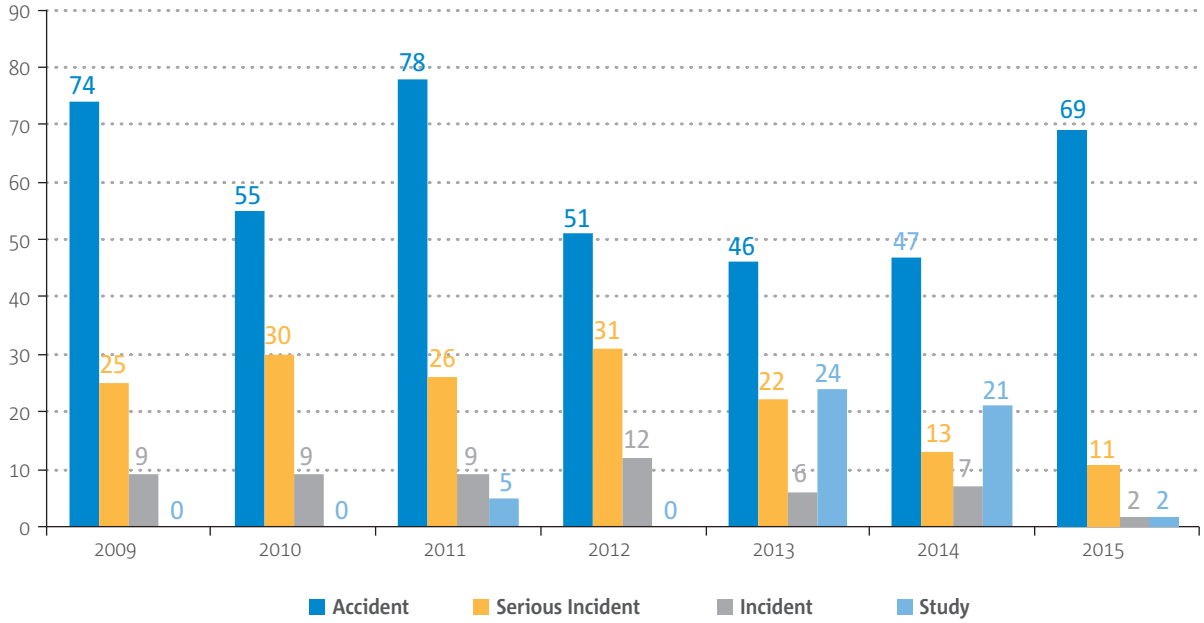
Figure 1: Safety Recommendations addressed to EASA per year



Since 2013, the total annual number of safety recommendations is slightly declining.

In 2015, the safety recommendations were related to one study and 44 different occurrences distributed as follows: 37 accidents, five serious incidents and two incidents. Figure 2 shows the total number of safety recommendations by different occurrence classes since 2009.

Figure 2: Safety Recommendations by occurrence class per year



The aircraft category involved in the occurrences that led to safety recommendations is listed in the table below.

Related to aircraft category	Safety Recommendations received in 2015
Fixed wing	71
Rotorcraft	11
Study	2
Total	**84**

Only one Safety Study with two safety recommendations was received. It addressed a review of "failures to fuel pumps on Thielert Aircraft Engines GmbH TAE 125-02-99 engines".

Almost 30% of the safety recommendations received in 2015 were related to four major occurrences as follows:

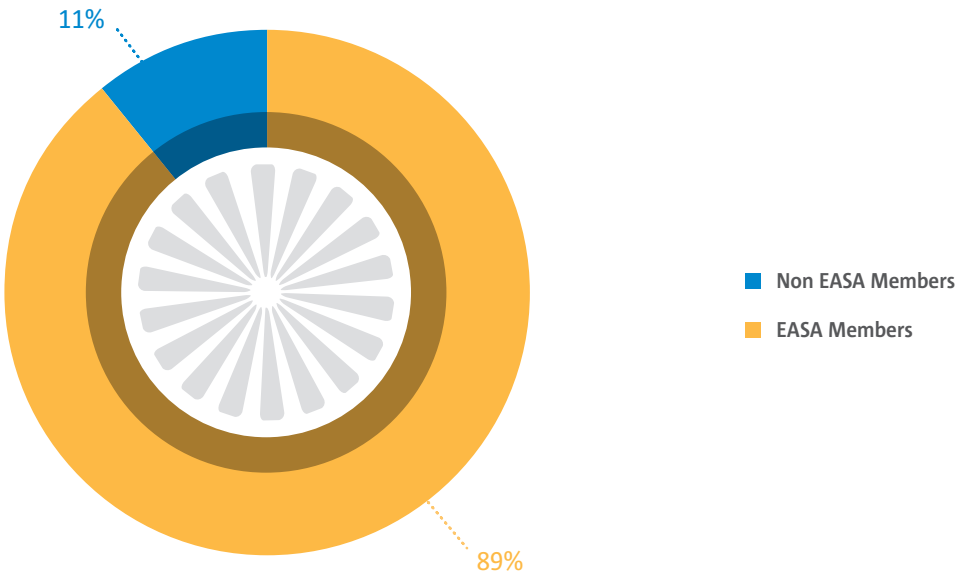
- runway excursion of Gulfstream GIV on 13 July 2012 at Le Castellet Airport, France (accident with 8 safety recommendations to EASA),
- upset during approach after hailstorm and windshear encounter of Airbus A320 on 2 August 2013 at Bordeaux Airport, France (serious incident with 7 safety recommendations to EASA),
- runway excursion due to unstabilised approach of Airbus A321 on 29 March 2013 at Lyon Saint-Exupéry Airport, France (accident with 5 safety recommendations to EASA), and
- loss of control-inflight (LOC-I) during parachute dropping of Pilatus PC6 on 19 October 2013 in Gelbressée, Namur, Belgium (accident with 4 safety recommendations to EASA).

However, the outcome of other major accidents were also addressed in 2015, including the crash of an Airbus A320 in the French Alps on 24 March 2015 due to an intentional descent piloted via the autopilot until collision with terrain. The European Commissioner for Transport, Ms Violeta Bulc, requested a Task Force be formed and lead by the European Aviation Safety Agency (EASA) in order to make recommendations, which would prevent such a disaster from happening again. It published 6 recommendations in July 2015. As a Safety Investigation Authority did not issue those recommendations, they do not appear in this information.

Origin of the Safety Recommendations received in 2015

In 2015, Safety Investigation Authorities of 20 different States addressed 84 safety recommendations to EASA.

➨ Figure 3: Origin of Safety Recommendations received by EASA



➨ Figure 3: Origin of Safety Recommendations received by EASA

Figure 3 shows the percentage distribution of the EASA States' contribution to safety recommendations that were addressed to EASA in 2015. It highlights that EASA Member States issued almost 90 % of the safety recommendations that were received by EASA in 2015.

The contribution of non-EASA Member States are related to the following:

- stall involving an A320 aircraft on 28 December 2014 enroute from Indonesia to Singapore (accident investigated by Indonesia),
- the inadvertent lift off and impact with obstacles involving a Robinson R44 helicopter which occurred on 21 March 2013 at Bulli Tops in Australia (accident investigated by Australia),
- the stall in icing condition involving a Saab 340 which occurred on 18 May 2011 in Argentina (accident investigated by Argentina),

- the engine shutdown involving a Diamond DA40 aircraft investigated which occurred on 8 May 2014 at Kulob airport in Tajikistan (accident investigated by Russia), and

- the turbulence event involving an A340 aircraft, which occurred on 3 February 2013 over the Indian Ocean (serious incident investigated by Singapore).

Those safety recommendations coming from non-EASA Member States mainly addressed actions that were already identified by EASA with actions already in-progress. The focus was mainly on mandatory upset recovery training including consideration given to the initial training and also the extension of the icing environment to be used for certification of large aeroplanes. Finally, it also triggered helicopters product improvements in crash-resistant fuel system to reduce post-impact fire.

Figure 4: States contribution to Safety Recommendations received in 2015

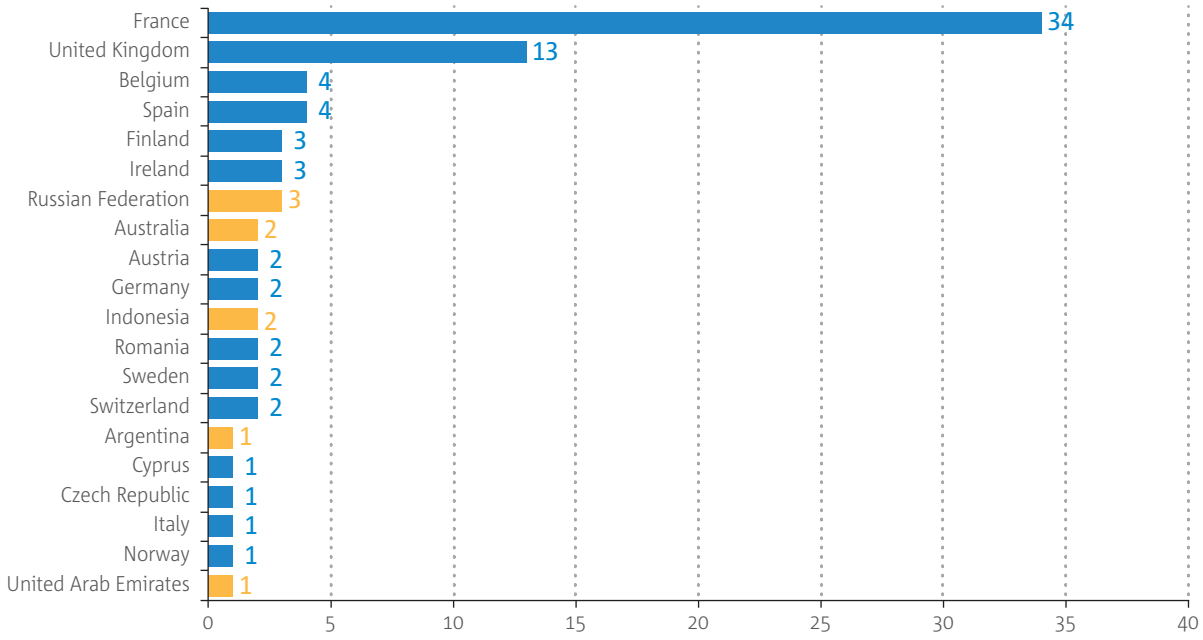


Figure 4 shows the contribution of States to the safety recommendations that were addressed to EASA in 2015. BEA-France and AAIB-United Kingdom issued the highest number of safety recommendations.

The high number coming from France is coherent with three of four main contributing events, as described in the previous chapter, that resulted in between 5 and 8 recommendations for each of the events. In addition, France acting as technical advisor, issued joint recommendations with the Malian Authority that conducted the investigation of a stall in icing condition accident involving an MD-83 in Mali on 24 July 2014.

The United Kingdom issued 13 safety recommendations that were related to seven different occurrences, all of which occurred in the UK. It recommended, among others, actions to mitigate the risk of leaving fan cowl doors inadvertantly open after maintenance on Airbus A320 family aircraft. As a consequence, a warning flag to help in preventing such hazards has been developed and airworthiness actions are on-going. The Agency also introduced a new certification Special Condition for the retention of engine cowls.

AAIB UK also requested some improvements on flight data and video recorders requirements for Helicopter Emergency Medical Services as a follow-up of the crash landing of an Airbus Helicopter EC135 in Glasgow on 29 November 2013 after fuel shortage.

Safety Recommendations replied in 2015

Safety Recommendations replied in 2015

Overview of Safety Recommendations replies in 2015

In 2015, EASA issued 144 replies to 135 safety recommendations. Regular updates are provided and there can be several replies for the same recommendation in a given year. The main volume of replies produced in 2015 were EASA responses to recommendations that were received in 2014 and 2015. However, replies to recommendations from earlier years were also issued per the table below for those cases where action follow-up and possible conclusion were issued thus allowing for update and/or closure of the safety recommendation.

Recommendation received in	Number of replies sent in 2015	Including Final Replies
2004	1	0
2005	2	1
2006	4	3
2007	1	1
2008	2	0
2009	3	2
2010	1	1
2011	6	3
2012	1	0
2013	14	6
2014	37	26
2015	72	35
total	**144**	**78**

Status of the Safety Recommendations replies in 2015

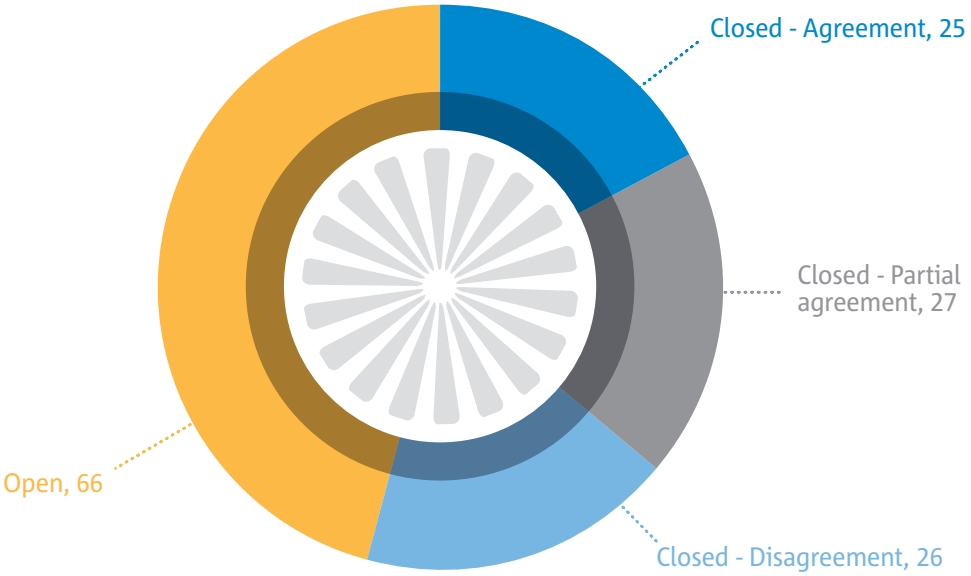
Each reply closing a safety recommendation is classified according to the categories[1] given in Annex C.

Among the above 144 replies sent in 2015, 78 were final replies that closed safety recommendations with the following EASA response category distribution:

- EASA agreed to take corrective actions on 52 cases either by directly applying the recommended actions for 25 of them, or by partially agreeing to 27 of them, thus recognising the safety issue but taking other corrective actions than the one recommended.
- In another 26 cases, the safety recommendations were evaluated and the safety benefit was not agreed with.

Figure 5 below depicts this distribution.

Figure 5: Safety Recommendation Responses sent in 2015



In order to monitor safety recommendations, their status remains open until the proposed action related to each one of them is fully developed and published.

In addition to the 78 closing replies, 66 updating replies were also issued in the same year that provided information on the progress of the actions decided upon by the Agency and for which the relevant activities were not yet completed.

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

The safety actions are of varied. Safety Information Bulletins and Airworthiness Directives provide tools to quickly inform and/or fix a problem concerning a given product. Regulatory evolution with a wider impact on the overall aviation system are also taken in account. Interim replies report on the progress of the processing of safety recommendations. The introduction of new systems/equipment require the Agency to study available technology and its maturity, review existing technical standards or develop new ones, and assess the safety benefit as well as potential side effects.

In all cases, nevertheless, the traceability of the rulemaking process as well as its deliverables is fully available online on the EASA website (http://hub.easa.europa.eu/).

Overview of key safety issues processed and actions carried out in 2015

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Among the actions taken in 2015, several key safety issues are outlined below with accompanying information on the EASA action taken. The description highlights the safety issues stemming from the safety recommendations and they also describe the EASA corrective actions taken in response.

Aircraft tracking, rescue operation and safety investigations

Taking into consideration the aftermath of the loss of commercial airplanes (A330 flight AF447 Rio-Paris on 1st June 2009 and B777 flight MH370 on 8 March 2014) together with the recommendations made by the International Civil Aviation Organisation (ICAO) on global tracking in May 2014, it was recommended that the position of public transport aircraft should be known at all times. The aim is to provide knowledge of the location of the aircraft in case of an abnormal behaviour, an emergency or an accident. In addition, future aircraft should be equipped with more advanced distress location means, which are robust to loss of normal electrical power on board and do not offer any control to disable it during the flight.

EASA Action:

The Agency supported the European Commission in the preparation of Commission Regulation (EU) 2015/2338 of 11 December 2015, which set provisions for aircraft tracking systems and aircraft distress location.

As proposed in EASA Opinion 01/2014, it also introduces requirements for improved performance of flight recorders and facilitates the recovery of an aircraft and its flight recorders after an accident over water, hence transposing several standards recently introduced in ICAO Annex 6. Those safety improvements include the discontinuation of outdated recording technologies such as magnetic tape or magnetic wire, the extension of the minimum recording duration of the CVR, the extension of the transmission time of the flight recorder underwater locating device and the carriage of an underwater locating device (ULD) with a very long detection range for aeroplanes performing long-range overwater flights.

The Agency issued a first set of Acceptable Means of Compliance (AMC) by ED Decision 2015/030/R of 17 December 2015.

Findings made during safety investigation of the serious accident of Airbus Helicopter EC 135 on 29 November 2013 in Glasgow City Centre, Scotland, highlighted the need of data to support investigations of helicopter in

emergency medical service operations. Furthermore, many light aircraft accidents underlined the need of flight recorder requirements regardless of aircraft weight.

EASA, acknowledging these concerns, has included the subject in its rulemaking activities; in particular, rulemaking tasks RMT.0271 and RMT.0272 'In-flight recording for light aircraft' were launched by EASA on 25 July 2014 with the publication of the associated Terms of Reference. It will also address the installation of a lightweight recording system in aircraft used for parachuting activities.

Cabin Air Quality

Another topic is cabin air quality in commercial air transport since an increasing number of reports of so-called fume events was observed. Recommendations have been made for further research on toxicity aspects, but also to run a measurements campaign on aircraft.

EASA Action:

Based on the available data coming from research, EASA launched two studies in the field of cabin air quality and the assessment of health implications in order to improve the knowledge on cabin air quality events:

- A flight measurement campaign (ref. EASA.2014.OP.16). The study (launched in October 2014) implements a preliminary measurement campaign setting the scene for a large-scale measurement activity on-board commercially operated large transport aeroplanes. The overall objective is to determine if there are any safety and/or potential long/short-term health risks resulting from the exposure to normal operating conditions and/or to cabin air contamination events.

- A study on characterisation of the toxicity of aviation turbine engine oils after pyrolysis (ref. EASA.2015.HVP.23). The purpose of this study (launched in November 2015) is to improve the knowledge on aviation oil toxicity and support the analysis of cabin/cockpit air contamination (e.g. flight measurement campaign mentioned above).

Furthermore, EASA is supporting the European Commission with the preparation of a Call for Tenders for a larger scale project. The scope of the project is being defined, and the following topics are under consideration: ground and in-flight measurements of bleed air and cabin air composition, analysis of Environmental Control System contamination, assessment of contamination sources other than engine/APU.

In the meantime, it is necessary to ensure timely and accurate occurrence reporting of fume related events. To support communication and training, EASA was closely involved in ICAO Cir 344-AN/202 on "GUIDELINES ON EDUCATION, TRAINING AND REPORTING OF FUME EVENTS" that includes detailed guidance for crew members on reporting of fume events.

Risks posed by Lithium Batteries on Board / Transportation of Lithium Batteries

A. Lithium batteries and Portable Electronic Devices (PED) in cabin:

The increase in the number of lithium batteries carried by passengers on board commercial passenger aircraft has led to increased passenger awareness.

EASA Action:

In September 2014 the AMC and GM CAT.GEN.MPA-140 was updated addressing PED battery fire hazards and provide recommendations for lithium battery firefighting in the cabin. The Agency issued on 16 December 2015 SIB No.: 2015-28, to raise awareness on the Air Operations Regulation and the ICAO Technical Instructions which require that both aircraft and aerodrome operators provide passengers with information on the dangerous goods that are forbidden on board. It also provides guidance on how to make passengers aware of these restrictions and conditions applicable to carriage of lithium batteries and portable electronic devices (PED) powered by such batteries in passenger aircraft.

B. Lithium Batteries as Cargo by Air:

Lithium batteries have also been the cause of, or contributed to, uncontrolled fires in cargo that lead to the loss of 3 freighter aircraft between 2006 and 2011.

The International Coordination Council for Aerospace Industry Associations (ICCAIA) and manufactures have expressed concerns that high density shipments of lithium batteries could originate or contribute to the development of a cargo fire that may exceed the capabilities of cargo compartment fire protection systems. Operators are recommended to conduct a risk assessment before transporting lithium batteries as cargo. ICAO has reviewed the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Doc 9284-AN/905) in order to improve the packaging and shipping standards/provisions. That document is referenced in the EASA OPS regulation as applicable requirement (CAT.GEN.MPA.200).

EASA Action:

Until safer methods of packaging and transporting are established and implemented, EASA supports the recommendation for operators to perform a risk assessment before transporting lithium batteries as cargo and has recommended that Member States include this safety issue in their oversight programmes. The Agency has informed operators about the risks and best practices related to transporting lithium batteries as cargo (see SIB No.: 2015-19 issued on 5 October 2015 'Transport of Lithium Batteries as Cargo by Air'.

C. Installed Aircraft Equipment powered by Lithium Batteries:

Several safety recommendations resulted from the investigation of a fire, which was initiated by a shortcut of a non-rechargeable lithium-metal battery in the ELT on a Boeing B787 parked on ground at London Heathrow

Airport on 12 July 2013. The safety recommendations mainly focus on a review of the Technical Standard Order (TSO) certification of installed aircraft equipment powered by lithium-metal batteries on transport category aircraft.

Other independent events in January 2013 on the Boeing B787 rechargeable primary aircraft lithium batteries triggered a review of the certification requirements for those batteries.

EASA Action:

EASA initially issued Airworthiness Directive AD 2013-15-07 directly addressing the product involved and mandating a one-time inspection. Currently, the safety recommendations are all addressed to the Federal Aviation Administration (FAA) but the Agency is working with the FAA to follow-up this issue. The Radio Technical Commission for Aeronautics (RTCA) is updating the corresponding industry standards for lithium battery testing. EASA is participating in this activity and will update the corresponding ETSOs.

After a Continuing Airworthiness Review Item request (CARI 25-06) to all JAR/CS25 TC holders for aircraft still in production, a proposed special condition on 'Non-Rechargeable Lithium Battery Installations' was published for consultation on 7 September 2015. This applies to all current CS-25 certification projects within the CRI process, if applicable. For installations of rechargeable lithium cell batteries into aircraft the concerns identified are addressed in CRIs on a case by case basis considering the latest results from the standards development discussions.

Unexpected Autopilot Behaviour on Instrument Landing System (ILS) Approach

The Dutch Safety Board (DSB) published a study in 2014 on unexpected behaviour of Automatic Pilot that can capture a wrong ILS glide slope. It recommended that EASA raise awareness of glide slope characteristics and possible consequences. It also recommended technical measures to avoid interception of the wrong glide path and to prevent severe pitch-up attitude upset. The study also addressed more general issues like the degradation of situational awareness due to reliance on automation and the development of new landing systems in the long term. The Italian National Agency for the Safety of Flight (ANSV) and the French BEA also investigated other cases resulting in similar findings.

EASA Action:

Initially, EASA published the Safety Information Bulletin (SIB) 2014-07 on 25 March 2014 on 'Unexpected Autopilot Behaviour on Instrument Landing System (ILS) Approach' to raise awareness of air operators. In August 2015, a revised version SIB No.: 2014-07R1 was published. It emphasises the need to address false glide slope characteristics and possible associated consequences for aircraft, and that this be documented accordingly in the operations manuals and in the flight crew training material. In the SIB, EASA also recommends that Air Navigation Service Providers ensure that their air traffic controllers use prescribed navigation procedures that reduce flight crew workload and allow positioning the aeroplane for intercepting the glide slope from below.

Unreliable Airspeed Indication at High Altitude/ Manual Handling at High Altitude

Loss of, or unreliable airspeed indications can result from a variety of factors. Certification requirements for airspeed indication systems impose a high level of redundancy and resilience to failure conditions, making a total loss of airspeed indication a rare event.

However, there have been a few events worldwide in recent years, typically caused by pitot blockage due to high altitude (glaciated and mixed phase) icing conditions. These have involved aeroplanes flying at high altitude in adverse convective weather.

Taking into account recent aviation accidents, with an European-registered MD-83 in Mali on 24 July 2014 and an Airbus A320 in Indonesia on 28 December 2014, where the crew failed to maintain appropriate attitudes at high altitude and entered in stall conditions that led the aeroplane to crash upon impact with the ground/sea. Safety recommendations underline the necessity that pilots be able to take over manual control at high altitudes. They also emphasise the importance of providingthe crew with adequate information and training on the aircraft type to identify and manage anomalies in air data information, autothrust/autothrottle and flight deck indication systems, as well as to take over manual control of non-coupled control sticks in order to maintain a safe aircraft state at all times.

EASA Action:

EASA published, on 16 October 2015, Safety Information Bulletin (SIB) 2015-17R1 to raise awareness on unreliable airspeed indication at high altitude/manual handling at high altitude, which recommends, amongst other things, that the initial and recurrent training include procedures for taking over and transfer of manual control of the aircraft, especially for fly-by-wire aeroplanes with independent side-sticks.

Existing Air Operations and Flight Crew Licensing (OPS/FCL) Operational Evaluation Board (OEB) reports and recently approved OSD-FC (Operational Suitability Data - Flight Crew) include relevant dedicated Training Areas of Special Emphasis (TASE) for aeroplanes equipped with non-coupled control sticks. In cooperation with manufacturers of aeroplanes (equipped with such control sticks), EASA will continue to ensure that the specific (TASE) is included in the OSD-FC.

Furthermore, EASA has issued the Airworthiness Directive (AD) No. 2015-0179, dated 27 August 2015, requiring European operators to amend the applicable Airplane Flight Manual(s) (AFM) of MD-80 type aeroplanes by incorporating a normal procedure to identify and prevent icing effects even with no visible moisture. It complements EASA Safety Information Bulletin (SIB) 2015-07, dated 15 April 2015, which reminds on the effects of flight at high altitudes and provides guidance on the prevention of hazardous low speed in cruise.

Loss of Control Prevention and Recovery Training

An aeroplane upset is a condition whereby an aeroplane unintentionally exceeds the flight parameters experienced during normal flight. Upsets which are not corrected in a timely manner are likely to lead to Loss of Control In-flight (LOC-I). Recent Loss of Control accident investigations recommend flight crew training improvements

with the specific objective to provide the flight crew with the necessary competencies to identify and prevent stalls and to recover from developing or developed upsets.

EASA Action:

Mitigating Loss of Control In-flight (LOC-I) is one of the Agency's highest priorities. The safety issue is being carefully evaluated within the context of Agency Rulemaking Tasks RMT.0581 and RMT.0582 'Loss of Control Prevention and Recovery Training'. The first deliverable coming from this rulemaking task, EASA ED Decision 2015/012/R 'Upset Recovery Prevention and Training', was published on 4 May 2015.

This Decision introduced additional Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Part-ORO for flight crew upset prevention and recovery training with the specific objective to ensure that flight crew acquire the required competencies to prevent or recover from developing or developed upsets. Upset prevention training prepares flight crew to avoid such incidents whereas upset recovery training prepares flight crew to prevent an accident once an upset condition has developed. It also contains AMC and several GMs related to ORO.FC.220 (conversion course), and ORO.FC.230 (recurrent training programme) pertaining to Commercial Air Transport (CAT) operators using 'complex motor-powered aeroplanes'.

A risk-based and proportionate approach for AMC/GM was applied for operators using aeroplanes with a maximum operational passenger-seating configuration (MOPSC) of more than 19, and with a MOPSC of 19 or less passengers. A separate GM on 'route and aerodrome knowledge' is also included for all CAT operators to emphasise environmental hazards that may contribute to upset development. The Agency also introduced a 12-month transition period, after publication, to provide an adequate timeframe to the affected stakeholders for implementing the provisions.

On 1st September 2015, the Agency published NPA 2015-13 'Loss of control prevention and recovery training (UPRT)', also from RMT.0581 and RMT.0582. The overall objective of this NPA is to ensure that initial and operator pilot training and checking is adequate to provide pilots with the knowledge, skills and attitude to be competent in preventing and, if necessary, recovering from an upset. It proposes to integrate so-called (UPRT) provisions into the EU pilot training regulatory framework.

The Agency has addressed the associated surprise and startle effect within the framework of RMT.0411 'Crew Resource Management (CRM) training', which culminated in ED Decision 2015/022/R, which was published by the Agency on 25 September 2015.

In addition, the subject is also being evaluated within RMT.0464 on 'Requirements for Air Traffic Services (ATS)' as well as within RMT.0647 'Loss of control or loss of flight path during go-around or climb'.

Runway Safety/ Mitigating the risk of Runway Excursion (RE)

After investigation of runway excursions of a Gulfstream at Le Castellet Airport on 13 July 2012 and an Airbus at Lyon Saint-Exupéry Airport on 29 March 2013, as well as other identified precursor to runway excursion like windshear encounter of Airbus A320 on 2 August 2013 at Bordeaux Airport, EASA is commited to work against runway excursion.

EASA Action:

EASA has included the concern of runway excursion in a European Plan for Aviation Safety. Some rulemaking activities are addressing this issue for commercial air transport operations:

- The objective of RMT.0369 'Prediction of wind shear for aeroplane CAT operations (IRs)' is to set up the framework leading towards reduction in the number of accidents and serious incidents caused by windshear in CAT aeroplane operations by assessing the need to install and use predictive wind shear systems.

- The objective of RMT.0570 (Reduction of runway excursions) is to increase the level of safety by reducing the number of RE through mandating the use of existing technologies on aeroplanes.

- RMT.0296 focusses on reviewing aeroplane performance requirements for Commercial Air Transport operations to provide improved clarity, technical accuracy, flexibility for operational requirements on aeroplane performance and to contribute to the harmonisation of the FAA and EU requirements.

Furthermore, EASA is supporting EUROCAE WG-101 on 'Runway Overrun Awareness and Alerting System (ROAAS)' that was recently established in order to define technical standards for systems to prevent runway excursions by alerting the crew of their position and energy in relation to the runway.

Inadequate Go Around

Prompted by several accidents during go-around, the BEA issued a study into aeroplane state awareness during go around (ASAGA) in 2014 with recommendations to prevent upset while going around and to develop technical solutions.

EASA Action:

Rulemaking task RMT.0647 ('Loss of control or loss of flight path during go-around or other flight phases') has started with the publication of its Terms of Reference and its Group Composition on 6 July 2015. It is preparing new provisions in Certification Specifications for Large Aeroplanes (CS-25) to prevent an excessive nose-up pitch trim condition when transitioning from a low-speed phase of flight and when a high level of thrust is applied.

Thrust limitation is considered as well as different means to increase the flight crew awareness of the low-speed/excessive nose-up trim condition, or to prevent an unusual configuration from developing by incorporating active systems.

Helicopter Offshore Operations

In 2014, a high number of suggestions for safety improvements for Rotorcraft activity in offshore operations were received.. This was mainly driven by the UK Civil Aviation Authority study "Strategic Safety Review of Offshore Public Transport Helicopter Operations in Support of the Exploitation of Oil and Gas". These proposals address survivability after ditching, safety management, maintenance and training for offshore passengers.

EASA Action:

In the context of the Safety Project on "Offshore Operations in the North Sea", the following actions have been taken:

- Preparation of the following Certification Memos (CM):
  - CM on "Vibration Health Monitoring: Prioritisation of Maintenance Alerts"
  - CM on "Rotor Drive System – Gearbox "TBO Development" (CM-RTS-002 Issue 01)
  - CM on 'Post Certification Actions to Verify the Continued Integrity of Safety Critical Parts' (CM-S-007 Issue 01).
- Publication, on 20 May 2015, of EASA opinion 04/2015 'Helicopter Offshore Operations' on Commission Regulation (EU) No 965/2012 related to air operations'. The objective of this Opinion is, firstly, to introduce specific regulatory provisions, including an approval requirement, for all helicopter offshore operations, and, secondly, to harmonize the regulatory requirements for the EU.
- Launch of the Study "Helicopter North Sea Operations Management Current Practices Safety Review (EASA.2015.HVP.01)" and institution of an internal working group on the ETOPS Concept to Helicopter Offshore Operations to assess the Potential Safety Benefit from Establishing a Minimum Diversion Capability for Helicopter Offshore Operations.
- Progress the Rulemaking activities on Ditching and Survivability (RMT.0120).
- Establishment of the Offshore Helicopter Collaborative Analysis Group (CAG) to provide a single European Level group to analyse and risk-assess offshore helicopter safety on a continual basis.

Rotorcraft fuel tank crashworthiness

Improvements on rotorcraft crash-resistant fuel systems to reduce post-impact fire were recommended.

EASA Action:

The Agency supported certification or validation of retrofit kits/design changes with improved crashworthiness characteristics for the designs identified as most critical.

Parachuting operations

In 2015, eight safety recommendations related to parachuting aeroplane accidents were addressed to EASA. It should be noted that many of the parachuting accidents involved Annex II aircraft (e.g. experimental aircraft) or were conducted under National Regulation, which are not governed by Regulation (EC) No 216/2008.

Nevertheless, the safety issues identified may also apply to other aircraft. Safety issues highlighted by parachuting accident investigations include installation and use of restraint systems taking into account the various seating configurations and pilot back protection. It also covers the difficulty to calculate the weight and balance because passengers are not sitting in predetermined positions.

EASA Action:

Depending on the specific nature of the undertaking, parachute operations in EASA Member States are covered by the provisions in Part-SPO (Specialised Operations) or Part-NCO (Non-Commercial operations with Other than complex motor-powered aircraft) of Commission Regulation (EU) No 965/2012, applicable from 1 July 2014. Member States may opt out from these provisions until 21 April 2017, with national legislation applying in the meantime.

In this regulation, the operator/pilot-in-command (PIC) is required to carry out a risk assessment and to establish standard operating procedures (SOPs) or checklists, respectively, to mitigate the risks related to the specific activity. This balanced approach & risk management is consistent with the Agency's commitment to the General Aviation Road Map which aims to bring positive change to the general aviation community by simplifying existing regulations where possible, introducing flexible measures where necessary, and developing safety promotion to address safety risks.

Technical installation of restraints systems is addressed in the Certification Specifications CS-23 supplemented by Special Condition "Use of aeroplanes for parachuting activities" (Doc. No. SC-023-div-01). In addition, EASA is investigating whether such requirements are sufficient to determine the most effective restraint system for parachute operations, or whether further requirements, and ultimately research activities, are necessary. This will assess also the needs of pilot back protection.

Ballistic Parachute Recovery Systems (BPRS)

Several safety recommendations have been received regarding the need to have a better means of identifying aircraft equipped with Ballistic Parachute Recovery Systems (BPRS), in order to alert rescue or other personnel at the scene of an accident or incident and to mitigate the risk to first responders during a rescue operation.

EASA Action:

Ballistic Parachute Recovery Systems (BPRS) for EASA certified aircraft are regulated in the Certification Specifications for Light Sport Aeroplanes, CS-LSA, which refers to the international Standard Specification for Airframe Emergency Parachutes (ASTM F2316-12). The same reference standard can be applied to other small aeroplanes category certified by EASA through a Special Condition.

EASA underlines that the installation of placards complying with this standard provide an adequate level of safety, and the same standard is also available for use on aircraft not certified by EASA.

Medical and psychological conditions of flight crew

The 2015 Germanwings crash of an Airbus A320 in the French Alps on 24 March 2015 reminded the international aviation community that the medical and psychological conditions of flight crews, if not detected, can lead to a catastrophic outcome.

The Task Force led by EASA recommended to:

- maintain the 2-persons-in-the-cockpit recommendation;
- develop psychological evaluation for airline pilots;
- mandate drugs and alcohol testing;
- establish a robust oversight programme of the performance of aero-medical examiners;
- ensure that an appropriate balance is found between patient confidentiality, the protection of public safety and the creation of a European aeromedical data repository;
- implement pilot support and reporting systems, linked to the employer Safety Management System.

EASA Action:

The Agency published an action plan for the implementation of the Germanwings Task Force recommendations on 7 October 2015. (https://www.easa.europa.eu/newsroom-and-events/news/report-task-force-germanwings-flight-9525-european-commission)

In compliance with this plan, EASA hosted a global Aircrew Medical Fitness workshop in December 2015 to discuss the implementation of the recommendations, develop concept papers about proposed actions and run focused consultation among all affected stakeholders.

It launched a survey for operators on the 2-persons-in-the-cockpit recommendation on 29 January 2016 and will consult on pilots psychological evaluation, drugs and alcohol testing – random programme and pilot support and reporting systems to decide about the development of Acceptable Means of Compliance (AMC) or Guidance Material (GM) to the operation or licensing rules. EASA also developed a data repository for medical records with the challenge that it is able to cope with a different approach to personal data protection across the different Member States.

Conclusions

Conclusions

In 2015, Safety Investigation Authorities from 20 different States addressed 84 safety recommendations to EASA.

In 2015, EASA issued 144 replies to 135 safety recommendations. Among the 144 replies that were sent in 2015, 78 were final replies.

Among the actions taken in 2015, several key safety issues are highlighted in chapter 5 along with the EASA action taken.

List of 2015 Safety Recommendations Replies

ANNEX A: List of 2015 Safety Recommendations Replies

The replies EASA sent in 2015 to safety recommendations are listed below. In the case of multiple replies sent during the year (in total EASA sent 144 reply letters), only the latest reply is provided (135 reply letter). They are sorted by country of origin and grouped by ccurrence.

Argentina

Registration	Aircraft Type	Location	Date of event	Event Type
LV-CEJ	SAAB 340	Caltaruna, Province of Rio Negro	18/05/2011	Accident

Synopsis of the event:

On 18 May 2011, the aircraft Saab 340A, with registration number LV-CEJ, was flying from Neuquén Airport (NQN) to Comodoro Rivadavia International Airport (CRD).

After the take-off, the aircraft started to climb AWY T 105, to reach FL 190, in accordance with the flight plan. After flying for 24 minutes, the pilot levelled the aircraft at 17800 ft, and remained at this level for approximately 9 minutes. Due to the fact that the meteorological conditions at this level caused icing, the technical crew descended to FL (flight level) 140. Shifting to FL 140 took five minutes. During this stage of the flight the icing conditions steadily worsened.

By the time the aircraft had reached FL 140, the icing conditions were severe. The aircraft flew for approximately two minutes with a straight and level flight attitude, increasing the accumulation of ice.

Then the aircraft stalled, which resulted in a loss of control, and the subsequent entry into abnormal flight attitude. The aircraft plunged towards the earth and impacted the ground, which resulted in a fire. Everyone on board perished and the aircraft was destroyed. The accident happened at night under IMC conditions.

Safety Recommendation ARGT-2015-001 (JIAAC)

It is recommended to the Aviation Authorities to consider implementing changes to the compliance requirements with regard to the crew's instruction and training, related to flight manoeuvre that are carried out during operations with a large angle of attack or with abnormal flight attitudes.

Consider making the following manoeuvres obligatory during the training and the licensing inspection (in flight simulators), in accordance with the aircraft:

a) Recognising when a stall commences and how to prevent it from happening.

b) Recognising and recovering from an artificial stall warning

c) Recognising and recovering from a total aerodynamic stall

d) Practising how to recover from typical abnormal flight attitudes.

Reply

Mitigating Loss of Control In-flight (LOCI) is one of the European Aviation Safety Agency's (EASA's) highest priorities, and the Agency has published new provisions on flight crew Upset Prevention and Recovery Training (UPRT), with the specific objective to ensure that flight crew acquire the necessary competencies to prevent and recover from developing or developed upsets (see ED Decision 2015/012/R, published on the Agency's web site on 04 May 2015).

The material takes into account the International Civil Aviation Organization (ICAO) Annex 6 amendment 38, ICAO Doc 9868 'Procedures for Air Navigation Services - Training' (PANS-TRG) amendment 3 relating to UPRT, and ICAO Doc 10011 'Manual on Aeroplane UPRT'. Reference is also made to the Original Equipment Manufacturers' (OEMs') Aeroplane Upset Recovery Training Aid (AURTA).

Emphasis is placed on the need to integrate human factor aspects into the training, such as Threat and Error Management (TEM) and Crew Resource Management (CRM) principles, as well as the startle and surprise effect. Moreover, it re-emphasises the importance of the correct use of Flight Simulation Training Devices (FSTDs), particularly to avoid negative transfer of training.

The above-mentioned provisions are intended to provide the flight crew with the necessary competencies to identify and prevent stalls and to recognise and handle spurious stall warnings. Practising how to recover from typical abnormal flight attitudes is also addressed. Full FSTD stall training (ie recognising and recovering from a total aerodynamic stall), is currently being evaluated by the Agency.

In addition, the Agency published a Notice of Proposed Amendment (NPA) on 01 September 2015 on loss of control prevention and recovery training (see NPA 2015-13, published on the Agency's web site on 01 September 2015).

This addresses the flight crew licensing elements in the safety recommendation. The newly developed upset recovery training in an aeroplane, which is to be mandated for the Airline Transport Pilot Licence - Aeroplanes [ATPL(A)] training course, and to be a pre-requisite prior to commencing the first multi-pilot type rating course; is an important step towards enhancing a commercial pilot's resilience to the psychological and physiological aspects often associated with upset conditions, and towards providing them with an enhanced ability to not only overcome these human factor aspects, but to also apply appropriate recovery strategies to return the aeroplane to safe flight.

In addition, the NPA introduces new flight and FSTD instructor privileges for the upset recovery training course in an aeroplane. FSTD instructor training standards are to be augmented, notably for those instructors delivering upset recovery training in existing Full Flight Simulators (FFSs), to avoid negative transfer of training.

With the above-mentioned actions, the Agency is in full support of the safety recommendation on flight crew training as proposed by the Junta de Investigación de Accidentes de Aviación Civil (JIAAC).

Status: Open – **Category**:

Australia

Registration	Aircraft Type	Location	Date of event	Event Type
VH-HWQ	ROBINSON R44	Bulli Tops, New South Wales	21/03/2013	Accident

Synopsis of the event:

At about 1207 on 21 March 2013, a Robinson Helicopter Company R44 helicopter (R44), registered VH-HWQ, landed at a grassed area adjacent to a function centre at Bulli Tops, New South Wales. Shortly after landing, the helicopter was observed to simultaneously lift off, yaw right through 180° and drift towards nearby trees. The helicopter struck branches of the trees before descending, impacting the ground nose low and rolling onto its right side. A short time after coming to rest a fire started and engulfed the helicopter. The pilot and three passengers were fatally injured.

Safety Recommendation ASTL-2015-029 (ATSB)

The ATSB recommends that the European Aviation Safety Agency take action to increase the number of existing helicopters that are fitted with a crash-resistant fuel system or have an equivalent level of safety in respect of post-impact fire.

Reply

The Agency is supporting certification or validation of retrofit kits with improved crashworthiness characteristics for the designs identified as most critical (e.g. on the Robinson R22 or AS350/EC130). The EC130T2 is already certified and delivered with a crash-resistant fuel system (CRFS) and the Agency is in contact with Airbus Helicopter in order to evaluate different options applicable to the AS350 fleet.

Status: Open – **Category**:

Safety Recommendation ASTL-2015-030 (ATSB)

The ATSB recommends that the European Aviation Safety Agency take action to increase the number of helicopters manufactured in accordance with the 1994 certification requirements for helicopters to include a crash-resistant fuel system.

Reply

The Agency is supporting certification or validation of design changes with improved crashworthiness characteristics (e.g. on the Robinson R22 or AS350/EC130). The EC130T2 is already certified and delivered with a crash-resistant fuel system (CRFS) and the Agency is in contact with Airbus Helicopter in order to evaluate different options applicable to the AS350.

Status: Open – **Category**:

Austria

Registration	Aircraft Type	Location	Date of event	Event Type
	CIRRUS SR22	Airport Vienna (LOWW)	26/09/2012	Accident

Synopsis of the event:

Während des Landeanfluges auf den Flughafen Wien-Schwechat (LOWW) kam es beim Einkurven auf die Piste 29 zu einer Unterschreitung der Mindestfluggeschwindigkeit. Trotz unmittelbarer Erhöhung der Triebwerksleistung durch den Piloten, berührte das Luftfahrzeug anfänglich mit der linken Tragflächenspitze sowie dem linken Hauptfahrwerk, kurz darauf mit der rechten Tragflächenspitze, dem rechten Hauptfahrwerk sowie dem Propeller die Piste. Das Luftfahrzeug schlitterte über die Piste und kam nahe dem Rollweg A5 im Sicherheitsstreifen der Piste 29 zum Stillstand.

Safety Recommendation AUST-2014-001 (AAIB)

[German] - SE/SUB/ZLF/13/2013, ergeht an EASA und nationale Zivilluftfahrtbehörden: Im gegenständlichen Flugunfall war das Luftfahrzeug lediglich mit einem kleinen Warnaufkleber versehen. Dieser soll vor den Gefahren, welche von einem Rettungssystem ausgehen, warnen. Allerdings ist dieser mit einer Seitenlänge von ca. 40 mm nur schwer erkennbar. Es sollten möglichst große und einheitliche Gefahrenaufkleber in auffälliger Farbe für alle Luftfahrzeuge mit einem Rettungssystem verwendet werden. Des Weiteren sollte am Flugzeugrumpf die Ausschussöffnung der Rakete des Rettungssystems eindeutig gekennzeichnet sein. Die Zelle des Luftfahrzeuges sollte so markiert sein, dass für Rettungskräfte eindeutig ersichtlich ist wo Teile des Luftfahrzeugrumpfes im Zuge einer Bergung aufgeschnitten werden dürfen, und wo nicht.

Reply

Ballistic Parachute Recovery Systems (BPRS) for EASA certified aircraft are regulated in the Certification Specifications for Light Sport Aeroplanes, CS-LSA, which refers to the ASTM F2316-12 international standard in its Subpart K. The same reference standard can be applied to other small aeroplanes category certified by EASA through Special Condition.

This ASTM standard requires providing three different 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 by this standard. These minimum sizes and colours are considered adequate to provide an alerting function when a personnel is approaching the aircraft at a reasonable distance. It includes the indication of the egress point of the rocket launcher.

The intent of this standard is that the placards should provide enough information to the rescue personnel to identify the presence of the equipment and find the contact information to seek help from the manufacturer of the ballistic device. When installed according to such standard, the placards will quickly provide the needed information in most of the accident scenarios, although in some cases the information may not be immediately available (e.g. aircraft turned over) or not at all (e.g. extensive fire damage).

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
	ENSTROM 280	Kirchham	05/04/2014	Accident

Synopsis of the event:

Due to an flight accident with an Enstrom Helicopter Corporation FX 280 helicopter, in conducting technical investigations, considerable corrosion on the electrical connections of the fuel quantity transmitter have been found. This corrosion was the reason that the fuel quantity transmitter was not able to transmit the correct amount of fuel in the tank to the fuel gauge in the cockpit. As a result of this, the tank display showed an incorrect amount of fuel in the tank. The fuel quantity transmitter is located in a depression on the right fuel tank and is covered by a metal lid. Moisture, in spite of the metal lid in this depression, cannot drain overboard as there is no structurally outflow possibility available. The published manufacturer's maintenance manual provides a review of the wiring of the fuel quantity transmitter either after every 100 flight hours or annually. The same service manual includes storage instructions, as well as preventive maintenance for the corrosion protection of the helicopter. However, it contains no preventive measures against corrosion of the electrical connections of the fuel quantity transmitter.

Safety Recommendation AUST-2014-007 (AAIB)

No. SE/UUB/LF/7/2014, is issued to the manufacturer, FAA and EASA: The installation of fuel quantity transmitter to Enstrom Helicopter Corporation 280FX helicopters should be chosen so that the electrical connections of the fuel quantity sensor can be effectively protected against corrosion.

Reply

Based on the review of the additional information provided by Enstrom Helicopters Corporation and FAA, EASA determined that the current location of the electrical connection of the fuel quantity transmitter is suitable to provide an effective corrosion protection when the top metal cover is sealed in accordance with the applicable maintenance instructions.

In particular, according to Enstrom Helicopters Corporation, there is no known history of corrosion of the fuel-level sensor electrical connections.

Status: Closed – **Category**: Partial agreement

Safety Recommendation AUST-2014-009 (AAIB)

No. SE/UUB/LF/9/2014, is issued to the manufacturer, FAA and EASA: The storage requirements as well as the preventive measures for corrosion protection in the maintenance manual of Enstrom Helicopter Corporation 280FX helicopters should consider the electrical connections of the fuel quantity transmitter sufficiently.

Reply

Based on the review of the additional information provided by Enstrom Helicopters Corporation and FAA, EASA concluded that the rules in place for storage as well as the preventive measures for corrosion protection adequately describe how to proceed if the helicopter is operated in corrosive or otherwise wearing environmental conditions.

Although, according to Enstrom Helicopters Corporation, there was no known history of fuel quantity calibration issues caused by corrosion of the wiring, the manufacturer has revised the Service Directive Bulletin No. 0092 "Fuel Quantity System Calibration" in July 2014. This revision also includes the corrosion protection to the wires going to the fuel quantity transmitter.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
	CESSNA 414	Ellbögen,Bezirk Innsbruck Land, Tirol	30/09/2012	Accident

Synopsis of the event:

Am Unfalltag startete der Pilot mit sieben Passagieren vom Flughafen Innsbruck zu einem Sichtflug nach Valencia. Am Flughafen Innsbruck herrschten Sichtflugwetterbedingungen. Nach dem Start auf der Piste 26 flog der Pilot in einen linken Gegenabflug und anschließend in das Wipptal Richtung Brennerpass ein. Im Gemeindegebiet von Ellbögen kollidierte das Luftfahrzeug in dichtem Nebel mit ansteigendem Gelände. Es brach ein Brand aus. Der Pilot und fünf Passagiere erlitten tödliche Verletzungen, zwei Passagiere wurden schwer verletzt. Das Luftfahrzeug wurde zerstört. Die Untersuchungen ergaben, dass der Pilot im Besitz eines gültigen Privatpilotenscheines ohne Instrumentenflugberechtigung war. Das Luftfahrzeug wurde nicht im Rahmen eines Luftverkehrsbetreiberzeugnisses betrieben. Der Flug war entgeltlich und der Pilot war in Instrumentenflugwetterbedingungen eingeflogen. Trotz umfangreicher und detaillierter Untersuchungen wurden keinerlei Hinweise auf vorbestandene unfallkausale technische Mängel festgestellt.

Safety Recommendation AUST-2015-002 (AAIB)

[German] - EASA, Austro Control: SE/SUB/ZLF/11/2014:

Verhinderung von gewerbsmäßigen Flügen ohne entsprechende Befähigungen und Erlaubnisse:

Das gegenständliche Luftfahrzeug war in den USA registriert, aber in Österreich stationiert. Bei den Erhebungen im Rahmen des gegenständlichen Flugunfalles bei dem der Pilot und fünf Passagiere tödlich, sowie zwei Passagiere schwer verletzt wurden, wurde festgestellt, dass der Pilot, der auch Halter des Luftfahrzeuges war, offenbar bereits seit mehr als zwei Jahren entgeltliche Flüge ohne entsprechende Befähigungen und Erlaubnisse durchführte. Dies fiel den Aufsichtsbehörden nicht auf. Beim gegenständlichen Unfallflug flog der Pilot außerdem ohne entsprechende Befähigung und Genehmigung in Instrumentenflugbedingungen ein.

EASA soll geeignete Maßnahmen ergreifen, die sicherstellen, dass Piloten von Luftfahrzeugen, die in EASA Staaten stationiert sind keine entgeltlichen und/oder gewerblichen Flüge ohne entsprechende Befähigungen und Erlaubnisse durchführen.

Reply

EASA is responsible for developing common EU safety rules in the field of civil aviation, in the form of Implementing Rules and Acceptable Means of Compliance (AMC) and Guidance Material (GM). EASA is also responsible for monitoring the implementation of these standards through inspections of Member States' competent authorities, in accordance with Commission Implementing Regulation (EU) No 628/2013.

According to Article 4 of Regulation (EC) No 216/2008 (also referred to as the 'Basic Regulation'), aircraft which are registered in a third country and used by an operator established or residing in the Community shall be operated in accordance with the regulations stemming from the Basic Regulation. This includes Commission Regulation (EU) No 1178/2011 on aircrew, including Part-FCL (Flight Crew Licensing), and Commission Regulation (EU) No 965/2012 on air operations, including Part-CAT (Commercial Air Transport), within which pilot qualifications and ratings, as well as operating approvals, as mentioned in the safety recommendation, are addressed.

Prior to commencing commercial air transport operations, the operator is required to obtain an air operator certificate (AOC) issued by the competent authority (ORO.AOC.100 of the air operations regulation).

'Commercial air transport (CAT) operation' means an aircraft operation to transport passengers, cargo or mail for remuneration or other valuable consideration (Article 2 of the Cover Regulation to the Air Operations Regulation).

Regarding the operating flight crew, a validation is required for a non-EU licence holder to fly an aircraft registered outside the EU if the operator of the aircraft is based in an EASA Member State. An individual licence holder may only be granted a validation once. Repeated validations are not permitted. A validation is issued for one year and may be extended once to obtain a Part-FCL licence by the State of issuance (Annex III of the air crew regulation).

It is the responsibility of the competent authority to ensure that aircraft operating in their territory comply with the applicable EU regulations. This should be facilitated through correct application of the EU ramp inspection programme as defined in the air operations regulation. According to Article 68 of the Basic Regulation, Member States shall lay down effective, proportionate and dissuasive penalties for infringement of the Basic Regulation and its implementing rules.

For the purpose of Part-CAT, the competent authority is the authority designated by the Member State in which the operator has its principal place of business. For the purpose of Part-FCL, the competent authority shall be an authority designated by the Member State to whom a person applies for the issue of pilot licences or associated ratings or certificates.

Measures within EASA's remit (rule development and standardisation inspections) are already in place.

Status: Closed – **Category**: Partial agreement

Safety Recommendation AUST-2015-003 (AAIB)

[German] - SE/SUB/ZLF/12/2014:

EASA: Ergreifung von Maßnahmen die sicherstellen, dass Signale von Notsendern nach unfallbedingten Aufschlägen von Luftfahrzeugen auch empfangen werden können:

Beim gegenständlichen Aufschlag des Luftfahrzeuges an der Unfallstelle wurde der Notsender aktiviert und sendete bis zu seinem Abschalten über einen Zeitraum von 52 Stunden Notsignale. Da aber die beiden, links und rechts neben der Seitenflossenstrake angebrachten Stabantennen unfallbedingt abbrachen, waren die ausgesendeten Signale so schwach, dass sie nur im Umkreis von einigen Metern empfangen hätten werden können. Da jedoch dieser

Unfall zufälligerweise von Ohrenzeugen in alpinem Gelände beobachtet wurde, konnte der Unfallort lokalisiert und die schwer verletzten Überlebenden gerettet werden. Auf Grund der Wetterlage hätten Suchflüge das Wrack weder visuell und auf Grund der abgebrochenen

Notsenderantennen auch nicht elektronisch orten können.

Bei unfallbedingten Aufschlägen von Luftfahrzeugen brechen die Antennen von Notsendern oftmals ab. Damit können die von den aber noch intakten Notsendern ausgesendeten Signale von den dafür vorgesehenen Stellen nicht mehr empfangen werden. Auf diesen Umstand weist die SUB/ZLF im Zuge der Untersuchung von Flugunfällen seit Jahren hin.

Da nach unfallbedingten Aufschlägen von Luftfahrzeugen Signale von Notsendern von den dafür vorgesehenen Stellen oftmals nicht empfangen werden können, soll die EASA geeignete Maßnahmen setzen die nach Flugunfällen die Aussendung von brauchbaren Notsignalen von Notsendern verbessern, (durch Verwendung von Antennen, die möglichen Unfällen besser standhalten können; durch Einführung von automatisch aktivierten Notsendern, die bereits vor dem Aufschlag Notsignale senden; etc.). Durch die lange Lebensdauer von Luftfahrzeugen sollen dabei auch Maßnahmen gesetzt werden, die nach Flugunfällen die Aussendung von brauchbaren Notsignalen bereits zertifizierter und in Betrieb befindlicher Luftfahrzeuge verbessern, durch erwendung von Antennen, die möglichen Unfällen besser standhalten können; etc.)

Reply

Broken emergency locator transmitter (ELT) antennas are known to be one of the issues preventing correct operation of ELT following an accident. EASA has been actively working to improve the robustness of the antenna and of the antenna installation (as well as more generally to improve the installation of the ELT system). To that end, EASA is preparing a Certification Memorandum (CM) that provides guidance for the installation of ELTs and recommendations for the maintenance procedures that improves the reliability of ELTs. This CM deals with those issues related to the installation and maintenance of the system that are out of the scope of the European Technical Standard Order (ETSO) approval and are specific to the installation on the aircraft, mainly for helicopters and general aviation aeroplanes.

In addition, EASA is participating in and supporting the joint EUROCAE WG98/RTCA SC-229, which aims at releasing an improved ED-62B/DO-204B by 2017, which will result in an improved ETSO. Among the tasks of this joint working group is the improvement of the robustness to crash, through more stringent testing and improved installation recommendations.

The WG98 is also developing criteria for the automatic transmission when flight parameters permit to anticipate an imminent crash, as suggested in the recommendation. This would permit to transmit the alert before the crash environment alters the beacon performance. This is primarily indented for large aircraft flying over remote areas. EASA closely monitors this subject, in coordination with ICAO.

Status: Open – **Category**:

Belgium

Registration	Aircraft Type	Location	Date of event	Event Type
	PILATUS PC6	GELBRESSEE	19/10/2013	Accident

Synopsis of the event:

The airplane was used for the dropping of parachutists of the parachuting club of Namur. It was the 15th flight of the day. The airplane took off from the airfield of Namur/Suarlée (EBNM) around 13:25 UTC with 10 parachutists on board. After 10 minutes of flight, when the airplane reached 5000 ft, a witness noticed the airplane in a level flight, at a lower altitude than normal. He went back to his occupation. Shortly after he heard the sound he believed to be propeller angle change and turned to look for the airplane. The witness stated he saw the airplane diving vertically followed by a steep climb (important pitch up, above 45°), followed by the breaking of the wing. The airplane went down and the witness heard what he believed to be the sound of propeller pitch moving. Subsequently, the airplane went into a spin. Another witness standing closer to the aircraft reported seeing the airplane flying in level flight with the wings going up and down several times and hearing, at the same time an engine and propeller sound variation before seeing the airplane disappearing from her view. The airplane crashed on a field in the commune of Gelbressée, killing all occupants. The airplane caught fire. A big part of the left wing and elements thereof were found at 2 km from the main wreckage.

Safety Recommendation BELG-2015-001 (AIB)

It is recommended that EASA mandates the installation of a lightweight recording system in aircraft used for parachuting activities.

Reply

Rulemaking tasks RMT.0271 and RMT.0272 'In-flight recording for light aircraft' were launched by EASA on 25 July 2014 with the publication of the associated Terms of Reference.

The recommendation to mandate the installation of a lightweight recording system in aircraft used for parachuting activities will be considered within the framework of these tasks.

Status: Open – **Category**:

Safety Recommendation BELG-2015-002 (AIB)

It is recommended that EASA conducts research to determine the most effective restraint systems for parachutists reflecting the various aircraft and seating configurations used in parachute operations.

Reply

The technical installation of restraints systems are addressed in the Certification Specifications CS-23 supplemented by special condition "Use of aeroplanes for parachuting activities" (Doc. No. SC-023-div-01). EASA is investigating whether such requirements are sufficient to determine the most effective restraint system for parachute operations, or whether further requirements, and ultimately research activities, are necessary.

Status: Open – **Category**:

Safety Recommendation BELG-2015-003 (AIB)

It is recommended that EASA, at the end of the research about restraint systems for parachutists (see recommendations BE-2015-002), clarifies the technical requirements applicable to such restraint systems.

Reply

The technical installation of restraints systems are addressed in the Certification Specifications CS-23 supplemented by special condition "Use of aeroplanes for parachuting activities" (Doc. No. SC-023-div-01). EASA is investigating whether such requirements are sufficient to determine the most effective restraint system for parachute operations, or whether further requirements, and ultimately research activities, are necessary.

Status: Open – **Category**:

Safety Recommendation BELG-2015-004 (AIB)

It is recommended that EASA carries out a study to assess the need of a pilot's back protection for all airplanes used in parachute dropping activities. When assessed necessary, it is recommended that EASA mandates the installation of such a system.

Reply

Installation of a pilot's back protection for all aeroplanes used in parachute dropping activities could generate disadvantages as well as advantages, depending on the aircraft model and configuration, and the specific operational procedures applied.

Such decision should be based on the results of the risk assessment which the operator is required to conduct (see paragraph SPO.OP.230 of Part-SPO (Specialised Operations) of Commission Regulation (EU) No 965/2012).

Nevertheless, EASA will investigate whether the service experience with parachute operations indicates the need to mandate such installation.

Status: Open – **Category**:

Cyprus

Registration	Aircraft Type	Location	Date of event	Event Type
5B-CLI	DIAMOND DA42	47NM SOUTH EAST OF THE COAST OF LARNACA	22/10/2014	Accident

Synopsis of the event:

On October 22nd 2014, a Diamond DA 42 aircraft, registration 5B-CLI, operated by Griffon Aviation Ltd, an approved training organisation, departed from Paphos airport at 15.20 UTC on an IFR flight plan with destination Beirut International Airport.

On board the aircraft were two aircrew members, the pilot in command and another pilot.

The aircraft was in contact with Nicosia ATC.

At time 16:02:25 UTC at night while the aircraft was flying at 9000' about 47 NM south east of the Larnaca coast the Nicosia ATC lost contact with the aircraft. Two minutes later the aircraft disappeared from the radar screen crashing in to the sea killing both pilots.

The sea depth at this point is 2000 metres. Important parts of the wreckage, engines and cockpit could not be recovered from the seabed.

The investigation was based on the aircraft tracks obtained by three different radars operating at the time of the crash as well as the ATC transcript.

This information was analyzed and used in a Diamond DA42 simulator as part of the ongoing investigation.

Safety Recommendation CYPR-2015-001 (AIIB)

EASA to re-examine the required minimum hours of night flying training.

Reply

This safety recommendation is being considered within the framework of ongoing rulemaking tasks RMT.0188 [former FCL.002(a)] and RMT.0189 [former FCL.002(b)] 'Amendments to Commission Regulation (EU) No 1178/2011 (the aircrew regulation)'.

Status: Open – Category:

Czech Republic

Registration	Aircraft Type	Location	Date of event	Event Type
OK-LPS	ROBINSON R22	Hlavenec	20/06/2014	Accident

Synopsis of the event:

The pilot of the helicopter together with another person on board were planning a business flight from LKRO to LKSK. Having flown for sixteen minutes, the helicopter crew heard a bang from the engine compartment. The pilot switched the helicopter to the autorotation mode and conducted emergency landing on a grassland. The rough landing resulted in considerable damage to the helicopter and serious injuries to both persons on board.

The pilot reported the air accident on emergency line 158. The Police Force of the Czech Republic, the FRS, the ERS and AAII inspectors arrived at the location of the air accident and the inspectors performed professional investigation of the location and of the damaged helicopter.

Safety Recommendation CZCH-2015-001 (AAII)

We recommend, in the course of service and maintenance operations, to record the measured angle of the clutch shaft into statement of operations performed.

Reply

It is understood that the recording of the measured shaft angle is intended to provide a measure of the misalignment of the sheaves to help assess its contribution to wear of the belts and subsequent failure. However, after being in contact with Robinson and the FAA, EASA believes that the recommended action would not address the issue. In fact, as per the R22 Maintenance Manual 7.240, the clutch shaft angle is already measured every 100 hours, and if misalignment is not in the range 2.5-5.0 degrees, the drive V-belt must be replaced.

In this accident, the failure of the belt, whose previous measurements did not reveal misalignments, could be more likely due to the violation of the published shelf life (4 years, according to section 1.490 of the R22 Maintenance Manual). In effect, the picture of the belt in the report shows that it was at revision U and, according to the manufacturer, this revision was replaced in 1996. Since the report states that the belt was installed in 2006, it might have been stored for at least 10 years. Such condition may have caused a significant change in the physical properties of the rubber.

Status: Closed – **Category**: Disagreement

Finland

Registration	Aircraft Type	Location	Date of event	Event Type
OH-CKB	CESSNA FA152	Alastaro	08/05/2012	Accident

Synopsis of the event:

An aircraft accident occurred at Alastaro Circuit on Tuesday 8 May 2012 at 18.32 Finnish time. A Cessna FA152 Aerobat aircraft registered OH-CKB, owned and operated by the Finnish Aviation Academy based at Pori Airport, collided with the ground. The aircraft caught fire on impact and was completely destroyed. The pilot, who was alone on board, was killed immediately.

The pilot had departed for a VFR cross-country flight (under visual flight rules) from Pori in accordance with the flight training syllabus. The meteorological conditions were good at the time of departure. According to radar recordings, the pilot had flown at a height of about 1000 feet to the village of Yläne, from where he intended to fly to Huittinen via Alastaro. He followed the planned route quite roughly. About 13 km before Alastaro he reached road no. 9 leading from Turku to Tampere. Alastaro Circuit is located along this road, and the next turnpoint at Huittinen follows after it. When the pilot reached the road, he started to follow it towards Huittinen without flying to Alastaro. The circuit is located about five kilometres from the point where the pilot started to follow the road towards the north. After reaching the circuit the pilot began circling above it at a height of about 600–1000 feet (180–300 m) from the ground, as a result of this he lost control of the aircraft and crashed onto the circuit. People who saw the crash reported the accident immediately to the local emergency response centre.

Safety Recommendation FINL-2014-002 (AIB)

[Finnish] - Yhteiseurooppalainen JAR-FCL 1 -määräys edellyttää, että PPL lentokoulutusohjelmaan kuuluu lentoharjoitus nro 11 ”Syöksykierteen välttäminen”, joka sisältää kohdat ”alkavan syöksykierteen oikaisu” sekä ”opettajan suorittama häirintä sakkauksen aikana”. Englanninkielisessä versiossa jälkimmäinen opetettava ”aihe” on ”instructor induced distractions during the stall”, joka ei tarkoita mitään aktiivista esimerkiksi ohjaamiseen puuttuvaa häirintää, kuten se lähes poikkeuksetta ymmärretään ja pyritään sen mukaisesti toteuttamaan.

Onnettomuustutkintakeskus suosittaa, että Euroopan lentoturvallisuusvirasto (EASA) harkitsisi käännöstä uudelleen sekä lisäksi täsmentäisi kyseisen toiminnan tarkoitusperää tämän harjoituksen yhteydessä ja valaisisi sitä käytännön esimerkeillä. Lisäksi suositetaan, että mahdollinen uusi käännös ja mahdolliset täsmentävät selvitykset vaadittaisiin korjattavaksi myös lentokoulutusorganisaatioiden lentokoulutusohjelmiin.

Reply

The safety recommendation FINL-2014-002, previously addressed to EASA, has been reopened as a result of the SIA Finland's response assessment.

The Acceptable Means of Compliance (AMC) in Executive Director (ED) Decision 2011/016/R to Commission Regulation (EU) No 1178/2011 (Regulation Aircrew) contains provisions for the Private Pilot Licence (Aeroplanes) [PPL(A)] flight instruction syllabus.

Exercise 11 in this syllabus concerns 'Spin Avoidance' training and it includes stalling and recovery at the incipient spin stage as well as instructor induced distractions during the stall. The wording is identical to the former JAR-FCL 1 requirements. The Agency has reviewed these provisions within the framework of rulemaking tasks RMT.0581 and RMT.0582 'Loss of Control Prevention and Recovery Training'. Proposed amendments coming from this review are contained in Notice of Proposed Amendment (NPA) 2015-13, which the Agency published on 01 September 2015. The proposals include detailed definitions for the 'incipient spin', 'developing spin' and 'developed spin', and further guidance on spin development in support of exercise 11 for both Light Aircraft Pilot Licence (LAPL) and PPL flight training.

Furthermore, exercise 11 has been clarified by including an instructor-led demonstration of 'developing or developed spin' to provide the student pilot with a clear understanding of the differences between incipient, developing and developed spin.

The stall and recovery exercises during the incipient spin stage have also been clarified.

The NPA also includes proposals to provide more detail for exercise 10b on 'stalling' for LAPL and PPL training.

The related rulemaking tasks are still ongoing, but once the rulemaking process has been completed, a follow-up response will be provided with details of the final outcome concerning this safety recommendation.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
OH-XAC	JODEL D18	Nummela Aerodrome	27/03/2014	Accident

Synopsis of the event:

A two-seat wood-structured Jodel D18 aircraft, registration OH-XAC, which the pilot had built himself for his private use took off for a test flight from Nummela aerodrome on Thursday 27 March, 2014 at 13.29. During the climb the aircraft made a sharp turn which resulted in a stall and a collision with the ground. One pilot perished and the other was seriously injured. The aircraft was destroyed. The cause of the accident was a turn at low altitude and at a low airspeed. It is possible that the flight crew made the turn in an attempt to avoid hitting an imagined towing line of a paraglider. Contributing factors included insufficient coordination between operators at an uncontrolled aerodrome as well as excess weight.

The aircraft was fitted with a pyrotechnical, ballistic parachute system, the rocket motor of which caused a risk of ignition during the rescue operation. The investigation specifically focused on how a rescue operation can be conducted in a safe manner if the accident aircraft is fitted with a recovery parachute. In the case at Nummela the markings warning of the presence of a recovery parachute were not clearly identifiable, nor did the rescue personnel realise that they were subjected to the risk of explosion. The investigation determined that the rescue

sector is not aware of pyrotechnical systems in general aviation or sport aviation, and that virtually no related training or regulations exist.

Safety Recommendation FINL-2014-004 (AIB)

The warning markings of pyrotechnical systems are not internationally standardised and, therefore, it is difficult to identify them during a rescue operation. While some aircraft are subject to EASA regulations, others are subject to national regulations.

Safety Investigation Authority, Finland recommends that the European Aviation Safety Agency (EASA) standardise the warning markings for pyrotechnical systems.

Reply

Ballistic Parachute Recovery Systems (BPRS) for EASA certified aircraft are regulated in the Certification Specifications for Light Sport Aeroplanes, CS-LSA, which refers to the ASTM F2316-12 international standard in its Subpart K. The same reference standard can be applied to other small aeroplanes category certified by EASA through a Special Condition.

This ASTM standard requires providing three different 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 by this standard. These minimum sizes and colours are considered to be adequate to provide an alerting function when personnel are approaching the aircraft.

It is the Agency's opinion that the installation of placards complying with this standard provide an adequate level of safety, and the standard is also available for use on aircraft not certified by EASA.

Status: Closed – **Category**: Partial agreement

Safety Recommendation FINL-2014-005 (AIB)

There are no national or international regulations or training requirements for the installation or use of rocket-propelled ballistic recovery systems.

Safety Investigation Authority, Finland recommends that the European Aviation Safety Agency (EASA) include a segment in LAPL(A) and PPL(A) training curricula that addresses pyrotechnical systems.

Reply

A ballistic parachute recovery system (BPRS) can be installed as part of the initial type design or through a Supplemental Type Certificate. Paragraph CS-LSA.45 of the applicable EU legislation, Certification Specifications for Light Sport Aeroplanes (CS-LSA), provides requirements for the installation and use of airframe emergency parachutes which should comply with ASTM International F2316-12 (2014) 'Standard Specification for Airframe Emergency Parachutes'.

The installation and use of a BPRS for Normal, Utility, Aerobatic, and Commuter Category Aeroplanes and Very Light Aeroplanes (VLA), as defined in CS-23 and CS-VLA respectively, is regulated under 'special conditions' as determined by the Agency (See paragraph 21.A.16B of Commission Regulation (EU) No 748/2012).

Reply

The recommendation to include a segment in LAPL(A) and PPL(A) training curricula that addresses pyrotechnical systems, has also been considered by the Agency.

The Light Aircraft Pilot Licence (LAPL) and the Private Pilot Licence (PPL) training provisions are contained in Commission Regulation(EU) No 1178/2011 and the associated Executive Director (ED) Decisions, which contain the related Acceptable Means of Compliance (AMC) and Guidance Material.

According to AMC1 FCL.725(a), training on pyrotechnical systems should be included in the theoretical knowledge training for PPL class or type ratings under 'emergency equipment operation' [See item I.(a)(12)].

The syllabus of theoretical knowledge should also cover the issue for PPL(A) under the element entitled 'Special operational procedures and hazards' of Paragraph 6 of AMC1 FCL.210; FCL.215. This also applies to the theoretical knowledge syllabus for LAPL(A), according to paragraph (b) of AMC1 FCL.115; FCL.120.

In addition to the above-mentioned regulations, the Pilot-In Command (PIC) is required to ensure that all operational procedures and checklists are complied with as referred to in 1.b of Annex IV to Regulation (EC) No 216/2008 (See NCO.GEN.105 of Commission Regulation (EU) No 965/2012). Accordingly, it is the PICs responsibility to familiarise him/herself with the operating procedures under normal, abnormal and emergency conditions and situations as specified in the flight manual. This should include information and instructions from the manufacturer regarding BPRS if installed in the aircraft to be operated.

As the installation and use of rocket-propelled ballistic recovery systems as well as pilot training on such systems is already covered in the existing EU provisions, no further action is foreseen by the Agency.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
OH-XDZ	OTHER (Aerocomp Comp Air 8)	Jämijärvi	20/04/2014	Accident

Synopsis of the event:

On Easter Sunday, 20 April 2014 at 15:40 Finnish time (UTC + 3h) an accident occurred at Jämijärvi aerodrome when a Comp Air 8 aircraft, registration OH-XDZ, carrying skydivers crashed into the woods. In addition to the pilot there were ten skydivers on board. The pilot and two skydivers managed to bail out of the aircraft. Eight skydivers died in the collision with the ground.

Safety Recommendation FINL-2015-011 (AIB)

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.

Reply

Depending on the specific nature of the undertaking, parachute operations in EASA Member States are covered by the provisions in Part-SPO (Specialised Operations) or Part-NCO (Non-Commercial operations with Other than complex motor-powered aircraft) of Commission Regulation (EU) No 965/2012 (the air operations regulation), applicable from 01 July 2014. However, Member States may opt out from these provisions until 21 April 2017, with national legislation applying in the meantime.

According to Part-SPO and Part-NCO, the operator/pilot-in-command (PIC) is required to carry out a risk assessment and establish standard operating procedures (SOPs) or checklists, respectively, to mitigate the risks related to the specific activity. AMC/GM to paragraphs SPO.OP.230 and NCO.SPEC.105 contain instructions and guidance on the risk assessment and development of specific SOPs and checklists. The mitigation could include additional theoretical training for the PIC, tailored to address the activity and the aircraft-specific characteristics.

The PIC is required to ensure that all operational procedures and checklists are complied with (See NCO.GEN.105 and SPO.GEN.107). It is the PIC's responsibility to familiarise him/herself with the operating procedures under normal, abnormal and emergency conditions and situations as specified in the flight manual associated with the aircraft operated.

Furthermore, according to ARO.GEN.300 in Part-ARO (Authority Requirements for air Operations) of the air operations regulation, the competent authority is required to verify continued compliance with Part-SPO and Part-NCO. Such oversight should detect any non-compliances or safety issues, which should be required by the competent authority to be corrected.

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

The Agency has therefore concluded that it would not be appropriate to impose additional flight crew training requirements in the form of a jump pilot rating.

Status: Closed – **Category**: Disagreement

France

Registration	Aircraft Type	Location	Date of event	Event Type
STUDY.ER.PAR		Several occurrences between 2004 and 2006	21/04/2008	Serious incident

Synopsis of the event:

Les enquêtes sur deux incidents graves de 2004 et 2006 (erreurs d'insertion conduisant à un décollage avec une poussée et des vitesses insuffisantes), complétées par une étude, ont confirmé que, sur les avions de nouvelle génération, des erreurs, parfois lourdes, sont commises par les équipages sans être détectées avant l'envol.

La période de préparation du vol et de mise en oeuvre de l'avion est une phase délicate et essentielle pour la sécurité de l'ensemble du vol et en particulier du décollage. Dans cette phase, l'équipage est soumis à une charge

de travail importante dans des délais souvent réduits et perturbés par des contraintes extérieures. Il est nécessaire de réduire ces risques d'erreurs en agissant à la fois sur l'amélioration de la formation, des procédures et des systèmes. L'étude a montré que les vérifications sont parfois inefficaces et que les doutes, lorsqu'ils sont exprimés, ne sont pas levés correctement. Les erreurs commises à divers stades de la préparation et du départ des vols peuvent ainsi se propager jusqu'au décollage et compromettre sa sécurité. L'étude a aussi montré que la présentation des données à insérer dans les systèmes embarqués de gestion du vol peut prêter à confusion et que les valeurs de masses et de vitesses que ces systèmes acceptent peuvent être incohérentes.

Safety Recommendation FRAN-2008-328 (BEA)

[French] - La DGAC se rapproche de l'AESA et de la FAA pour faire évoluer les normes de certification afin que les calculateurs de paramètres prévoient des systèmes de refus ou d'alerte de l'équipage en cas d'insertion de données incohérentes, manifestement erronées ou trop éloignées des valeurs usuelles.

Reply

On board computer functions rejecting or alerting on obviously erroneous take-off performance data input already exist on modern large aeroplanes, however these functions are not sufficient to mitigate all potential errors, as gross errors may exist with data still within possible performance envelopes.

However, the Agency explored other ways to mitigate the safety risk of using or computing wrong aeroplane take-off performance data.

First, concerning the operational approval of Electronic Flight Bags, the Acceptable Means of Compliance (AMC) 20-25 dated 09 February 2014 includes detailed guidelines for the operational evaluation which will improve the protection against the risk of take-off performance calculation errors.

Paragraph D.3.2 of Appendix D to AMC 20-25, entitled 'Performance applications and mass & balance calculations' has different provisions to maximise the clarity of data input and output, and to minimise the risk of errors. For example, a paragraph is dedicated to the risk of errors which exists when making modifications to a previous performance calculation:

"The user should be able to modify performance calculations easily, especially when making last minute changes.

Calculation results and any outdated input fields should be deleted:

(a) when modifications are entered;

(b) when the EFB is shut down or the performance application is closed; and

(c) when the EFB or the performance application have been in a standby or 'background' mode long enough, i.e. such that it is likely that when it is used again the inputs or outputs are outdated."

Second, a EUROCAE Working Group (WG-94) was convened in 2012, at the request and with the participation of EASA, with the aim to undertake preparative work to establish the feasibility of the development of (a) EUROCAE standard(s) defining the requirements for a Take Off Performance Monitoring System (TOPMS) that will provide a timely alert to flight crew when the achieved take off performance is inadequate for the given aircraft configuration and aerodrome conditions.

WG-94 issued their report in February 2015, concluding that the development of standards to define performance requirements and operational conditions for TOPMS is not possible at the moment. This is due to a multitude of factors, including the maturity of the technology, a lack of real-time data (e.g. environmental parameters, runway conditions, airport databases, etc) and/or suitable aeroplane performance models, a lack of consensus in design criteria and testing methods. WG-94 activity is therefore terminated. However, it is recognised that the industry will continue investigating technical solutions and this will be monitored. A reactivation of this WG or a new activity may be launched at a later date.

Reply

Finally, another potential means which can contribute to mitigate take-off performance data errors is the concept of on board weight and balance system (OBWBS). After a positive feasibility study, a EUROCAE Working Group (WG-88), with participation of EASA, is now working to prepare Minimum Operational Performance Specifications (MOPS). When the MOPS is delivered, the Agency aims to launch a rulemaking activity to propose mandating the installation of OBWBS.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
A6-BSM	LOCKHEED L1011 385	Paris Charles de Gaulle Airport	04/07/2005	Incident

Synopsis of the event:

After difficulties during boarding, the airplane, operated by Star Jet and wetleased by Olympic Airlines, took off late. A short time after retracting the landing gear, the crew heard a series of thumps and noticed that engine 3 TGT was increasing. They applied the FIRE OR SEVERE DAMAGE procedure, performed an aerodrome circuit and landed.

The investigation showed that the engine had suffered from a serious sustained (pop) surge. This was caused by a combination of wear to the compressor blades, damage caused by an object passing through the intermediate and high-pressure compressor stages and the stresses induced by this phase of takeoff. The investigation also showed that the airplane was in bad overall condition and that the absence of a framework for documentation made it impossible for the operator to ensure appropriate follow-up of maintenance operations.

The investigation showed that, in general, there were numerous failings in the operation established by Star Jet. The safety inspections performed at several levels did not enable these failings to be corrected. Nor did they prevent the airplane from being flown in Europe.

Safety Recommendation FRAN-2009-006 (BEA)

The BEA recommends: that EASA impose on cabin crew a minimum level of skills in the English language, as well as in at least one of the languages of the country of origin or destination.

Reply

CAT.GEN.MPA.120 of Commission Regulation (EU) No 965/2012 requires operators to ensure that all crew members can communicate with each other in a common language. CC.TRA.220 and Appendix 1 to Part CC of Commission Regulation (EU) No 1178/2011, as well as Subpart CC (in particular CRM training) of Commission Regulation (EU) No 965/2012, also contain provisions on the issue of 'communication' in cabin crew training.

In particular, the operator conversion training programme should include training on passenger handling and crowd control, including 'communication' and 'verbal commands', for various emergency situations (AMC1 ORO.CC.125(d)). This operator-specific training should be tailored to suit the characteristics of the routes operated.

Reply

Language proficiency standards have evolved since the date of the event ensuring that flight crews are capable of making public announcements clearly in the English language to keep the passengers informed. This should provide suitable alternative mitigation for the scenario described in the accident report.

Ultimately, it is the operator's responsibility to ensure that passenger safety briefings and instructions are given in a way that will ensure general understanding by passengers and will allow cabin crew to be understood when applying safety and emergency procedures.

In conclusion, the Agency will not launch a dedicated rulemaking task to amend the regulations, as existing requirements already provide suitable mitigation against the risk of miscommunication.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
G-BDXE	BOEING 747	Saint-Denis Gilliot	25/10/2004	Incident

Synopsis of the event:

Au décollage de nuit de l'aérodrome de Saint-Denis Gillot, alors que l'avion a atteint une hauteur d'environ 300 ft, le réacteur no 4 subit un pompage. Des flammes sont aperçues par certains passagers et membres de l'équipage de cabine. L'équipage de conduite applique la procédure d'urgence « feu, grave dommage ou séparation-réacteur », ce qui le conduit à arrêter le réacteur no 4. Il décide de poursuivre le vol sur trois réacteurs, avec comme objectif, dans un premier temps, d'atteindre l'Europe. Arrivé au-dessus de l'Italie, il prend la décision de poursuivre jusqu'à la destination planifiée, Paris Charles de Gaulle. L'avion atterrit après 11 h 34 min de vol, soit quarante-quatre minutes de plus que la durée prévue au plan de vol, avec une quantité de carburant proche de la réserve finale.

Safety Recommendation FRAN-2009-022 (BEA)

[French] - A l'occasion de l'Incident survenu le 4 juillet 2005 à l'avion immatriculé A6-BSM, le BEA a recommandé à l'AESA «qu'elle impose au personnel de cabine des compétences minimales en langue anglaise, ainsi que dans l'une au moins des langues du pays d'origine ou de destination» (recommandation no FRAN-2009-004). L'événement survenu à l'avion immatriculé G-BDXE confirme cette nécessité et, en conséquence, le BEA renouvelle sa recommandation.

Reply

CAT.GEN.MPA.120 of Commission Regulation (EU) No 965/2012 requires operators to ensure that all crew members can communicate with each other in a common language. CC.TRA.220 and Appendix 1 to Part CC of Commission Regulation (EU) No 1178/2011, as well as Subpart CC (in particular CRM training) of Commission Regulation (EU) No 965/2012, also contain provisions on the issue of 'communication' in cabin crew training.

In particular, the operator conversion training programme should include training on passenger handling and crowd control, including 'communication' and 'verbal commands', for various emergency situations (AMC1 ORO.CC.125(d)). This operator-specific training should be tailored to suit the characteristics of the routes operated.

Reply

Language proficiency standards have evolved since the date of the event ensuring that flight crews are capable of making public announcements clearly in the English language to keep the passengers informed. This should provide suitable alternative mitigation for the scenario described in the accident report.

Ultimately, it is the operator's responsibility to ensure that passenger safety briefings and instructions are given in a way that will ensure general understanding by passengers and will allow cabin crew to be understood when applying safety and emergency procedures.

In conclusion, the Agency will not launch a dedicated rulemaking task to amend the regulations, as existing requirements already provide suitable mitigation against the risk of miscommunication.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
F-GLZU	AIRBUS A340	Paris Charles de Gaulle	13/03/2012	Serious incident

Synopsis of the event:

The crew took off from Bamako (Mali) aerodrome on 12 March 2012 at 23 h 59 heading for Paris Charles de Gaulle (CDG) airport. On arrival, the ATIS indicated that the low visibility procedure (LVP) was in force. The crew prepared themselves for a CAT III precision approach.

The aeroplane was vectored above the ILS glide patch with a request to maintain high speed and cleared late to descent 3,000 ft to intercept the 08R ILS.

The crew continued the descent approaching the glide path from above until 4 NM from the runway threshold, at about 3,700 ft (that is 2,100 ft above the glide path at 3°). At that time, it was located in an ILS signal sidelobe. About 30 seconds later, the crew extended the landing gear. The glide path capture mode (G/S*) was activated when the aeroplane was 2 NM from the runway threshold at 2,850 ft (that is about 1,600 ft above the glide path at 3°). The ATHR changed to SPEED mode. The pitch attitude increased from 1° to 26° in 12 seconds. The PNF stated that he had called out the difference in the pitch attitude when the chevrons appeared. When the aeroplane pitched up, the speed dropped from 163 kt to 130 kt, the vertical speed changed from – 1,600 ft/min to + 3,300 ft/min. When the pitch attitude reached 26°, the crew disconnected both autopilots and the PF made a pitch down input almost down to the stop. The pitch attitude and vertical speed decreased.

The crew retracted the airbrakes. The throttle levers were in the IDLE position. The speed was 143 kt and the ATHR disengaged. About 30 seconds later, autopilot 1 was engaged, the levers were repositioned on the CL setting and the ATHR was activated. The PF explained that he engaged autopilot 1 to perform a go-around on automatic.

The LOC and G/S modes were active and the ATHR was in SPEED mode. The speed was 147 kt. The aeroplane was directly above the runway threshold at an altitude of about 2,700 ft. The pitch attitude then decreased from 2° to -5° and the aeroplane descended.

The PF stated that he realised that the modes displayed on the FMA were not appropriate. He then disengaged the AP 8 seconds after having activated it and then displayed a pitch attitude of about 6° and placed the throttle levers in the TOGA setting at an altitude of about 2,000 ft.

The crew made a second approach and landed without further difficulties.

Safety Recommendation FRAN-2013-008 (BEA)

The investigation showed that it was possible to intercept a sidelobe ILS glide path in autopilot without alerting the crew. Furthermore, under these conditions, the autopilot put the aeroplane in an unusual attitude (26° pitch-up) during a critical phase of the flight. This issue could well involve other aircraft in public transport.

Consequently the BEA recommends that EASA ensure that aircraft ILS modes are not engaged on an ILS signal other than the one corresponding to the published descent path; that failing this, a system enabling the crew to be alerted be put in place.

Reply

Initially, EASA published the Safety Information Bulletin (SIB) 2014-07 on 25 March 2014 on "Unexpected Autopilot Behaviour on Instrument Landing System (ILS) Approach". This SIB is now being revised to raise further awareness on training for Aircrew and Air Traffic Controller Officers.

Moreover, in the frame of possible technological enhancements to prevent similar occurrences in the future, EASA has identified two main features to:

- warn flight crews of an "High Approach" condition;
- inhibit the automatic glide slope capture arming in "High Approach" conditions.

Since the system is intended to prevent runway excursion by alerting the crew of their position and energy in relation to the runway, EASA has therefore submitted a document to EUROCAE WG-101 on "Runway Overrun Awareness and Alerting System (ROAAS)" recently established, in order to include the abovementioned warning function into the objectives for the WG, assuming that it could be eventually implemented as an industry standard.

This Agency will closely follow the future activity of the WG on this specific subject.

Status: Open – **Category**:

Safety Recommendation FRAN-2013-009 (BEA)

The investigation showed that it was possible to intercept a sidelobe ILS glide path in autopilot without alerting the crew. Furthermore, under these conditions, the autopilot put the aeroplane in an unusual attitude (26° pitch-up) during a critical phase of the flight. This issue could well involve other aircraft in public transport.

Consequently, the BEA recommends EASA ensure that the activation of aircraft ILS modes in autopilot does not lead to inappropriate attitudes during approach.

Reply

Initially, EASA published the Safety Information Bulletin (SIB) 2014-07 on 25 March 2014 on "Unexpected Autopilot Behaviour on Instrument Landing System (ILS) Approach". Currently this SIB is being revised to raise awareness on training for Aircrew and Air Traffic Controller Officers.

Moreover, in the frame of possible technological enhancements to prevent similar occurrences in the future, EASA has identified two main features to:

- warn flight crews of an "High Approach" condition;
- inhibit the automatic glide slope capture arming in "High Approach" conditions.

Since the system is intended to prevent runway excursion by alerting the crew of their position and energy in relation to the runway, EASA has therefore submitted a document to EUROCAE WG-101 on "Runway Overrun Awareness and Alerting System (ROAAS)" recently established, in order to include the abovementioned warning function into the objectives for the WG, assuming that it could be eventually implemented as an industry standard.

This Agency will closely follow the future activity of the WG on this specific subject.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
ASAGA STUDY			#Missing#	

Synopsis of the event:

The BEA participated in investigations into the following events:

- the fatal accident to an Airbus A310 on 29 June 2009 at Moroni (Comoros);
- the fatal accident to an Airbus A300 B4 on 13 April 2010 at Monterrey (Mexico);
- the fatal accident to an Airbus A330-200 on 12 May 2010 at Tripoli (Libya).

The first accident occurred during final approach in full thrust configuration and with a high noseup attitude. The two other accidents occurred during goaround.

Prompted by these three accidents, the BEA decided to launch an overall study into aeroplane state awareness during go around (ASAGA).

The purpose of the study was to:

- determine if the ASAGA issue was uniquely associated with Airbus aircraft;
- list and study the ASAGAtype events that have occurred in public transport over the last 25 years;
- determine and analyse the common factors in these events;
- suggest strategies to prevent their recurrence.

Safety Recommendation FRAN-2013-025 (BEA)

The BEA recommends that EASA, in coordination with major non-European aviation authorities, amend the CS-25 provisions so that aircraft manufacturers add devices to limit thrust during a go-around and to adapt it to the flight conditions.

Reply

Rulemaking task RMT.0647 ('Loss of control or loss of flight path during go-around or other flight phases') has started with the publication of its Terms of Reference and its Group Composition on 06/07/2015 (https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0647).

The overall objective of RMT.0647 is to mitigate the safety risk for large aeroplanes of loss-of-control of the flight path, or loss-of-control of the aircraft during go-around phases, or other flight phases executed from a low-speed configuration.

This includes the task to prepare new provisions in Certification Specifications for Large Aeroplanes (CS-25) to ensure that the thrust available after selecting the go-around mode is set to a reasonable value, such that the aeroplane's performance parameters are not excessive to the point that the control of the flight path may be a very demanding or hazardous task.

Status: Open – **Category**:

Safety Recommendation FRAN-2013-026 (BEA)

The BEA recommends that EASA examine, according to type certificate, the possibility of retroactively extending this measure in the context of PART 26 / CS-26, to the most high-performance aircraft that have already been certified.

Reply

Rulemaking task RMT.0647 ('Loss of control or loss of flight path during go-around or other flight phases') has started with the publication of its Terms of Reference and its Group Composition on 6/07/2015 (https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0647).

The overall objective of RMT.0647 is to mitigate the safety risk for large aeroplanes of loss-of-control of the flight path, or loss-of-control of the aircraft during go-around phases, or other flight phases executed from a low-speed configuration.

In addition to preparing provisions in Certification Specifications for Large Aeroplanes (CS-25) addressing go-around thrust setting, it includes the task to prepare options for a new Part-26/CS-26 rule which will mandate similar specifications for already certified large aeroplanes.

Status: Open – **Category**:

Safety Recommendation FRAN-2013-042 (BEA)

The BEA recommends that EASA, in cooperation with the major non-European certification authorities, make mandatory the implementation of means to make crews aware of a low speed value and, where necessary, prevent an unusual nose-up trim position from occurring or being maintained.

Reply

1) Low speed awareness:

Certification Specifications for Large Aeroplanes (CS-25) contains provisions to protect the aircraft against low speed.

The current CS 25.1329(h) (dated December 2007-Amendment 4) requires, when the Flight Guidance System (FGS) is in use (like Autopilot engaged), a means to avoid excursions beyond an acceptable margin from the speed range of the normal flight envelope. Such means can be either an automatic control or guidance from the FGS, or the implementation of an alert to increase flight crew's awareness of a potential airspeed excursion.

AMC N°1 to CS 25.1329 provides guidance on FGS alerting functions. In chapter 9.3 it is reminded that alerting information should follow the provisions of CS 25.1322 (Flight Crew Alerting) and its associated advisory material. In addition, chapter 9.3.1 is dedicated to Alerting for Speed protection:

"To assure crew awareness, an alert should be provided when a sustained speed protection condition is detected. This is in addition to any annunciations associated with mode reversions that occur as a consequence of invoking speed protection (see Section 10.4, Speed Protection). Low speed protection alerting should include both an aural and a visual component.[...]"

In manual flight mode, other means exist to increase flight crew awareness, like flight envelope protection features or stick force gradients. Furthermore, in practice, aeroplanes equipped with a low speed or low energy alerting system provide this functionality not only with the FGS engaged, but also in manual mode.

Therefore the current CS-25 specifications provide adequate protection against airspeed excursions, including low speed situations.

Concerning in-service aeroplanes, further to the delivery of an ARAC (Avionics System Harmonization Working Group (ASHWG)) report to the FAA, the review of accidents conducted by the ASHWG did not provide enough safety evidence to justify mandating a costly retroactive design change for incorporation of a low speed or low energy alerting system. However further ASHWG discussions have taken place since 03Q2014 with Agency participation, and the Agency continues to monitor relevant in-service experience.

2) Unusual nose-up trim position:

Rulemaking task RMT.0647 ('Loss of control or loss of flight path during go-around or other flight phases') has started with the publication of its Terms of Reference and its Group Composition on 06/07/2015 (https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0647).

The overall objective of RMT.0647 is to mitigate the safety risk for large aeroplanes of loss-of-control of the flight path, or loss-of-control of the aircraft during go-around phases, or other flight phases executed from a low-speed configuration.

Reply

This includes the task to prepare new provisions in Certification Specifications for Large Aeroplanes (CS-25) to prevent an excessive nose-up pitch trim condition when transitioning from a low-speed phase of flight and when a high level of thrust is applied. This may be achieved by different means, such as by increasing the flight crew awareness of the low-speed/excessive nose-up trim condition, or by incorporating active systems preventing an unusual configuration (low-speed/excessive nose-up trim condition) from developing. In addition to the CS-25 provisions, the task includes preparing options for a new Part-26/CS-26 rule which will mandate similar specifications for already certified large aeroplanes.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
F-GSPK	BOEING 777	Cruise-Atlantic	08/12/2010	Serious incident

Synopsis of the event:

The crew took off from Atlanta Hartsfield on a flight bound for Paris-CDG airport with 219 passengers on board. In cruise at FL 380, the cabin crew noticed a smell typical of an electrical fire at the level of seat 4F in Business Class. They cut off electrical power to the general video system, removed the seat covering and noticed the presence of flames. The cabin crew member explained that he had extinguished the fire by reflex by throwing water onto the flames.

The flight continued without further incident and a cabin crew member checked that the fire did not start again.

Safety Recommendation FRAN-2014-004 (BEA)

EASA evaluate the risks associated with fires to batteries contained in mobile electronic devices transported in cabins by passengers and crew, and propose appropriate procedures in case of a fire on this type of equipment. [Recommendation FRAN-2014-004]

Reply

The initial Executive Director (ED) Decisions related to Commission Regulation (EU) No 965/2012 on air operations, already contained Guidance Material (GM) for handling fires caused by Portable Electronic Devices (PEDs) in the aircraft cabin. This material is applicable to Commercial Air Transport (CAT) operations, Non-Commercial operations with Complex motor-powered aircraft (NCC), Non-Commercial operations with Other-than complex motor-powered aircraft (NCO) and Specialised Operations (SPO).

However, in support of this safety recommendation, the Agency has reviewed the GM within the framework of rulemaking task RMT.0637 'Portable Electronic Devices II'.

The results of this rulemaking task are contained in ED Decisions 2014/029/R (Part-CAT), 2014/030/R (Part-NCC), 2014/031/R (Part-NCO) and 2014/032/R (Part-SPO), which were published on 26 September 2014.

The GM contains a reference to International Civil Aviation Organisation (ICAO) Doc 9481-AN/928 'Emergency Response Guidance for Aircraft Incidents Involving Dangerous Goods'.

Reply

The 2015-2016 edition of ICAO Doc 9481 provides, in sections 3.3 and 3.4, detailed cabin crew checklists for handling PED fires in the aircraft cabin.

With this action completed, the Agency considers that the operators now have access to all the necessary material to be able to establish comprehensive procedures, tailored to their operation, to mitigate the risks associated with fires to batteries contained in PEDs transported in cabins by passengers and crew.

Status: Closed – **Category**: Agreement

Registration	Aircraft Type	Location	Date of event	Event Type
F-GBFG	CESSNA F172	Le Hebriers	25/10/2012	Serious incident

Synopsis of the event:

Panne d'essence en croisière, atterrissage forcé en campagne lors d'un vol de photographies aériennes

Le pilote, accompagné d'un photographe, décolle de l'aérodrome de Lyon-Bron vers 11 h 08 pour un vol de mission photographique. La navigation prévue représente une distance comprise entre 400 et 450 NM, correspondant à une durée maximale de vol en F172M d'environ 4 heures 30 minutes. Le pilote a prévu d'atterrir sur l'aérodrome de Niort pour avitailler. Le vol se déroule sans problème particulier selon le profil vertical suivant indiqué par le pilote.

Vers 16 h 15, après avoir pris les photos de sites de la commune des Herbiers, le pilote décide d'aller avitailler à Cholet, plus proche que Niort. Il informe l'agent AFIS de son intention. Quelques minutes plus tard, il perçoit des ratés du moteur suivis d'une perte de puissance. Il effectue une recherche de panne puis cherche un champ pour atterrir. Il explique que, pendant la descente, le moteur est toujours en fonctionnement mais ne délivre pas de puissance. L'atterrissage a lieu après 5 heures et 13 minutes de vol à moins de 15 NM de l'aérodrome de Cholet. Au sol, le moteur s'arrête.

Safety Recommendation FRAN-2014-013 (BEA)

[French] - L'AESA modifie les règlements de navigabilité CS-23 et CS-VLA pour imposer l'installation de débitmètres totalisateurs ou équivalents ou d'alarmes « bas niveau carburant » indépendantes du système de jaugeage principal dans les tous les aéronefs concernés.

Reply

The Agency is conducting an analysis of this category of events (fuel exhaustion) and this safety recommendation. An update will be provided after taking into account the potential safety benefit and the associated cost impact.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
PK-WFV	ATR ATR72	Kendari Ujung Pandang	18/09/2013	Serious incident

Synopsis of the event:

On 18th September 2013, the ATR 72-212A MSN 985 registered PK-WFV encountered severe vibrations on engine #2 propeller during descent at a speed of 251 kt as the crew was moving power levers to the Flight Idle position. Vibrations persisted until the engine #2 was shut down after landing.

The blade angle actuator forward plate was found bent and one blade was turning freely as its trunnion pin was broken. Two engine fittings were found broken.

Registration	Aircraft Type	Location	Date of event	Event Type
9Y-TTC	ATR ATR72	Tobago	04/05/2014	Serious incident

Synopsis of the event:

On 4th May 2014, the ATR 72-212A MSN 989 registered 9Y-TTC encountered severe vibrations on engine #2 propeller during descent at a speed of 246 kt as the crew was moving power levers to the Flight Idle position. On 5th May 2014, right propeller vibrations were reported by the crew after landing.

Propeller pitch change mechanism was found severely damaged after maintenance performed test runs on the ground. The blade angle actuator forward plate was found heavily bent and one blade was turning freely as its trunnion pin was broken.

Registration	Aircraft Type	Location	Date of event	Event Type
SE-MDB	ATR ATR72	Sweden-AD Visby	30/11/2014	Serious incident

Synopsis of the event:

On 30th November 2014, the ATR 72-212A MSN 822 registered SE-MDB encountered severe vibrations on engine #2 propeller. According to preliminary results, vibrations occurred during descent at a speed around 250 kt when power levers were in Flight Idle position. The crew reported that the level of vibrations made it impossible to read the instruments. Vibrations ceased when the engine #2 was shut down in flight. After landing, the blade angle actuator forward plate was found heavily bent and one blade was turning freely as its trunnion pin was broken. Damages were observed on the engine's compressor housing and on some engine shock mounts.

Safety Recommendation FRAN-2014-016 (BEA)

EASA takes the necessary actions in order to ensure that all pilots operating ATR equipped with Hamilton Sundstrand Propellers, model 568F-1, are informed that severe vibrations have occurred during descent at a speed close to VMO with power levers in Flight Idle position and that heavy damages to the propeller pitch change mechanism and, in one case, to engine fittings were observed.

Reply

EASA has issued the Safety Information Bulletin 2015-03 (SIB No.: 2015-03) on the 30 January 2015 wherein the concern of this safety recommendation is addressed in the description section.

Status: Closed – **Category**: Agreement

Safety Recommendation FRAN-2014-017 (BEA)

EASA takes the necessary actions in order to ensure that all pilots operating ATR equipped with Hamilton Sundstrand Propellers, model 568F-1, plan and operate their flights to avoid operations close to VMO [maximum operating limit speed] at Flight Idle.

Reply

EASA has issued the Safety Information Bulletin 2015-03 (SIB No.: 2015-03) on the 30 January 2015 wherein the concern of this safety recommendation is addressed by the SIB's no. 1 recommendation.

Status: Closed – **Category**: Agreement

Safety Recommendation FRAN-2014-018 (BEA)

EASA takes the necessary actions in order to ensure that all pilots operating ATR equipped with Hamilton Sundstrand Propellers, model 568F-1, report to maintenance if they experience severe vibrations during descent at a speed close to VMO [maximum operating limit speed] with power levers in Flight Idle position.

Reply

EASA has issued the Safety Information Bulletin 2015-03 (SIB No.: 2015-03) on the 30 January 2015 wherein the concern of this safety recommendation is addressed by the SIB's no. 4 and no. 5 recommendations.

Status: Closed – **Category**: Agreement

Safety Recommendation FRAN-2014-019 (BEA)

EASA takes the necessary actions in order to ensure that ATR develops an appropriate operational procedure addressing severe vibrations of a propeller and that airlines operating ATR equipped with Hamilton Sundstrand Propellers, model 568F-1, include that procedure in their operational documentation.

Reply

EASA, in consultation with ATR, is examining the appropriate mitigating actions to be taken which will be communicated in due course.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
F-GMJG	PILATUS PC6	Au large de Granville	18/08/2012	Accident

Synopsis of the event:

Le pilote décolle vers 18 h 24 de la piste 25 de l'aérodrome de Granville Mont- Saint-Michel pour un vol de largage de parachutistes à la verticale de l'aérodrome au FL115 et au FL135. A 18 h 36, un employé de la société au sol demande au pilote sur la fréquence de l'aérodrome s'il voit « la brume de mer qui rentre au sol ». Le pilote lui répond qu'il la voit et la surveille. Il indique également: « on voit carrément la zone, il n'y a aucun problème... ». L'employé lui répond que « au sol, ils sont un peu sceptiques » et propose au pilote de demander l'avis aux parachutistes avant le largage. A 18 h 38, l'employé indique au pilote que « la brume rentre à Mach 2, je ne sais pas s'ils vont avoir visuel ». Le pilote répond que les parachutistes sont d'accord pour sauter et que le largage au FL115 a débuté. A 18 h 39, le largage est terminé et le pilote indique que « c'était carrément visuel ». Le largage au FL135 débute deux minutes plus tard selon une route sud. A l'issue du largage, le pilote débute la descente et vire à droite vers le nord-ouest. Le taux de descente atteint plus de 6 000 ft/min. Le pilote annonce qu'il passe le FL100 en descente et que « ce sera pour une 07 ». A une altitude d'environ 7 000 ft, il vire vers la gauche. Le taux de descente reste proche de 6 000 ft/min pendant le virage. A 18 h 42, le directeur technique de la société demande au pilote si les parachutistes « redescendent avec l'avion ». A la suite de la réponse du pilote annonçant qu'ils ont déjà sauté, le directeur technique indique alors que « c'est encore clairsemé, ça marche ».

A 18 h 43, le pilote annonce qu'il passe 3 000 ft en descente et que « ce sera pour une 07 ». Quelques secondes plus tard, à une altitude d'environ 1 500 ft, l'avion pénètre dans une couche nuageuse, poursuit la descente puis entre en collision avec la mer, sans perte de contrôle du pilote. L'avion est retrouvé en mer à une distance d'environ 1,1 NM du seuil de la piste 07.

Les commandes du moteur au poste de pilotage sont toutes positionnées vers l'avant. L'examen de l'hélice indique que le moteur délivrait de la puissance. L'examen de l'avion montre que le compensateur de profondeur est réglé à cabrer et que les volets sont en configuration atterrissage.

Safety Recommendation FRAN-2015-001 (BEA)

The BEA recommends that EASA develop an Acceptable Means of Compliance (AMC) in the SPO section, and detailed specifications for parachute dropping operations for implementation in operators' standard operating procedures (SOP).

Reply

Depending on the specific nature of the undertaking, parachute operations in EASA Member States are governed by the provisions contained in either Part-SPO (specialised operations) or Part-NCO (non-commercial operations with other than complex motor-powered aircraft) of Commission Regulation (EU) No 965/2012, which was applicable from 01 July 2014. However, Member States could choose not to apply these provisions until 21 April 2017, in which case national legislation would apply in the meantime.

According to Part-SPO and Part-NCO, the operator is required to carry out a risk assessment and establish standard operating procedures (SOPs) to mitigate the risks related to their specific activity. Acceptable Means of Compliance (AMC) and Guidance Material (GM) to paragraphs SPO.OP.230 and NCO.SPEC.105 contains instructions and guidance on the risk assessment and development of specific SOPs.

Providing detailed criteria in the form of AMC for these SOPs would be unrealistic for all types of parachute operations, aircraft and local risks. There are so many factors to be considered that it would be more appropriate for each operator to define their own SOPs which should be tailored to mitigate the risks associated with their specific operation. Furthermore, such AMC would not support the principle of proportionality for the general aviation community.

Lastly, according to ARO.GEN.300 in Part-ARO of Commission Regulation (EU) No 965/2012, the competent authority is required to verify that operators within their jurisdiction comply with Part-SPO and Part-NCO. Such oversight should detect any weaknesses in the operator's risk assessment and/or SOPs, which should be required by the competent authority to be corrected.

The Agency has therefore concluded that it would not be appropriate to impose additional AMC on parachute operations.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
F-GHPN	PIPER PA28	Persan Beaumont Aerodrome	06/03/2013	Accident

Synopsis of the event:

Collision avec la végétation puis le sol en finale, de nuit

Le pilote décolle à 20 h 03(2) de la piste 10(3) de l'aérodrome de Persan Beaumont pour une navigation d'environ 12 NM à destination de Pontoise (95) en VFR de nuit. Sept minutes plus tard, le pilote annonce sur la fréquence d'auto-information qu'il a annulé son vol à destination de Pontoise en raison « d'un problème de GPS » et qu'il est de retour en finale pour des posés-décollés en piste 10. Il annonce à 20 h 12 qu'il « remet les gaz », puis à 20 h 16 qu'il est « en finale pour la piste 10 ». L'aéronef est retrouvé dans un champ à 585 mètres en amont du seuil décalé de la piste.

Safety Recommendation FRAN-2015-002 (BEA)

[French] - Le BEA recommande que l'AESA étudie les moyens de sensibiliser les médecins quant aux risques associés à la présence d'une cataracte et notamment de ses signes précurseurs. [Recommandation FRAN-2015-002]

Reply

The European Aviation Safety Agency (EASA), in collaboration with aero-medical experts from EASA Member States' national aviation authorities, has considered the recommendation to raise awareness amongst the aero-medical certification community about the risks associated with cataract presence.

The existing provisions in Commission Regulation (EU) No 1178/2011 address the risks associated with conditions affecting the visual system (MED.B.070). A comprehensive eye examination is required for initial class 1 applicants and all abnormal and doubtful cases should be referred to an ophthalmologist [AMC1 MED.B.070 (b)]. For class 1 revalidation and renewal examinations, further examination is required if clinically indicated during the routine eye examination [AMC1 MED.B.070 (c)(4)]. A comprehensive eye examination is required for class 2 applicants if clinically indicated during the routine eye examination (MED.B.070 (b)(2)(ii)). Again, all abnormal and doubtful cases should be referred to an ophthalmologist.

Aero-Medical Examiners (AMEs), as medical doctors, through general/professional and aviation medicine training, should be suitably equipped to ensure extended ophthalmological examinations are undertaken on clinical indication. The ophthalmologist should then detect any cataract presence and report this to the AME for assessing the applicant as fit or unfit, depending on whether the condition is likely to interfere with the safe exercise of the privileges of the applicable licence(s). Where clouded crystalline lens/early onset of cataracts has been detected by the ophthalmologist, it is likely that the applicant will be advised to undergo regular eye examinations and eventual surgical correction.

Nevertheless, in support of the safety recommendation, the Agency will take an action to raise awareness amongst the Member States about the flight safety risk posed by the presence of cataracts, including symptoms of early onset. The Agency will draw attention to the need to identify those most at risk, through careful check of the applicant's medical history and on clinical indication, especially if they have visual acuity problems and/or are in the high risk age category. Where doubt exists the AME should ensure further examination by an ophthalmologist who should detect a clouded crystalline lens/cataract or early cataract onset, if it exists. The Member States will be advised to communicate this issue to all Aeromedical Centres (AeMCs) and AMEs under their jurisdiction. The advice may include a recommendation for the Member States to encourage the examiner to use simple tools to detect the early onset of cataracts, especially for applicants aged around 60 years or over, who are most susceptible to the condition. Various simple diagnostic tools/methods are available, such as a slit lamp, or to shine an ophthalmoscope at the edge of the applicant's visual field to simulate luminance.

The Agency believes that this action will support those involved in the medical certification of pilots with their obligation to ensure that the risks associated with the presence of cataracts are suitably mitigated.

Status: Open – **Category**:

Safety Recommendation FRAN-2015-003 (BEA)

[French] - Le BEA recommande que l'AESA modifie l'AMC2 MED.B.070 pour permettre d'identifier les pilotes à risques en procédant à une évaluation qualitative de la vision dans des conditions de luminances extrêmes afin d'informer ces pilotes des risques de détérioration de leur performance visuelle dans certaines circonstances et de leur conseiller des examens complémentaires par un ophtalmologue (par exemple pour détecter la présence d'un voile cristallinien ou des signes précurseurs d'une cataracte). Cette évaluation qualitative peut être faite par la vérification des antécédents médicaux et sur indication clinique (par exemple des problèmes d'acuité visuelle, résultat d'un test de luminance).

Reply

The European Aviation Safety Agency (EASA), in collaboration with aero-medical experts from EASA Member States' national aviation authorities, has considered the recommendation to introduce, in AMC2 MED.B.070 a qualitative assessment of vision in extreme luminance conditions to detect cataract presence.

The need for further examination by an ophthalmologist should be identified during the examiner's assessment of the applicant's medical history and if clinically indicated during the eye examination [AMC2 MED.B.070 (a)(2) and (b)(4)]. Specifying the means by which the examiner should conduct the examination should not be necessary, as the examiner should be suitable equipped to recognise the basic indicators of cataract presence. The examiner should be aware, from the mandatory aviation medicine training received, of the need to pay particular attention to applicants in the high risk age category and/or bordering on pass/fail visual acuity measurements.

Furthermore, if luminance testing was introduced in the Acceptable Means of Compliance (AMC), it would need to be supported by scientifically substantiated pass/fail measurements, which would be difficult to establish, as aviation medicine should take account of the holistic approach for individual pilots.

In addition, if detail is added in the AMC, for example, on eye examination methods for detecting cataracts, this would set a precedent for providing the same level of detail for many other medical conditions, which should already be understood by the AMEs from their training. The action would also not support the principle of proportionality for the general aviation community.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
F-GJVA	AIRBUS A320	Hamburg Airport	28/03/2012	Incident

Synopsis of the event:

Perturbation du signal ILS lors de l'approche, déclenchement de la protection « ALPHA FLOOR » lors de l'approche interrompue.

Safety Recommendation FRAN-2015-005 (BEA)

[French] - L'AESA rappelle aux États membres de vérifier l'absence de point d'arrêt dans les zones critiques.

Reply

The Agency has presented and discussed the issue of possible disruption of the instrument landing system (ILS) signal due to aircraft or vehicle presence within the ILS critical areas, during the meetings with its Advisory Bodies, Aerodromes Thematic Advisory Group - TAG ADR, and industry, Aerodromes Safety Standards Consultative Sub-Committee - Sub SSCC ADR.

Following consultation with its stakeholders, the Agency published Safety Information Bulletin (SIB) No.: 2015-20, possible disruption of Instrument Landing System signal, on 7 October 2015.

Status: Closed – **Category**: Agreement

Registration	Aircraft Type	Location	Date of event	Event Type
F-HTAV	CIRRUS SR22	Aix les Milles	11/05/2013	Accident

Synopsis of the event:

Bounce on landing in strong wind, go-around and collision with terrain

The owner of the aeroplane wanted to make a two-day trip to Spain with another person. Not holding a licence himself, he asked a pilot to undertake the flight.

On 10 May 2013, the pilot, accompanied by those two passengers, took off from Aix les Milles aerodrome bound for Madrid Cuatro Vientos (Spain) aerodrome. The flight took place without incident.

The following day he took off, accompanied by the same two passengers, at about 13 h 00 to return to Aix les Milles aerodrome. The flight plan planned the first part of the flight in VFR as far as AGENA and continuation of the flight in IFR until Aix les Milles aerodrome.

On the approach to Aix les Milles, following a request by the owner, the pilot called out to the approach controller his intention to reroute to Castellet aerodrome in order to carry out a touch-and-go, before returning to Aix les Milles. Given the wind on the ground at Castellet, he performed an approach followed by a go-around.

The pilot was then cleared to perform a visual approach for runway 33 at Aix les Milles aerodrome. The approach was stabilised. The speed was about 90 kt, the aeroplane was in fully extended flap configuration and the auto-pilot was disengaged. The atmosphere was turbulent due to a strong wind in the north-west sector.

During the landing flare, the aeroplane banked about 10° to the left, then returned to a wings horizontal attitude. The left wheel touched the runway and the aeroplane bounced. The pilot started a go-around. At that instant, the air speed was about 60 kt the stall warning sounded. The pitch increased to 12° and at the same time the aeroplane banked sharply to the left, turned over and then struck the grassy strip located between the runway and the taxiway.

It crossed the taxiway perpendicular to it and came to a halt on its back in front of the hangar at the foot of the control tower.

The passengers evacuated the aeroplane before the emergency services arrived.

Safety Recommendation FRAN-2015-007 (BEA)

The investigation showed that the pilot inputs on the flight controls during the go-around were inadequate and that the pilot may have been surprised by the intensity of the p-factor from the Cirrus SR22 engine. A significant number of losses of control in g-around on Cirrus SR20 and SR22 were due to inappropriate pilot inputs on the controls. The manufacturer has identified the need for specific training on the SR22 which specifically takes into account its relatively high engine power. European regulations do not provide for specific training on these aeroplanes.

Consequently the BEA recommends that EASA require specific training linked to aeroplane performance for pilots of the Cirrus SR20 and SR22.

Reply

According to Part-FCL (Flight Crew Licensing) of Commission Regulation (EU) No 1178/2011, the Cirrus SR22 is in the category of the single engine piston single pilot aircraft (SEP) class rating (See FCL.700). Differences or familiarisation training, according to FCL.710, is not required for exercising the SEP class rating privileges with the Cirrus SR22 if the class rating was acquired for the Cirrus SR20, for example.

The establishment of pilot training requirements through Operational Suitability Data (OSD), according to Part-21 (Commission Regulation (EU) No 748/2012) is limited to aircraft type ratings. Consequently, OSD does not address training requirements for aircraft within class ratings beyond those already required by Part-FCL.

The operation involved in the accident is covered by the provisions in Part-NCO (Non-Commercial operations with Other than complex motor-powered aircraft) of Commission Regulation (EU) No 965/2012 (the air operations regulation), applicable from 01 July 2014. However, Member States may choose not to apply these provisions until 21 April 2017, with national legislation applying in the meantime.

According to Part-NCO, the Pilot-In-Command (PIC) is required to ensure that all operational procedures and checklists are complied with as referred to in 1.b of Annex IV to Regulation (EC) No 216/2008 (See NCO.GEN.105). It is the PIC's responsibility to familiarise him/herself with the operating procedures under normal, abnormal and emergency conditions and situations as specified in the flight manual associated with the aircraft operated.

Furthermore, according to ARO.GEN.300 in Part-ARO (Authority Requirements for air Operations) of the air operations regulation, the competent authority is required to verify continued compliance with Part-NCO. Such oversight should detect any non-compliances or safety issues, which should be required by the competent authority to be corrected.

Regarding the potential need for specific training linked to aeroplane performance for pilots of the Cirrus SR20 and SR22, the Agency will further analyse available data on service experience together with the Manufacturer and the FAA. Subsequent action by the Agency will depend on the outcome of this analysis.

Status: Open – **Category**:

Safety Recommendation FRAN-2015-008 (BEA)

The investigation showed that the pilot inputs on the flight controls during the go-around were inadequate and that the pilot may have been surprised by the intensity of the p-factor from the Cirrus SR22 engine. A significant number of losses of control in g-around on Cirrus SR20 and SR22 were due to inappropriate pilot inputs on the controls. The manufacturer has identified the need for specific training on the SR22 which specifically takes into account its relatively high engine power. European regulations do not provide for specific training on these aeroplanes.

Consequently the BEA recommends that EASA study the means to take into account manufacturers' recommendations on training when they identify a specific need, even in the absence of class or type rating.

Reply

Within the current EU regulatory framework, several means are available to EASA for initiation of corrective action/s if a safety concern regarding pilot training for a specific aircraft type is identified, if it is not already addressed through the existing class or type rating provisions. For example:

a. Safety Information Bulletins

Safety information bulletins are issued to raise awareness amongst the aviation community about potential safety issues and/or to recommend precautionary steps that the affected aircraft owners and operators should take;

b. Safety promotion

This can be accomplished through various mechanisms, such as workshops, direct communications with affected stakeholders, meetings with affected stakeholders, and/or production of focussed safety publications.

c. Require a type rating training (CS FCD.200(a)(3)(ii)).

Ultimately, unless no alternative means are available to address the safety concern behind the absence of that specific training and it is determined that an unsafe condition might develop, the Agency may impose a type rating training (CS FCD.200(a)(3)(ii)).

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
TAE FP STUDY			#Missing#	

Synopsis of the event:

En octobre 2009, octobre 2010 puis à onze reprises de septembre 2011 à septembre 2012, des défaillances de pompes carburant basse pression (P/N 05-7312-K007301) se sont produites dans le sud de la France sur des avions équipés de moteurs Thielert Aircraft Engines GmbH (TAE) 125-02-99. Ces défaillances ont eu pour conséquence la perte d'entraînement de la pompe et l'arrêt du moteur. Treize événements ont ainsi constitué l'étude, dont l'objet est de:

- lister et analyser les facteurs communs entre ces événements;
- proposer des axes de prévention.

Dans cet objectif, le BEA a analysé:

- quinze pompes carburant (issues des treize événements et deux de référence);
- des échantillons de carburant provenant des réservoirs de deux avions concernés;
- des échantillons prélevés dans deux dépôts aéroportuaires (un dans le sud de la France, l'autre dans le nord).

Cette étude a été réalisée en collaboration avec le BFU, le Cetim et TAE. Elle vient compléter l'étude « Evénements liés à un dysfonctionnement du moteur – Moteurs Thielert TAE 125 » disponible sur le site du BEA. L'étude n'a pas permis d'identifier de cause unique à la défaillance des pompes carburant basse pression. Elle a néanmoins fait ressortir certaines limitations dans la conception et la fabrication des pompes dans leur usage aéronautique:

- un taux de porosité élevé du matériau fritté constituant le pignon menant;
- une faible épaisseur de jante du pignon menant;
- des usures dues à des jeux non pris en compte.

Ces limitations n'expliquent cependant pas à elles seules les défaillances des pompes. L'étude a montré que le carburéacteur utilisé dans le sud de la France a un pouvoir lubrifiant particulièrement faible, contribuant à augmenter les frottements dans la pompe et donc les efforts existants. Les variabilités tant sur le dimensionnement des pompes que sur les caractéristiques du carburant peuvent se combiner pour contribuer à la défaillance des pompes.

L'étude s'est attachée à analyser les pompes isolément, sans tenir compte de leur intégration sur le moteur et dans l'avion. Il ne peut donc pas être exclu que des facteurs complémentaires (phénomènes vibratoires ou caractéristiques autres du carburant, par exemple) puissent contribuer à ces défaillances, sans que l'étude n'ait pu les identifier.

Enfin, deux recommandations de sécurité sont émises et visent à améliorer d'une part la robustesse de ces pompes, d'autre part la certification d'équipements aéronautiques dérivés d'une autre industrie.

Safety Recommendation FRAN-2015-011 (BEA)

[French] - En conséquence, le BEA recommande que l'AESA s'assure que TAE vérifie que les pompes carburant basse pression en service sont compatibles avec une utilisation aéronautique, en prenant en compte la variabilité des facteurs influant sur le fonctionnement de la pompe; [Recommandation FRAN-2015-011]

Reply

EASA in coordination with Technify Motors GmbH (TMG), the TC holder of the TAE 125 engines, has considered the effects of aeronautical use of the low pressure fuel pumps (LPP). The general failure rate of the low pressure pumps in the context of the accumulated TAE 125-02 fleet time of more than 3.2 million flight hours within acceptable limits. As the LPP gear failures are limited to certain geographical areas, it seems there is a not yet identified specific failure scenario, and not a general design problem. To address the LPP gear failures, TMG has developed a new LPP that eliminates some possible design weaknesses pointed out in the investigation report. The new LPP has been thoroughly tested and is currently in controlled entry into service.

Status: Closed – **Category**: Agreement

Safety Recommendation FRAN-2015-012 (BEA)

[French] - En conséquence, le BEA recommande que l'AESA prenne en compte la variabilité des facteurs influant sur le fonctionnement d'un moteur et ses accessoires lors de leur certification pour une utilisation dans une application différente de celle pour laquelle ils ont été initialement conçus. [Recommandation FRAN-2015-012]

Reply

EASA is considering a variety of factors influencing the operation of an engine and its accessories during its certification, as far as these factors are known. They are addressed in CS-E 30 and AMC E 30.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
EC-LTV	MCDONNELL DOUGLAS MD83	Gossi (Mali)	24/07/2014	Accident

Synopsis of the event:

On 24 July 2014, the MD-83 registered EC-LTV was performing scheduled night flight AH 5017 from Ouagadougou (Burkina Faso) bound for Algiers (Algeria). The climb towards cruise altitude took place without any significant events, and the crew made several heading changes in order to fly around a storm cell. The autopilot and the autothrottle were engaged. The aeroplane reached FL 310, that's to say about 9,500 m. The autopilot then switched to the mode that maintains the altitude and the autothrottle to the mode that maintains the speed (Mach).

Analysis of the recorded parameters showed that about two minutes after the aeroplane levelled off, at FL 310, the EPR (Engine Pressure Ratio) value became inconsistent and overestimated relative to other recorded engine parameters. This anomaly occurred first on the right engine and then, about 55 seconds later, on the left engine.

The overestimated EPR value is attributed to an obstruction of the PT2 pressure probes located on the engine nose cones. This phenomenon could have been caused by the presence of cold and wet air at the edge of the storm cell. Based on the analysis of the recorded parameters, it is likely that the engine and PT2 pressure probe anti-icing system was not activated. Consequently, the autothrottle system reduced engine RPM in order to maintain the erroneous EPR within the authorised limits, which led to a progressive reduction in the speed and an increase in the airplane's pitch over a period of approximately 5 ½ minutes. The aeroplane subsequently stalled. The 116 occupants were killed.

Safety Recommendation FRAN-2015-015 (BEA)

The Mali Commission of Inquiry into Civil Aviation Accidents and Incidents and the BEA recommend that FAA, the primary certification authority or, otherwise, EASA, make mandatory a modification of the Flight Manual of MD-80 type aeroplanes in order to draw crews' attention to the risks associated with possible icing of the PT2 pressure probe at cruise altitude, including in the absence of visible signs of icing, in particular when the engine anti-icing system is not activated. [MLI-2015-003/FRAN-2015-015]

Reply

EASA has issued the Airworthiness Directive (AD) No. 2015-0179, dated 27 August 2015, requiring European operators to amend the applicable Airplane Flight Manual(s) (AFM) of MD-80 type aeroplanes by incorporating a normal procedure that includes the following text:

"WARNING:

Engine nose cone pressure sensor icing may occur, even with no visible moisture, particularly near convective clouds. This type of icing may not appear on radar due to its low reflectivity, and neither the airplane ice detector (when installed) nor visual indications may indicate the presence of icing conditions. This condition can generate a false EPR indication causing the auto-throttle to reduce N1 to maintain the erroneous EPR within the limit. If not promptly identified by the flight crew the aircraft can rapidly lose airspeed, increase aircraft pitch over time developing a stall or a near stall condition. ..."

Status: Closed – **Category**: Agreement

Safety Recommendation FRAN-2015-017 (BEA)

The Mali Commission of Inquiry into Civil Aviation Accidents and Incidents and the BEA recommend that FAA, the primary certification authority or, otherwise, EASA, make mandatory a modification of the Flight Manual of MD-80 type aeroplanes in order to provide them with the means to quickly detect an erroneous EPR indication and remedy it. [MLI-2015-005/FRAN-2015-017]

Reply

EASA has issued the Airworthiness Directive (AD) No. 2015-0179, dated 27 August 2015, requiring European operators to amend the applicable Airplane Flight Manual(s) (AFM) of MD-80 type aeroplanes by incorporating a normal procedure that includes the following text:

"WARNING:

...

During flight, particularly when flying near convective clouds, monitor airspeed and thrust. For monitoring of thrust the flight crew shall check the correlation of N1 vs EPR by using the applicable (S)TC Holder data listed below.

If erroneous EPR data is confirmed, the abnormal procedure on "Unreliable EPR Indications" as defined in Appendix 2 of this AD shall be used.

[Applicable (S)TC Holder data for correlation of N1 vs EPR to be added]".

Furthermore, the abnormal procedure, as defined in the Appendix 2 of the subject AD, shall also be included in the AFM(s) to remedy the consequences of erroneous EPR data.

Status: Closed – **Category**: Agreement

Safety Recommendation FRAN-2015-019 (BEA)

The Mali Commission of Inquiry into Civil Aviation Accidents and Incidents and the BEA recommend that FAA and EASA study the need to take similar action for other aeroplanes equipped with engines that use the same thrust management systems. [MLI-2015-007/FRAN-2015-019]

Reply

EASA will perform a review of the in-service experience to identify any EPR managed engine with a record of thrust control malfunction associated with probe disruption resulting from exposure to severe environmental conditions. This review might involve searching in various database, at EASA, FAA, and relevant TC holders. Should the review identify any specific engine susceptible to probe blockage, EASA will then assess all relevant engine/airframe combinations, to identify any potential unsafe condition requiring corrective action.

In parallel, EASA will assess engine/airframe combination featuring Pratt & Whitney JT8D, as the AD recently released addresses only the JT8D-200 variants installed on the DC-9-80 series and some 727s modified under STC.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
SX-BHS	AIRBUS A321	Lyon Saint-Exupéry Airport	29/03/2013	Accident

Synopsis of the event:

The crew made a Category 1 (CAT I) ILS approach to runway 36R at Lyon Saint-Exupéry Airport. The meteorological conditions required LVPs (low visibility procedures). On passing the stabilisation height at 1,000 ft, the speed of the aeroplane was 57 kt above the approach speed. At 140 ft, an uncommanded increase in power by the autothrust maintained the aeroplane at high speed. The flare was long and the aeroplane touched the runway at 1,600 metres past the 36R threshold. The aeroplane overran the runway and came to rest approximately 300 metres after the opposite threshold.

Safety Recommendation FRAN-2015-021 (BEA)

The BEA recommends that EASA in cooperation with national civil aviation authorities and air traffic control service providers encourage publication throughout Europe of procedures and operational limits on initial or intermeduiate apporoach enabling compliance with stabilisation criteria to be facilitated on approach, in the spirit of the document published by the DGAC (Info Sécurité DGAC N°2013/09).

Reply

EASA is evaluating this recommendation in the frame of the current situation:

- Provisions in PANS ATM '4.6.3 Descending and arriving aircraft', which are relevant in the context of the stabilised approach, are currently being evaluated for transposition into EU air traffic services requirements by the RMT.0464.
- Furthermore, stabilised approach is a subtopic included in the initial training content for air traffic controller rating trainings, as stipulated by Commission Regulation (EU) 2015/340 and the related EASA ED Decision 2015/010/R.
- Finally, the Civil Air Navigation Services Organisation (CANSO) has published an educational booklet called "Unstable Approaches, ATC Considerations" for air traffic controllers.

Status: Open – **Category**:

Safety Recommendation FRAN-2015-023 (BEA)

The BEA recommends that EASA in coordination with the international working groups in charge of implementation of evidence-based training (EBT) ensure that future training programmes and recurrent training make it possible for crews to better manage the following situations:

- managing the energy during transition from the initial and final approach phases;
- rejecting landings in the flare phase until deployment of the thrust reversers,
- emergency evacuation (carrying out the first items in order to secure the aeroplane).

Reply

The Agency will consider this recommendation within the framework of Rulemaking Task RMT.0696 'Implementation of Evidence-Based Training within the European regulatory framework', which was launched on 03 September 2015 with the publication of the associated terms of reference (ToR RMT.0696 | EASA).

Status: Open – **Category**:

Safety Recommendation FRAN-2015-024 (BEA)

The BEA recommends that EASA, in coordination with manufacturers, ensure that future programmes defined in the context of Operational Suitability Data (OSD) include initial and recurrent training relating to taking over control of aeroplanes equipped with non-coupled control sticks.

Reply

EASA acknowledges the need to emphasise procedures for taking over control of aeroplanes equipped with non-coupled control sticks during initial and recurrent training.

Existing Air Operations and Flight Crew Licensing (OPS/FCL) Operational Evaluation Board (OEB) reports and recently approved OSD-FC (Operational Suitability Data - Flight Crew) for aeroplanes equipped with non-coupled control sticks, already include relevant dedicated Training Areas of Special Emphasis (TASE).

In cooperation with manufacturers of aeroplanes equipped with such control sticks, EASA will continue to ensure that the specific TASE is included in the OSD-Flight Crew.

Status: Closed – **Category**: Agreement

Safety Recommendation FRAN-2015-025 (BEA)

The BEA recommends that EASA in coordination with the manufacturer, ensure that all civil aviation authorities whose airlines are likely to operate the aeroplanes in question (A320 family aeroplanes) are effectively informed of the autothrottle (A/THR) behaviour anomaly.

Reply

The operators and the civil aviation authorities have been informed of the autothrottle (A/THR) behaviour anomaly.

The manufacturer sent to the operators the Service Information Letter (SIL) 22-039 Revision 04 dated 04 October 2011, and the letter to Fleet Managers, Flight Safety Officers and Flight Operations Managers, reference ME 1333744 dated July 31, 2013.

Additionally, EASA has raised awareness by publishing the Safety Information Bulletin (SIB) 2013-19 on 14 November 2013.

Status: Closed – **Category**: Agreement

Safety Recommendation FRAN-2015-026 (BEA)

EASA, in coordination with the manufacturer, define a period following which it determines the effectiveness of the actions undertaken. Without feedback from operators on their decision to replace the FMGCs concerned, it could then consider issuing an airworthiness directive.

Reply

EASA is currently together with the manufacturer in the process of assessing the size of the fleet remaining at risk. Depending upon the current exposure, EASA will review the options available to remove any potential unsafe condition from the fleet.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
EC-IVT	ROBINSON R44	Valouse,in cruise at 4,200 ft	03/09/2012	Accident

Synopsis of the event:

Talonnement du mât rotor en croisière, en atmosphère turbulente, rupture en vol, collision avec le sol

Le pilote, accompagné d'un passager, décolle de l'aérodrome de Clermont Ferrand Auvergne à 9 h 24 à destination de l'aérodrome du Luc Le Cannet. Le pilote a inséré dans une tablette tactile un trajet qui passe par Feurs, Saint-Etienne, Givors, Saint Rambert d'Albon puis Le Luc. Il effectue la croisière à une altitude de 7 000 ft. A 10 h 19, au niveau de la vallée du Rhône et 25 km au nord de Montélimar, il débute une descente, effectue un virage de 360° et stoppe la descente à une altitude d'environ 2 300 ft. Il poursuit ensuite vers le sud-est et se remet en montée.

Vers 10 h 35, à une altitude d'environ 4 200 ft (1 500 ft de hauteur) et à une vitesse sol de 115 kt (vitesse air évaluée entre 90 et 105 kt), l'hélicoptère se rompt en vol et entre en collision avec le sol.

Safety Recommendation FRAN-2015-030 (BEA)

[French] -L'AESA s'assure que tous les exploitants européens de Robinson R44 et R22 soient informés de cette limitation qui doit être impérativement respectée en atmosphère turbulente.

Reply

The Type Certificate Data Sheet (TCDS) of the Robinson R44 and R22 will be updated in order to include the mandatory Operational Suitability Data (OSD) elements.

This includes the Safety Notice SN 32. If significant turbulence is encountered, reduce airspeed to 60-70kts. This element is defined as a Training Area of Special Emphasis (TASE).

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
N823GA	GULFSTREAM GIV	Castellet Airport	13/07/2012	Accident

Synopsis of the event:

During a visual approach to land on runway 13 at Le Castellet aerodrome, the crew omitted to arm the ground spoilers. During touchdown, the latter did not deploy.

The crew applied a nose-down input which resulted, for a short period of less than one second, in unusually heavy loading of the nose gear. The aeroplane exited the runway to the left, hit some trees and caught fire.

The runway excursion was the result of an orientation to the left of the nose gear and the inability of the crew to recover from a situation for which it had not been trained.

The investigation revealed inadequate pre-flight preparation, checklists that were not carried out fully and in an appropriate manner. A possible link between the high load on the nose gear and its orientation to the left was not demonstrated.

The report contains several safety recommendations regarding:

- the nose gear steering system of the G-IV;
- the recovery procedure associated with an uncommanded action of this system

and the associated training;

- the arming of the ground spoilers;
- the performance of checklists by the operator's staff;
- the rescue and fire-fighting service (RFFS) for Le Castellet aerodrome.

Safety Recommendation FRAN-2015-032 (BEA)

FAA and EASA assess the appropriateness of making inhibition of the nose gear steering system at high speed on G-IVs mandatory, to prevent the nose gear from being oriented at large angles at high speed. [Recommendation 2015-032]

Reply

EASA has contacted the FAA and the aircraft manufacturer, in order to evaluate the appropriateness of the proposed design change and the need to take mandatory action.

Status: Open – **Category**:

Safety Recommendation FRAN-2015-034 (BEA)

FAA and EASA carry out a study to identify the aircraft that may be affected by the previous recommendation (FRAN-2015-032). [Recommendation 2015-034]

Reply

Depending on the outcome of the evaluation anticipated in the frame of the FRAN-2015-032, EASA may launch a study to identify any design certified by EASA as primary certification authority for which the conclusions of the FRAN-2015-032 could be applicable.

Status: Open – **Category**:

Safety Recommendation FRAN-2015-037 (BEA)

FAA and EASA ensure that G-IV operators and organizations training G-IV pilots complete their training by adding the training on the Uncommanded Nose Wheel Steering abnormal procedure and ensure that this training is actually followed by the G-IV pilots and is adapted for the seat occupied in the cockpit. [Recommendation 2015-037]

Reply

The existing EU regulatory framework provides the foundation to ensure that operating pilots receive training in accordance with the original equipment manufacturer's documentation, including, for example, amendments to the Aircraft Flight Manual (AFM).

Training programmes must comply with the relevant provisions in Part-FCL (Flight Crew Licensing) of Commission Regulation (EU) No 1178/2011; for example, the type rating training which shall cover abnormal procedures (see ORA.ATO.125).

In addition, the manufacturer is required to provide all known EU operators of the aircraft with the applicable operational suitability data related to the certification basis, on pilot training, including any changes for the operator/training organisation to implement (see 21.A.62 of Commission Regulation (EU) No 748/2012).

All commercial operators and operators of complex motor-powered aircraft are required to conduct operations in accordance with their Operations Manual (OM), which must be compliant with the AFM (see points 4.a and 8.b of Annex IV to Regulation (EC) No 216/2008). This requires operators to apply changes coming from AFM amendments as soon as is reasonably practicable; in other words, in a timely manner. The training syllabi documented in the OM should also be updated accordingly.

Furthermore, the operator shall establish a checklist system for each aircraft type to be used by crew members in all phases of flight under normal, abnormal and emergency conditions to ensure that the operating procedures in the OM are followed (see point 1.b of Annex IV to Regulation (EC) No 216/2008). The design and utilisation of checklists shall observe human factors principles and take into account the latest relevant documentation from the aircraft manufacturer (ORO.GEN.110 (h) of Commission Regulation (EU) No 965/2012).

Additional defences are also provided through provisions related to: the operator's, training organisation's and competent authority's management systems (see ORO.GEN.200 and ARO.GEN.200 of Commission Regulation (EU) No 965/2012); the competent authority's oversight obligations (see ARO.GEN.300 of Commission Regulation (EU) No 965/2012 and ARA.ATO.105 of Commission Regulation (EU) No 1178/2011); and EASA's standardisation inspections (see Commission Implementing Regulation (EU) No 628/2013).

It should be noted that Member States may elect not to apply the provisions for non-commercial operations with complex motor-powered aircraft until 25 August 2016. In the meantime, national legislation applies.

With regard to the specific issue of training on the uncommanded nose wheel steering abnormal procedure, EASA will evaluate the need for action through discussions with the FAA.

Status: Open – **Category**:

Safety Recommendation FRAN-2015-039 (BEA)

FAA and EASA ensure that the updating process of the documentation for operators and training organizations ensures that the procedures and training programmes provided for crews contain the latest updates of the manufacturer's procedures. [Recommendation 2015-039]

Reply

The existing EU regulatory framework provides the foundation to ensure that operators and training organisations ensure that their procedures and training programmes reflect the latest updates of the manufacturer's documentation.

Training programmes must comply with the relevant provisions in Part-FCL (Flight Crew Licensing) of Commission Regulation (EU) No 1178/2011; for example, the type rating training which shall cover abnormal procedures (see ORA.ATO.125).

In addition, the manufacturer is required to provide all known EU operators of the aircraft with the applicable operational suitability data related to the certification basis, on pilot training, including any changes for the operator/training organisation to implement (see 21.A.62 of Commission Regulation (EU) No 748/2012).

All commercial operators and operators of complex motor-powered aircraft are required to conduct operations in accordance with their Operations Manual (OM), which must be compliant with the AFM (see points 4.a and 8.b of Annex IV to Regulation (EC) No 216/2008). This requires operators to apply changes coming from AFM amendments as soon as is reasonably practicable; in other words, in a timely manner. The training syllabi documented in the OM should also be updated accordingly.

Furthermore, the operator shall establish a checklist system for each aircraft type to be used by crew members in all phases of flight under normal, abnormal and emergency conditions to ensure that the operating procedures in the OM are followed (see point 1.b of Annex IV to Regulation (EC) No 216/2008). The design and utilisation of checklists shall observe human factors principles and take into account the latest relevant documentation from the aircraft manufacturer (ORO.GEN.110 (h) of Commission Regulation (EU) No 965/2012).

Additional defences are also provided through provisions related to: the operator's, training organisation's and competent authority's management systems (see ORO.GEN.200 and ARO.GEN.200 of Commission Regulation (EU) No 965/2012); the competent authority's oversight obligations (see ARO.GEN.300 of Commission Regulation (EU) No 965/2012 and ARA.ATO.105 of Commission Regulation (EU) No 1178/2011); and EASA's standardisation inspections (see Commission Implementing Regulation (EU) No 628/2013).

It should be noted that Member States may elect not to apply the provisions for non-commercial operations until 25 August 2016. In the meantime, national legislation applies.

In summary, according to the existing EU regulatory framework, the operators and training organisations are responsible for ensuring that their procedures and training programmes reflect the latest updates of the manufacturer's documentation.

Status: Closed – **Category**: Partial agreement

Safety Recommendation FRAN-2015-041 (BEA)

FAA and EASA ensure that training organizations are systematically sent the information and safety warnings issued by manufacturers. [Recommendation 2015-041]

Reply

All commercial operators and operators of complex motor-powered aircraft are required to conduct operations in accordance with their Operations Manual (OM), which must be compliant with the Aircraft Flight Manual (AFM) (see points 4.a and 8.b of Annex IV to Regulation (EC) No 216/2008). This requires operators to apply any AFM amendments as soon as is reasonably practicable; in other words, in a timely manner. The training syllabi documented in the OM should also be updated accordingly.

It is the operator's responsibility to ensure that operating pilots receive training in accordance with the aircraft manufacturer's documentation, including updates (for example, AFM amendments) and safety notices issued by the manufacturer. The operator should, therefore, ensure that training organisations are systematically sent the information and safety warnings issued by manufacturers (see (b) and (e) of ORO.GEN.110 and (e), (h) and (j) of ORO.MLR.100 of Commission Regulation (EU) No 965/2012).

Additional defences are provided through provisions related to: the operator's, training organisation's and competent authority's management systems (see ORO.GEN.200 and ARO.GEN.200 of Commission Regulation (EU) No 965/2012); the competent authority's oversight obligations (see ARO.GEN.300 of Commission Regulation (EU) No 965/2012 and ARA.ATO.105 of Commission Regulation (EU) No 1178/2011); and EASA's standardisation inspections (see Commission Implementing Regulation (EU) No 628/2013).

It should be noted that Member States may elect not to apply the provisions for non-commercial operations until 25 August 2016. In the meantime, national legislation applies.

Status: Closed – **Category**: Partial agreement

Safety Recommendation FRAN-2015-043 (BEA)

FAA and EASA ensure that G-IV operators and Gulfstream set up procedures conducive to verifying the activation of the ground spoilers during landing, similar to that used for thrust reversers. [Recommendation 2015-043]

Reply

EASA has contacted the FAA and the airplane manufacturer and together with them will assess the means of verification of the activation of the ground spoilers during landing that are present in the G-IV.

Status: Open – **Category**:

Safety Recommendation FRAN-2015-044 (BEA)

EASA in coordination with FAA assess the compliance of the G-IV with the certification requirements relating to the indication of the position of the ground spoilers. [Recommendation 2015-044]

Reply

EASA has contacted the FAA and the aircraft manufacturer, and together will verify the compliance of the G-IV with the certification requirements relating to the indication of the position of the ground spoilers.

Status: Open – **Category**:

Safety Recommendation FRAN-2015-046 (BEA)

EASA and FAA ensure that the Certification Specifications (article 25-699 of the CS 25 / FAR 25 regulations) require that information on the position of the ground spoilers be available on landing. [Recommendation 2015-046]

Reply

EASA is currently assessing the requirements applicable to ground spoilers and will provide an updated response of further actions.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
F-GGQF	AVIONS ROBIN DR400	Vitry-En-Artois Airport	13/07/2012	Accident

Synopsis of the event:

Le pilote décolle à 15 h 25 de la piste 03 de l'aérodrome de Lens Bénifontaine pour aller chercher trois amis à Vitry-en-Artois et réaliser un vol d'agrément. Après une dizaine de minutes de vol, il atterrit sur la piste 30 de l'aérodrome de Vitry-en-Artois. Il décolle vers 16 h 00 de la même piste accompagné des trois passagers et prévoit de survoler la côte et d'atterrir à Dieppe pour y faire une pause avant de rentrer à Vitry-en-Artois. Au cours du vol, approchant de Dieppe, il constate une dégradation des conditions de visibilité et rentre directement à Vitry-en-Artois. Le pilote indique qu'à l'arrivée, il survole la manche à air à deux reprises mais qu'il a des difficultés à apprécier la direction du vent. Il estime que l'intensité du vent est d'environ 15 km/h (environ 8 kt) pour une direction comprise entre 250° et 300°. Il s'intègre en vent arrière main gauche pour la piste 12. Il indique qu'en dernier virage il a senti « une rafale de vent le plaquer au sol ». L'avion s'est enfoncé, incliné à gauche et en piqué. Le pilote a réduit la puissance, remis les ailes à l'horizontale et cabré fortement l'avion avant la collision avec le sol.

Safety Recommendation FRAN-2015-055 (BEA)

[French] - L'AESA complète les dispositions du règlement (EU) n° 965/2012 concernant les vols non commerciaux sur un aéronef non complexe (NCO) par un AMC/GM indiquant taux d'alcoolémie au-delà duquel l'altération du jugement et des performances qu'il entraîne risqué d'affecter la sécurité des vols.

Reply

Non-commercial operations with other than complex motor-powered aircraft are addressed in Part-NCO of Commission Regulation (EU) No 965/2012. However, it should be noted that Member States may elect to opt out of these provisions until 25 August 2016, with national legislation applying in the meantime.

According to NCO.GEN.105, the pilot-in-command shall not commence a flight if he/she is incapacitated from performing duties by any cause such as injury, sickness, fatigue or the effects of any psychoactive substance.

In addition, the pilot-in-command shall comply with the laws, regulations and procedures of those States where operations are conducted (NCO.GEN.110). National legislation already exists in some EASA Member States which stipulates maximum limits for blood alcohol levels for people involved in aviation activities.

Furthermore, paragraph 7.g. of Annex IV to Regulation (EC) No 216/2008 states that a crew member must not perform allocated duties on board an aircraft when under the influence of psychoactive substances or alcohol or when unfit due to injury, fatigue, medication, sickness or other similar causes. The provisions of 7.g (Annex IV to BR) are reiterated in NCO.SPEC.115 (e)(2).

The effects of alcohol on pilot's performance are also included in the syllabus of theoretical knowledge for the Private Pilot Licence (AMC1 FCL.210; FCL.215 of Commission Regulation (EU) No 1178/2011).

It is the responsibility of licence holders not to exercise the privileges of their licence at any time when they are aware of any decrease in their medical fitness which might render them unable to safely exercise those privileges. This includes effects of alcohol on performance (MED.A.020 'Decrease in medical fitness' of Commission Regulation (EU) No 1178/2011).

In addition, the competent authority shall limit, suspend or revoke a pilot licence if the pilot is exercising the privileges of his/her licence when adversely affected by alcohol or drugs (ARA.FCL.250 (a)(4) of Commission Regulation (EU) No 1178/2011).

However, the existing provisions for general aviation pilots do not include guidelines to support the pilot in ensuring that his/her blood alcohol content level will not be such that it affects his/her performance when exercising the privileges of his/her licence.

The Agency has therefore decided, as a first step, to publish a Safety Information Bulletin to provide the EASA Member States and GA community with guidelines on blood alcohol content levels above which performance is likely to be degraded to an unacceptable level of safety.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
F-GHSH BGA4926	PIPER PA25 SLINGSBY T31	Close to Buno-Bonnevaux Airport	05/05/2012	Accident

Synopsis of the event:

Collision entre un avion remorqueur et un planeur, en circuit d'aérodrome lors d'une manifestation aérienne

Vers 16 h 45, le pilote du PA25 décolle en piste 28 de l'aérodrome de Buno-Bonnevaux en remorquant un planeur. A l'issue du largage, il entame une descente continue en direction de l'aérodrome pour y atterrir. Vers 16 h 50, passant le travers sud du seuil de piste 10, à une hauteur d'environ 100 mètres au-dessus d'un bois, l'avion

entre en collision avec un autre planeur. Ce dernier avait décollé de la piste 28, à l'aide d'un treuil, quelques minutes plus tôt.

Safety Recommendation FRAN-2015-057 (BEA)

[French] - L'AESA favorise l'apparition, l'utilisation et la généralisation de systèmes interopérables d'aide à la détection de trafic. Cela peut notamment passer par la standardisation de formats de sortie et d'échange entre les différents systèmes.

Reply

A study entitled 'Scoping Improvements to 'See And Avoid' for General Aviation (SISA)' was conducted on behalf of EASA. The report dated 01/12/2012 is available on the EASA website under the reference EASA.2011.07 at https://www.easa.europa.eu/document-library/research-projects.

The aim of the study was to investigate potential improvements regarding the 'see-and-avoid' principle. The study concluded that there is currently no solution available that mitigates all of the issues related to See and Avoid. See and Avoid training and education, although remaining a top priority, could however be complemented by on-board equipment. Several systems are already widely used and provide help to the pilot to identify other traffic. It also concluded that 'any on-board equipment to augment the pilot's visual observations shall be light, low cost, and cooperative.'

The Agency has encouraged the installation of one of these widely used General Aviation anti-collision awareness systems, FLARM, by making this system available as a Standard Change (refer to CS-SC051a in CS-STAN Issue 1 dated 8 July 2015). The availability as Standard Change avoids the substantial increase in cost that is generated by the usual certification process.

The low cost and simple installation of the system makes the FLARM system widely adopted in Europe and contributes to the principle proposed by this safety recommendation.

The Agency continuously monitors the development of new technological solutions. For example, newer FLARM devices are based on a technology that also incorporates an ADS-B and transponder (SSR) Mode-C/S receiver. Furthermore, SESAR (Single European Sky ATM Research) is also carrying out research on affordable alternative surveillance systems for general aviation. Such systems would display warnings of proximate traffic fitted with ADS-B, transponder (SSR) Mode-C/S receiver or FLARM.

Status: Open – **Category**:

Germany

Registration	Aircraft Type	Location	Date of event	Event Type
FUMES STUDY			#Missing#	

Synopsis of the event:

For the last few years the German Federal Bureau of Aircraft Accident Investigation (BFU) has been receiving an increased number of reports of so-called fume events. These kinds of events include smell, smoke or vapour inside the airplane and/or health impairments of aircraft occupants. In addition, this topic is increasingly discussed among flight crew, occupational unions, the media and in political committees.

In the “study of reported occurrences in conjunction with cabin air quality in transport aircraft” a total of 845 cases were taken into consideration; Accidents, serious incidents and incidents, which have been reported to the BFU between 2006 and 2013.

A conjunction with cabin air could be determined in 663 reports. In 180 reports health impairments were described although a conjunction with cabin air quality could not be determined.

In 460 of the 663 reported fume events, smell development and in 188 cases smoke development was reported. In 15 cases there was neither smell nor smoke but health impairments which may possible have conjunction with a fume event.

For this study, the BFU has divided the reported occurrences into the following categories:

- Fume events affecting flight safety
- Fume events possibly affecting the occupational safety of crew members
- Fume events affecting the comfort of aircraft occupants
- Fume events and possible long-term effects on aircraft occupants.

Safety Recommendation GERF-2014-007 (BFU)

EASA should implement a demonstration of compliance of cabin air quality during type certification of aircraft (CS-25), engines (CS-E) and APU (CS-APU) such that the same requirements apply to all these products and permanent adverse health effects resulting from contaminated cabin air are precluded.

Aircraft, engine and APU type certification should include direct demonstration of compliance of all substances liable to cause cabin air contamination. Certification should be based on critical values which preclude permanent adverse health effects on passengers and crew.

Reply

In accordance with the safety objectives of Regulation (EC) No 216/2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, CS-25, CS-E and CS-APU provide specifications to protect the aircraft occupants from certain types of cabin air contaminants. The specifications are adapted to the product, this is why CS-25 specifications differ from CS-E/CS-APU specifications. So far the reported events do not show that existing designs present an unsafe condition created by cabin air contamination.

Further research is needed to investigate if there is any health concern which could be linked to cabin air contamination. The Agency launched the study EASA.2014.OP.16 on 31 October 2014 that can be viewed on the EASA website.

The study implements a preliminary measurement campaign setting the scene for a large-scale measurement campaign on-board commercially operated large transport aeroplanes. The overall objective is to determine if there are any safety and/or potential long/short-term health risks resulting from the exposure to normal operating conditions and/or to cabin air contamination events.

The Agency will take into account the results of the research mentioned above and will reconsider the need to amend certification specifications.

Status: Open – **Category**:

Safety Recommendation GERF-2014-008 (BFU)

The European Aviation Safety Agency (EASA) should launch a research project to have an independent institute, e.g. institute of aerospace medicine or a medical university, study and assess the potential causal connection between transport aircraft cabin air contamination and chronic illnesses.

Reply

The Agency launched the study EASA.2014.OP.16 on 31 October 2014 that can be viewed on the EASA website.

The study implements a preliminary measurement campaign setting the scene for a large-scale measurement campaign on-board commercially operated large transport aeroplanes. The overall objective is to determine if there are any safety and/or potential long/short-term health risks resulting from the exposure to normal operating conditions and/or to cabin air contamination events.

The Agency will take into account the results of the research mentioned above.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
	DALLACH D4	Nausis	11/09/2014	Accident

Synopsis of the event:

The microlight aircraft with two persons aboard took off on 11 September 2014 at 13:21 hours at Juist Airport with the destination Aalen-Heidenheim/Elchingen. At about 15:30 hours witnesses observed an airplane crash. At 15:31 hours the last radar signals were recorded: altitude 3200ft AMSL, speed 120kts. The microlight had crashed near Nausis in the district of Schwalm-Eder (Hesse). The two occupants suffered fatal injuries; the microlight was destroyed.

Safety Recommendation GERF-2015-001 (BFU)

The European Aviation Safety Agency (EASA) should ensure that the quality of the welding and riveting of the spade mounting of the D4 Fascination airplanes and her derivatives are sound. These parts of the airplanes should also be checked for corrosion.

Reply

EASA is responsible for the type Dallach D4 Fascination as defined in EASA Type Certificate Data Sheet (TCDS) A.019. Three such aircraft are currently in operation. The Type Certificate Holder is Aircraft Design & Certification ltd (AD&C). Two other non-EASA types of the D4 Fascination exist as microlights: the D4 and the D4BK. Those two D4 derivatives are classified as Annex II aircraft (according to Regulation (EC) No 216/2008), they are under the oversight of the National Aviation Authorities (NAA) and they are not under the control of AD&C. The aeroplane involved in the accident is Annex II and the design of the spade-aileron connection is different from the EASA approved type design.

EASA has reviewed with AD&C the design of the spade-aileron connection of the EASA type and has concluded that it meets the requirements in the Certification Specifications for Very Light Aeroplanes (CS-VLA) regarding structural strength and protection against corrosion.

Regarding the quality of the welding and riveting, the three aeroplanes conforming to EASA type Design have been released to service under the regime of a Part 21 Subpart F [Annex to Commission Regulation (EU) No 748/2012] production. Regarding the corrosion, AD&C has issued a Service Bulletin (ADxC-28-SB-002 Issue A dated 26 March 2015) that will require an additional specific visual and dye penetrant inspection for cracks and corrosion. This action is found appropriate. The service bulletin will be applicable only to aeroplanes conforming to the EASA type and will not cover the Annex II aircraft.

EASA will inform the NAAs of the Member States about the occurrence and also the actions taken on EASA type.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
	1) LEARJET 35 2) Eurofighter	Olsberg-Elpe	23/06/2014	Accident

Synopsis of the event:

On 23 June 2014 at 1522 hrs the German Armed Forces informed the German Federal Bureau of Aircraft Accident Investigation (BFU) that a collision involving a civilian Learjet 35 A and a German Air Force Eurofighter had occurred during aerial target demonstrations.

The Learjet, operated by a civil operator specialising in manned aerial target demonstrations, had taken off at Hohn Airport and had initially been flying with a southern heading in accordance with Instrument Flight Rules (IFR). At the time of the accident the Learjet had changed to Visual Flight Rules (VFR) and was flying in airspace E with a northern heading.

A formation consisting of two Eurofighters had taken off from Nörvenich Air Base with the order to conduct a so-called Renegade mission, i.e. the unknown civil aircraft had to be intercepted, identified, and accompanied to a military airport.

After the collision with a Eurofighter, the Learjet crashed to the ground. The pilots of the Learjet suffered fatal injuries and the aircraft was destroyed. The pilot of the Eurofighter could land the severely damaged airplane at Nörvenich Air Base.

Safety Recommendation GERF-2015-002 (BFU)

The European Aviation Safety Agency (EASA) should add the term aerial target demonstrations to the list of examples mentioned in Commission Regulation (EC) No 965/29012 Part Specialised Operations (SPO) SPO.GEN.005 Scope (a).

Reply

Part-SPO (Specialised Operations), is applicable to operations conducted within the field of civil aviation, whereas operations which take place within another context are regulated under national legislation.

However, as stated in Article 2(a) of Regulation (EC) No 216/2008, the Member States should ensure that such activities or services have due regard, as far as practicable, to the objectives of the Regulation. Authorities responsible for other-than civil operations may, therefore, elect to adopt all or part of Part-SPO.

It should be noted that, although the provisions of Part-SPO have been applicable since 28 October 2012, Article 10 of the Cover Regulation of Commission Regulation (EC) No 965/2012 foresees an 'opt-out' period until 21 April 2017. In the meantime, these activities remain under the governance of the national legislator.

It should also be noted that, according to Part-SPO, if the activity is defined as a high risk commercial specialised operation, the operator is required, among other obligations, to obtain prior authorisation from the competent authority. This would be highly likely for the accident case.

As the list of specialised operations under SPO.GEN.005 (a) is not exhaustive, civilian aerial target demonstrations could, anyway, be classified as specialised operations. Furthermore, as stated in paragraph (b) of the guidance material under GM SPO.GEN.005, the operator may apply the criteria specified in AMC1 SPO.GEN.005 to determine whether an activity falls within the scope of specialised operations.

Status: Closed – **Category**: Disagreement

Greece

Registration	Aircraft Type	Location	Date of event	Event Type
5B-DBY	BOEING 737	Grammatiko, Greece	14/08/2005	Accident

Synopsis of the event:

On 14 August 2005, a Boeing 737-300 aircraft, registration number 5B-DBY, operated by Helios Airways, departed Larnaca, Cyprus at 06:07 h for Prague, Czech Republic, via Athens, Hellas. The aircraft was cleared to climb to FL340 and to proceed direct to RDS VOR. As the aircraft climbed through 16 000 ft, the Captain contacted the company Operations Centre and reported a Take-off Configuration Warning and an Equipment Cooling system problem. Several communications between the Captain and the Operations Centre took place in the next eight minutes concerning the above problems and ended as the aircraft climbed through 28 900 ft. Thereafter, there was no response to radio calls to the aircraft. During the climb, at an aircraft altitude of 18 200 ft, the passenger oxygen masks deployed in the cabin. The aircraft leveled off at FL340 and continued on its programmed route. At 07:21 h, the aircraft flew over the KEA VOR, then over the Athens International Airport, and subsequently entered the KEA VOR holding pattern at 07:38 h. At 08:24 h, during the sixth holding pattern, the Boeing 737 was intercepted by two F-16 aircraft of the Hellenic Air Force. One of the F-16 pilots observed the aircraft at close range and reported at 08:32 h that the Captain's seat was vacant, the First Officer's seat was occupied by someone who was slumped over the controls, the passenger oxygen masks were seen dangling and three motionless passengers were seen seated wearing oxygen masks in the cabin. No external damage or fire was noted and the aircraft was not responding to radio calls. At 08:49 h, he reported a person not wearing an oxygen mask entering the cockpit and occupying the Captain's seat. The F-16 pilot tried to attract his attention without success. At 08:50 h, the left engine flamed out due to fuel depletion and the aircraft started descending. At 08:54 h, two MAYDAY messages were recorded on the CVR. At 09:00 h, the right engine also flamed out at an altitude of approximately 7 100 ft. The aircraft continued descending rapidly and impacted hilly terrain at 09:03 h in the vicinity of Grammatiko village, Hellas, approximately 33 km northwest of the Athens International Airport. The 115 passengers and 6 crew members on board were fatally injured. The aircraft was destroyed.

Safety Recommendation GREC-2006-044 (AAIASB)

EASA/JAA require practical hypoxia training as a mandatory part of flight crew and cabin crew training. This training should include the use of recently developed hypoxia training tools that reduce the amount of oxygen a trainee receives while wearing a mask and performing tasks.

Reply

EASA had initially included the recommendation to consider requiring "Practical hypoxia training" in a rulemaking task as part of its rulemaking programme 2009-2012. However, the Agency's Annual Safety Review consistently shows, since 2005, that accidents rate related to hypoxia is lower than 0,0095 per million flights. This makes it less than extremely remote (in terms of "Quantitative Probability" as per CS-25.1309) -. Only one accident occurred during the period 2002 to 2011, in 2005 (UK CAA "Global Fatal Accident Review 2002 to 2011" CAP 1036). The probability of a catastrophic event related to hypoxia was then less than 10-8 per flight hour. In 2012 and 2013, approximately 20,810,000 IFR flights have been flown in EU member states. With an average of 01:44 min per flight, the total number of hours flown, since 2002, reaches 585,700,000 (if only EU IFR flights are considered to complete the series). Today, the probability of a catastrophic event related to hypoxia has therefore further decreased by approximately 7%.

Reply

Based on EASA standards (for example, in CS-25.1309), an acceptable level of safety is achieved when the probability, for such a catastrophic event, is less than 10–9. This means that the residual risk to be mitigated would be on the order of 10–1 i.e. one undetected hypoxia event of out of 10.

Effectiveness of flight and cabin crew "Practical hypoxia training" in detecting hypoxia onset, following subtle loss of cabin pressure events, has not been demonstrated so far in the civil aviation community. There is no scientific consensus on the benefits of such training in actually improving safety in civil aviation.

There are currently no internationally recognised civil aviation standards establishing training objectives that a hypoxia practical training is expected to achieve in terms of level of competence to be reached and measurement of trainee progress and performance.

Evidence from recent studies ("Cognitive and perceptual deficits of normobaric hypoxia and the time course to performance recovery" Aerospace Medicine and Human Performance, Volume 86, Number 4, April 2015, pp. 357-365) suggests an impairment of performance following hypoxic exposure – some for a considerable period of time. It has been assumed that performance effects stemming from hypoxia are alleviated within minutes of returning to sea-level oxygen concentrations. However it has been demonstrated that following a hypoxic episode, it is likely that performance is compromised for an extended period of time (up to a period of 24 h following exposure). Consequently, aircrews could be significantly impaired for the rest of the flight. It is likely that performance is compromised for an extended period of time. Therefore, some aeromedical experts recommend that mitigation should focus more on the prevention efforts rather than relying on training to recognise and react earlier to hypoxic symptoms. (Ref. 84th Annual AsMA Scientific Meeting: "Time Course to Recovery of Cerebral Blood Oxygen Saturation Following and Acute Hypoxic Event." Naval Medical Research Unit Dayton, 14 May 2013).

Risk mitigation for crew incapacitation due to hypoxia would be more effective through timely and efficient recognition of aircraft damage and system failures leading to lack of oxygen than through recognition of hypoxia onset, which is much less reliable and varies widely from one individual to another and, for the same individual, over time (depending on his/her physiological and psychological condition).

In terms of training effectiveness, the current regulatory framework, in particular Commission Regulation (EU) No 1178/2011 on aircrew and Commission Regulation (EU) No 965/2012 on air operations covers the following:

1. Cabin crew training includes provisions for particular emphasis on the subject of hypoxia (5.2. of Appendix 1 to Part-CC of Commission Regulation (EU) No 1178/2011).
2. Other provisions cover pilot training related to aviation physiology, hypoxia and high altitude environment, such as:

i. For PPL (2. HUMAN PERFORMANCE in AMC1 FCL.210; FCL.215);

ii. For mountain rating (W.5.3 and S.5.3 in AMC1 FCL.815);

iii. For Flight Instructors (EXERCISE 15c in AMC2 FCL.930.FI);

iv. For class/type rating for high performance single pilot airplanes (040 02 01 03 in AMC1 FCL.720.A(b)(2)(i));

v. For examination (in AMC1 ARA.FCL.300(b));

vi. For ATPL, CPL and IR (040 02 00 00 in AMC1 FCL.310; FCL.515 (b); FCL.615 (b)).

Reply

3. For training organisations and operators, effectiveness of training in mitigating aviation safety risk is addressed in:

i. ORA.GEN.200/ORO.GEN.200 requiring training organisations and operators to manage risks associated with their activity, including taking actions to mitigate them and verifying their effectiveness. This includes the risks related to ineffective or deficient training as identified in the report as regards:

- The ability to monitor and operate the pressurisation system (findings 5 and 6);
- The competence needed to differentiate the Cabin Altitude Warning horn from Take-off Configuration Warning (findings 8 and 11);
- The ability to acquire and maintain awareness of the pressurization of the aircraft (finding 9);
- The proficient and correct use of checklists and adherence to Standard Operation Procedures (SOP) (findings 10 and 16);
- The ability to correctly identify passenger oxygen masks deployment by referring to the relevant indications on the overhead panel (findings 13 and 14);
- The proper and proficient management of aural warnings (findings 15 and 16);
- The proficient and effective application of Crew Resource Management principles to identify pressurisation problems (finding 17).

ii. ARA.GEN.305/ARO.GEN.305 requiring competent authorities to ensure that oversight is based on the assessment of the risks associated with the specific nature of training organisations, the complexity of their activities, the results of past certification and/or oversight activities. This adds a layer of risk mitigation to enhance the effectiveness of the measures taken by the organisations under ORA.GEN.200/ORO.GEN.200.

4. From the operations perspective, risks related to lack of oxygen and hypoxia are also addressed in NCC.GEN.106, NCO.GEN.105, NCO.SPEC.110, SPO.GEN.107 and SPO.OP.195.

There have been many developments in the field of aviation safety regulation since the date of publication of the safety recommendation. EASA has been a key player in the establishment of a new European regulatory framework, which includes the concept of safety management systems and associated risk assessment and mitigation models, as described above. With this action, EASA considers that the safety risk associated with hypoxia events is suitably mitigated through the current aircrew training and air operations provisions, and that no further regulatory action is required.

Status: Closed – **Category**: Partial agreement

Hong Kong

Registration	Aircraft Type	Location	Date of event	Event Type
B-HRN	AEROSPATIALE AS332	Shing Mun Reservoir	27/12/2010	Accident

Synopsis of the event:

The accident occurred whilst the Eurocopter AS332 L2 Super Puma helicopter operated by the Government Flying Service (GFS) was carrying out a firefighting operation at the south side of Tai Mo Shan on 27 December 2010. The helicopter was operated by two pilots and carrying one aircrewman. After the sixth water pickup from the nearby Shing Mun Reservoir, and whilst the helicopter was rotating to gain forward speed at 129 ft above the water surface, the No.2 engine gas generator rotation speed (NG) wound down due to the functioning of the automatic overspeed protection system. The helicopter then ditched in a controlled manner into the reservoir, and was then kept afloat by the four emergency floats. There was no injury to the three crew members on board or other persons on ground.

Safety Recommendation CHNH-2013-001 (AIB)

It is recommended that the European Aviation Safety Agency (EASA) mandate the installation of an MGB modified in accordance with Eurocopter modification 0752472 (Reinforced casing for 332 MK2 MGB) on AS332 L2 Super Puma which are operated for carriage of heavy loads with torque variation cycles.

Reply

The worldwide status of the Super-Puma fleet shows that the number of AS332L2 helicopters involved in external load carrying operations is very low and that almost all of these were already equipped with a Main Gear Box (MGB) reinforced casing at time of the accident. All affected helicopters have now been retrofitted with MOD 07-52472 apart from one, for which retrofit is scheduled.

Nonetheless, for all AS332L2 helicopters, Airbus Helicopters have issued new MGB maintenance instructions with Repair Letter LR270 towards their MGB repair centres, which require systematic replacement of MGB “non-reinforced” casings with MGB “reinforced” casings (i.e. accomplishment of MOD 07-52472) during overhaul of any MGB used on AS332L2 operated for carriage of external loads with high torque variation cycles. As a precautionary measure, considering that operational conditions and usage of aircraft may change over the time, Information Notice no.2831-I-63 to all AS332L2 operators has additionally been issued with the aim of requesting them to anticipate with their MGB repair centres the installation of a MGB “reinforced” casing should their AS332L2 helicopter likely be used for logging operations in the future.

In addition to MOD 07-52472, Airbus Helicopters have also designed two additional freewheel modifications in the light of other Super-Puma freewheel slippage instances. The first consists of MOD 07-53020 (EASA Approval 10047192) that replaces the free wheel rear roller bearing at the interface between shaft and pinion by a ball bearing. The second is the MOD 07-53016 (EASA Approval 10050710) and it provides a new freewheel with several improvements, to include the first new modification, better freewheel shaft lubrication and also a stronger main bearing featuring more rollers. Although these modifications are not connected with the identification of an unsafe condition, both of them are respectively required in Repair letters LR274 and LR282 for accomplishment by Airbus Helicopters repair centres during MGB overhaul.

Considering the corrective actions which have been instigated, as described above, EASA considers that the airworthiness risk is satisfactorily controlled without the need to issue an Airworthiness Directive.

Status: Closed – **Category**: Partial agreement

Ireland

Registration	Aircraft Type	Location	Date of event	Event Type
EI-BYJ	BELL 206	Innisken, Co Monaghan	13/06/2004	Accident

Synopsis of the event:

The helicopter was carrying out routine commercial pleasure flights in the Carrickmacross area of Co. Monaghan. On the final flight the pilot reported that a "FUEL PUMP" warning light illuminated and the engine failed seconds later. He carried out an autorotation approach and landed in a cornfield. All on board exited the helicopter safely and without injury. There was no fire. The helicopter suffered significant damage in the landing. The Investigation found that the engine stoppage was due to insufficient fuel in the helicopter's fuel tank.

Safety Recommendation IRLD-2006-017 (AAIU)

The European Aviation Safety Agency (EASA) should review the certification for helicopters engaged in commercial operations, with the objective of requiring such helicopters to be fitted with an independent low fuel contents warning light.

Reply

New rotorcraft designs complying with Certification Specifications (CS) 27 and CS-29 are equipped with a low fuel warning device for each fuel tank feeding an engine. The warning must be independent of the fuel quantity indication system and it must be triggered when 10 minutes of usable fuel remains in the tank. Refer to CS 27.1305(l) and CS 29.1305(a)(4). These requirements were introduced by the Federal Aviation Administration (FAA) in the Federal Aviation Regulations (FAR) Part 27.1305 on 03 October 1988 (amdt. 29-26) and in FAR Part 29.1305 also on 03 October 1988 (amdt. 27-23). The very same requirements were present since the first issue of the Joint Aviation Authorities (JAA) Joint Aviation Requirements (JAR) 27 (06 September 1993) and JAR-29 (05 November 1993). CS-27 and CS-29 maintained the same requirements.

The Agency made an analysis to determine if a retroactive mandate could be justified for helicopters certified before 03 October 1988. Reported events of fuel starvation between 1990 and 2013 were reviewed. 49 events were found, which includes commercial air transport (CAT) and non-commercial operations, which represents an average of 2.1 events per year. It appears that in the majority of the cases there were either no injuries (more than 60%) or minor injuries. 4 events involved fatalities. It is recognised that a low fuel level warning brings a safety benefit by making the flight crew aware at an earlier point in time of the critical low fuel situation. The review of the events shows that in 15 events out of 49, even though the flight crew got a low fuel level alert, the poor fuel management after the alert contributed to the events. The Agency therefore concludes that the limited safety benefit gained by mandating a retrofit of an independent low fuel level alerting system does not justify to launch a dedicated rulemaking task.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
EI-ENB	BOEING 737	Kerry Airport (EIKY), Co. Kerry	21/12/2010	Incident

Synopsis of the event:

Shortly after landing, smoke was observed in both the cockpit and cabin. The aircraft was stopped, the engines were shut down and an evacuation was carried out. No technical defect was found during the subsequent examination. It is probable that the smoke was caused by the engines ingesting granular urea, which had been used to de-ice the runway during a very cold weather period.

Safety Recommendation IRLD-2012-003 (AAIU)

European Aviation Safety Agency (EASA) should introduce a requirement that the CVR should continue to record in the event of power failure.

Reply

This safety recommendation is considered within the framework of EASA rulemaking task RMT.0249 entitled "Recorders installation and maintenance thereof - certification aspects", whose Terms of Reference were published on 18 September 2014 on the EASA website.

RMT.0249 is dealing with new or revised aircraft certifications specifications (i.e. applicable to new designs). The general objective of this rulemaking task is to improve the availability and quality of data recorded by flight recorders in order to better support safety investigation authorities in the investigation of accidents and incidents. One of the specific objectives is to "increase the robustness of flight recorders to a loss of power supply".

Regarding potential requirements applicable to existing designs, this will be considered in the framework of EASA rulemaking task RMT.0308 entitled "Amendment of requirements for data recorders II".

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
EC-ITP	SWEARINGEN SA227	Cork Airport	10/02/2011	Accident

Synopsis of the event:

On 10 February 2011, a Fairchild SA 227-BC Metro III registered EC-ITP, was operating a scheduled commercial air transport flight from Belfast City (EGAC) to Cork (EICK) with 2 Flight Crew members and 10 passengers on board. At 09.51 hrs during the third attempt to land at EICK in low visibility conditions, control was lost and the aircraft impacted the runway. The aircraft came to rest inverted in soft ground to the right of the runway surface. Post impact fires occurred in both engine nacelles which were extinguished by the Airport Fire Service (AFS). Six persons, including both pilots, were fatally injured. Four passengers were seriously injured and two received minor injuries.

Safety Recommendation IRLD-2014-002 (AAIU)

The European Aviation Safety Agency should provide guidance to Operators concerning successive instrument approaches to an aerodrome in IMC or night VMC where a landing cannot be made due to weather reasons and incorporate such guidance in Commission Regulation (EU) No 965/2012 accordingly.

Reply

The Agency evaluated the safety recommendation and concluded that incorporating guidance concerning successive instrument approaches into Commission Regulation (EU) No 965/2012 (hereinafter referred to as the air operations regulation) would be challenging for all types of commercial air transport operations.

Furthermore, the operator is required to address approaches in their standard operating procedures. These procedures should be in compliance with all other provisions contained in the air operations regulation, including the rule CAT.OP.MPA.305, which prohibits flight crew from continuing an approach below 1000 ft above the aerodrome if the runway visual range is below the aerodrome operating minima ('approach ban').

Nevertheless, the Agency proposed a draft Safety Information Bulletin (SIB) to remind operators to consider the risks associated with consecutive approaches within the framework of their management system (ORO.GEN.200 of the air operations regulation), with the option to restrict the number of consecutive approaches.

However, feedback from the external consultation process with industry and national aviation authorities indicated that the proposed SIB was not supported. The rationale provided by the stakeholders was that, requiring operators to specify restrictions on the number of successive instrument approaches, could be counterproductive in terms of safety. The majority of commenters supported the existing means to mitigate the risk through operators' risk assessment and procedures.

Consequently, the Agency has decided not to publish a SIB, considering that the existing requirement for each operator to define their own procedures tailored to suit the risks associated with their own specific fleet and operations, was the more realistic and effective mitigation mechanism.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
G-SKYE	CESSNA TU206	1,6 NM west of Abbeyshrule airfield (EIAB)	21/06/2014	Accident

Synopsis of the event:

The aircraft, a Cessna TU206G, was being used for parachuting/skydiving activities at Abbeyshrule (EIAB) on the day of the accident. Shortly after take-off, the Pilot felt what was described as a "knock" following which the engine lost power. This resulted in the Pilot making a forced landing in a nearby field. There were five people on board the aircraft - the Pilot and four skydivers. The skydivers comprised of two tandem pairs, with each pair being made up of a qualified skydiver and a person skydiving for charity secured to him. Following the forced landing, all occupants successfully evacuated the aircraft, which sustained substantial damage. The Pilot and qualified skydivers reported no injuries at the scene. The two charity skydivers attended a local hospital, but

were released a short time later. The Investigation found that the cause of the engine power loss was a failure of the crankshaft.

Safety Recommendation IRLD-2015-002 (AAIU)

The European Aviation Safety Agency should conduct a safety study in relation to the most effective method of occupant restraint in aircraft engaged in parachute operations and consider whether the applicable EU Regulations and Certification Specifications adequately address the safety restraint of parachutists (IRLD2015012).

Reply

The technical installation of restraints systems are addressed in the Certification Specifications CS-23 supplemented by special condition "Use of aeroplanes for parachuting activities" (Doc. No. SC-023-div-01).

EASA is investigating whether such requirements are sufficient to determine the most effective restraint system for parachute operations, or whether further requirements, and ultimately research activities, are necessary.

Status: Open – **Category**:

Safety Recommendation IRLD-2015-003 (AAIU)

The European Aviation Safety Agency should consider developing requirements for appropriate bracing positions to be identified for each occupant position on aircraft engaged in parachute operations and that these positions be highlighted to occupants at an appropriate time such as during pre-flight briefings (IRLD2015013).

Reply

Depending on the specific nature of the undertaking, parachute operations in EASA Member States are governed by Part-SPO (specialised operations) or Part-NCO (non-commercial operations with other than complex motor-powered aircraft) of Commission Regulation (EU) No 965/2012.

However, it should be noted that, although Regulation (EU) No 965/2012 has been applicable since 28 October 2012, by way of derogation, Member States may elect not to apply Part-SPO and Part-NCO until 21 April 2017. In the meantime, national legislation shall apply.

According to Part-SPO/Part-NCO, the operator/pilot-in-command is required to carry out a risk assessment and establish standard operating procedures (SOPs)/checklists to mitigate the risks related to their specific activity (see SPO.OP.230 and NCO.SPEC.105). This should address brace positions according to the operation and aircraft type.

Furthermore, the operator/pilot-in-command is required to provide a pre-flight brief to the task specialists/passengers (SPO.OP.135/NCO.OP.130). This should include a description of the brace positions to be adopted in an emergency, in accordance with the SOPs/checklists.

Lastly, according to ARO.GEN.300 in Part-ARO of Commission Regulation (EU) No 965/2012, the competent authority is required to verify that operators within their jurisdiction comply with Part-SPO and Part-NCO. Such oversight should detect any weaknesses in the risk assessments and/or SOPs/checklists, which should be required by the competent authority to be corrected.

Status: Closed – **Category**: Partial agreement

Italy

Registration	Aircraft Type	Location	Date of event	Event Type
I-AIRY	AEROSPATIALE AS350	Lasa, Bolzano airfield	16/05/2011	Incident

Synopsis of the event:

On May 16th 2011, the Eurocopter AS350 B2 registration marks I-AIRY was flying from Merano (BZ, Italy) to Curon Venosta (BZ, Italy). During flight at an altitude of about 4.300 ft, the pilot noticed that the "low oil pressure" light came on, accompanied by a yaw jerk to the right, a loud noise and a NR drop with its audio warning. The pilot immediately lowered the collective pitch and landed the aircraft in autorotation on Lasa airfield that was directly in front of him. An observer on the ground reported the presence of white smoke from the exhaust pipe. On the ground, the preliminary inspection did not reveal any finding likely to explain the event. Minor damages to the helicopter due to the hit of one of the main rotor blades agamst the tail boom happened during touch-down. No injuries were reported by the three persons onboard (pilot included).

Safety Recommendation ITAL-2011-016 (ANSV)

ANSV recommends EASA and FAA that an additional inspection should be asked as soon as possible to the Operators/Owners of the helicopter type in subject now in operation (equipped with the optional Service Bulletin Nr. 28.00.09), in order to check the "oil to fuel heater" component for pollution presence and for correct fuel flow values. [ANSV-16/726-11/1/A/11[

Reply

An additional Working Card (reference: 28.93.00.603) has been published by the Manufacturer in October 2014 for helicopters equipped with the optional Service Bulletin N. 28.00.09.

It introduces an on-condition optical check (borescope) for contamination at the inlet/outlet of the oil/heat exchanger in case of drop of the fuel pressure without lightening of FUEL P (Fuel pressure too low on pump output) or F FILT (fuel filter clogging) warnings. The heater has to be changed in confirmed presence of contamination.

Status: Closed – **Category**: Partial agreement

Safety Recommendation ITAL-2011-017 (ANSV)

ANSV recommends EASA and FAA that a scheduled check should be implemented within the maintenance program of the helicopter type in subject (equipped with the optional Service Bulletin Nr. 28.00.09) in order to check the fuel flow of the ''oil to fuel heater" component during its operative life and in order to perform its cleaning. [ANSV-17/726-11/A/11]

Reply

Taking into consideration the nature of the possible malfunction (contamination), it was found that the introduction of an on-condition check would be more appropriate than a scheduled inspection. Therefore, an additional Working Card has been introduced for the fuel flow inspection in case of drop of the fuel pressure without lightening of FUEL P (Fuel pressure too low on pump output) or F FILT (fuel filter clogging) warnings for helicopters equipped with the optional Service Bulletin N. 28.00.09. For the AS350 B2 it was published at the end of October 2014.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
EI-EIB	AIRBUS A320 (-200)	Fiumicino airport, Rome	29/09/2013	Accident

Synopsis of the event:

On September 29th 2013, at 18.11 UTC, the aircraft A320-2—registration marks EI-EIB, fligt AZ063, while approaching the final destination of Rome Fiumicino (LIRF) airport at the end of a flight departed from Madrid airport with 151 pax and 6 crew on board, experienced a technical problem during the landing gear normal extention. This circumstance was notified to the crew by the Master Warning and triggering of the ECAM message "L/G GEAR NOT DOWNLOCKED.

During missed approach standard procedure and following holing on Campagnano VOR, the crew carried out a g-force manoeuvre (maximum value of 1.75g – DFDR data) with LG lever down, then a LG recycle and later on performed LG gravity extention, but all measures were unsuccessful. Consequentially, the crew requested an emergency landing to Rome Fiumicino airport (LIRF).

Approaching Rome Fiumicino airport RWY 16L, the aircraft touched down on the runway at 19.00 UTC with the right LG only partially extracted. At landing, the mass of aircraft was 58.864 kg (DFDR data).

The flight crew shutoff both engines just before touchdown. The aircraft came to rest afer scraping the right engine just few meters off runway; the subsequent evacuation was uneventful and no injuries were suffered.

While on site, the investigators noticed the right MLG door actuator only partially extended and the right MLG not in the up-lock position, but stuck on the door. At removal of the jammed actuator, the door fully opend and the gear correctly extended and locked.

Safety Recommendation ITAL-2013-016 (ANSV)

Recommendation to EASA: ANSV strongly recommends to ask for the proper technical actions to be carried out on the hydraulic system of the landing gear doors to be sure that contamination should not be present in case of a landing gear door actuator removal in consequence of the actions prescribed to identify an internal damage (ref AD 2011-0069R1 and PAD 13-125R2). [ANSV-16/2385-13/4/A/13]

Reply

On 30 September 2014 EASA issued the Airworthiness Directive EASA AD 2014-0221 which supersedes EASA AD 2013-0288.

It mandates actions on amending the Aircraft Flight Manual (AFM) with temporary revision (TR) 437 to incorporate the operational procedure on landing gear recycling; performing a Main Landing Gear (MLG) door actuator opening sequence inspection; the replacement/modification of the MLG door actuator; and related terminating/alternative actions as detailed in the AD.

The related service bulletin SB A320-32-1407 Rev.1 also introduced a hydraulic flushing procedure prior to any installation of a post-mod MLG door actuator. However, if that hydraulic flushing procedure was omitted prior to installation of a post-mod MLG, as it was not part of the original terminating action of the AD 2013-0288, it has been tested and confirmed that potential residual contamination would not result in a jamming of the post-mod door actuator.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
EI-EDM	AIRBUS A319	Palermo Punta Raisi	24/09/2010	Accident

Synopsis of the event:

At 18.08 UTC, during final approach for runway 07 with adverse meteorological conditions on Palermo airport, aircraft collided with terrain immediately before the beginning of the runway, hit the opposite RWY localiser antenna, slid on the wet runway with main gear collapsed for about 900 meters before stopping out of the left side of the runway. Passengers evacuation was performed. Aircraft was severely damaged, very minor injuries to persons onboard.

Safety Recommendation ITAL-2014-008 (ANSV)

[Italian] - Destinatari: EASA, FAA.

considerati gli aspetti relativi alla sopravvivenza dell'assistente di volo seduto sulla posizione 2L in occasione di un atterraggio di emergenza a causa della presenza dell'armadietto contenitore della sedia a rotelle (wheelchair) e tenuto conto di quanto previsto dalla normativa di riferimento (CS25.785 e FAR25.785), l'ANSV raccomanda di rivedere la posizione del suddetto armadietto contenitore della sedia a rotelle, al fine di evitare condizioni non sicure. (ANSV-8/18)

Reply

EASA has reviewed the safety recommendation and understands the concern that the presence of the wheelchair container in front of the cabin crew seat could compromise safety. The approval of this installation was not specifically reviewed by EASA but was automatically accepted due to the existence of bi-lateral agreements. The Agency is in contact with the Federal Aviation Administration (FAA) regarding details of compliance findings of the installation of the wheelchair container and specific actions will be decided following a review of FAA's findings and position on the issue.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
I-GBVD	AEROSPATIALE AS350	Arzana (NU)	21/08/2015	Accident

Synopsis of the event:

Il 21 agosto 2015, alle ore 09.51 UTC, l'elicottero AS350 B3 marche I-GBVD, operato da una società di lavoro aereo, mentre era impegnato in attività antincendio boschivo precipitava al suolo in località Orgiola Onniga, nel Comune di Arzana (OG). A bordo dell'elicottero vi erano il pilota, che riportava ferite gravi, ed il coadiutore, che rimaneva illeso. L'elicottero andava distrutto.

Safety Recommendation ITAL-2015-001 (ANSV)

ANSV recommends to prescribe the certification of the installed firefighting bucket systems, used to carry and drop water, attached to the helicopter cargo hook, and to consider these equipments as part and appliances, as defined by art. 3 regulation CE No 216/2008 in order to make compulsory the indications of the equipment manufacturer.

Reply

According to Article 1(2)(a) of Regulation (EC) No 216/2008, the Regulation does not apply to products, parts, appliances, personnel and organisations while carrying out firefighting activities or services. However, Member States shall undertake to ensure that firefighting activities or services have due regard as far as practicable to the objectives of the Regulation.

Nevertheless, if sling load equipment commonly used for firefighting activities is used for other activities covered by the scope of the Regulation, then the EU civil aviation legislation does apply.

Individual airworthiness certification of slinging equipment is not classified under "Parts and Appliances" because it would significantly expand the scope of the initial airworthiness approval without providing assurance of having addressed all possible cases of external loads and types of operations.

However, risk mitigation is provided through Annex VIII, Part-SPO (Specialised Operations) of Commission Regulation (EU) No 965/2012.

According to SPO.OP.230, before commencing a specialised operation, the operator shall conduct a risk assessment, assessing the complexity of the activity to determine the hazards and associated risks inherent in the operation and establish mitigating measures. Based on the risk assessment, the operator shall establish standard operating procedures (SOPs) appropriate to the specialised activity and aircraft used (refer to SPO.SPEC.HESLO.100). This should take into consideration the risks related to the helicopter's design during operations with a suspended load. The associated SOPs should include suitable operational defences to ensure that the equipment is installed and operated safely, also taking into account any instructions prescribed in the manufacturer's manuals. The SOPs should specify the training for crew members and task specialists required to perform their tasks, as well as the responsibilities and duties of crew members and task specialists.

It should be noted that, according to Article 10 of Commission Regulation (EU) No 965/2012, Member States may elect not to apply Part-SPO until 21 April 2017. In the meantime, these activities remain under the governance of the national legislator.

Once Part-SPO is implemented, competent authorities should check that operators under their oversight responsibility have established suitable SOPs, which should take into consideration the risks entailed by the helicopter's design together with the load characteristics. In addition, EASA shall monitor the application of the rules through standardisation inspections of the competent authorities, and indirectly, their undertakings (refer to Commission Implementing Regulation (EU) No 628/2013).

Status: Closed – **Category**: Disagreement

Japan

Registration	Aircraft Type	Location	Date of event	Event Type
JA6522	AEROSPATIALE AS350	Kagawa Prefecture	22/09/2011	Accident

Synopsis of the event:

On Thursday, September 22, 2011, a Eurocopter AS350B3, registered JA6522, operated by Shikoku Air Service Co., Ltd., took off from Takamatsu Airport at around 09:23 for power transmission lines inspection flight. A burnt smell and white smoke rose in the cabin during this flight, and at around 10:10, the helicopter made a forced landing at a baseball field located at

Hiketa, Higashikagawa City, Kagawa Prefecture. On board the helicopter were a pilot and two passengers, but none of them suffered injury. After the forced landing, the helicopter caught fire and was destroyed.

Safety Recommendation JAPN-2013-002 (ARAIC)

In the Flight Manual of the Eurocopter AS350 Series, the EASA should urge the designer and manufacturer of the helicopter to specify the memory items among emergency procedures so that they can be performed immediately.

Reply

In-service experience and review of occurrences data base did not show any previous safety concern related to the absence of memory items. The need to change the Aircraft Flight Manual is therefore not considered to be justified.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
JA135E	EUROCOPTER EC135	Kerama Islands, Okinawa	28/03/2009	Serious incident

Synopsis of the event:

A Eurocopter EC135T2, registration JA135E, operated by academic corporate body HIRATAGAKUEN, took off from Kumejima Helipad at 10:07 local time on March 28, 2009 for emergency patient transportation. When the helicopter was flying over the sea en route to Shuri Helipad on the main island of Okinawa, its left engine stopped around 10:20 at about 800 ft (about 240 m) about 6 nm (about 11 km) northwest of the Kerama Islands. It changed the destination to Naha Airport and landed there at 10:46.

There were six persons on board, consisting of the pilot in command (PIC) and a mechanic, a doctor and a nurse as medical personnel, and an emergency patient and an attendant, but no one was injured.

The inside of the left engine of the helicopter was destroyed, but there was no outbreak of fire.

Safety Recommendation JAPN-2013-003 (ARAIC)

It is recommended that the European Safety Agency directs Eurocopter and Turbomeca to cooperatively study the helicopter operational environment and the effects of fungicide to inform helicopter customers of the proper dosing instructions and precautions.

Reply

EASA has published, in February 2013, a Certification Memorandum (EASA CM-PIFS-009 Issue 1) on Fuel Specifications Changes, providing guidance for the introduction and approval of fuel additives for Type Certificate (TC) and Supplemental Type Certificate (STC) holders. In particular this Certification Memorandum requires proper recording of information and identifies the Rotorcraft Flight Manual (RFM) as the document in which information related to fuel additives limitations shall be recorded.

It also requires coordination and cooperation between the Aircraft and the Engine Type Certificate Holders in order to properly describe in the approved aircraft documentation the use by the operators of the different fuel types and additives.

On this specific case, after coordination with Turbomeca, Airbus Helicopter Deutschland (AHD) reported back to EASA the following process used for the introduction of new fuel specifications and additives:

- the engine limitations regarding fuels and fuel additives are detailed in the Engine Installation Manual;

- AHD assesses the applicable limitations (e.g. pressure limits, temperature limits or specific mixing concentrations for additives) and takes these limitations into account for the approval on aircraft level, considering the helicopter operational environment.

The outcome of this process is an update of the Rotorcraft Flight Manual (RFM) containing the dosing instructions and approved additives.

Status: Closed – **Category**: Agreement

Netherlands

Registration	Aircraft Type	Location	Date of event	Event Type
STUDY ILS GS			#Missing#	

In 2014 the Dutch Safety Board published the study "Pitch-up upsets due to ILS false glide slope". The Dutch Safety Board launched this investigation based on the investigation to an incident at Eindhoven Airport.

Synopsis of the event:

During the approach to Eindhoven Airport (The Netherlands) on 31 May 2013, a Boeing 737-800 was radar vectored towards runway 21 for a landing with the aid of the Instrument Landing System (ILS). The aircraft was flying under Instrument Meteorological Conditions (IMC). During the latter stage of the approach, the aircraft was above the intended 3 degree Gilde Path. After the Localizer was captured, a Glide Slope intercept from above was executed. The Autopilot Flight Director System (AFDS) and the Auto Throttle (AT) were engaged. The Approach mode was armed and the aircraft was configured for landing.

At short final, approximately 0.85 NM from the threshold at 1060 feet altitude, the Glide Slope was captured. Upon Glide Slope capture, a pitch increase of 24.5 degrees aircraft nose up (ANU) occurred in about 8 seconds. The crew pressed the 'take-off/go-around' (TOGA) button for a go-around, almost simultaneously followed by the activation of the stick shaker warning. During the following approach to stall recovery manoeuvre there was a second stick shaker activation. The crew made a successful go around and landed at Eindhoven Airport.

The activation of the aircraft's stick shaker during an autopilot coupled ILS approach in close proximity to the runway was a factor of interest that prompted the Dutch Safety Board to start an investigation. The occurrence (henceforth: the Eindhoven incident) has been categorized by the Safety Board as a serious incident.

It became clear during the investigation that the Eindhoven incident was not unique. Four other occurrences with autopilot commanded pitch-up upset during ILS approach from above the 3 degree Glide Slope were identified. These incidents took place with different types of aircraft, operated by different airlines, on approach to different airports.

These findings led the Dutch Safety Board to conclude that little known ILS signal characteristics pose a significant threat to aviation safety, as they may result in unexpected aircraft behaviour and my thus endanger the safety of passengers and flight crews. Because identified occurrences, combined with the potential severity of this hazard, the Dutch Safety Board decided to asdress this issue separately.

This report (study) represents the investigation into the ILS signal characteristics and the SMS framework. The other findings from the Eindhoven incident are presented in a separate report, issued contemporaneously.

Safety Recommendation NETH-2014-001 (DSB)

To the regulators involved with the manufacturing of transport category aircraft; European Aviation Safety Agency (Europe), Federal Aviation Administration (USA), Agência Nacional de Aviação Civil (Brasil), Civil Aviation Administration of China, Federal Air Transport Agency (Russian Federation), Japan Civil Aviation Bureau, and Transport Canada.

1. Information and awareness

Ensure that the established False Glide Slope characteristics and the possible associated consequences for aircraft are made widely known and are modified accordingly in the published manuals and training material used in the aviation sector. This specifically refers to:

a. the area above and below the published or nominated ILS Glide Path;

b. the absence of warnings in the cockpit when flying with the automatic flight systems engaged in the area above the published or nominal ILS Glide Path.

Reply

EASA published on 24 March 2014, Safety Information Bulletin (SIB) 2014-07 entitled 'Unexpected Autopilot Behaviour on Instrument Landing System (ILS) Approach'.

Since receiving safety recommendation NETH-2014-001, EASA reviewed the above-mentioned SIB and published, on 12 August 2015, a revised version numbered SIB 2014-07R1. This revision further emphasises the need to ensure that established false glide slope characteristics and possible associated consequences for aircraft are made widely known, and are documented accordingly in the operations manuals and in the flight crew training material. This provides mitigation through procedures and training in the absence of warnings in the cockpit when capturing a glide path with the automatic flight systems engaged in the area above the published or nominal ILS glide path.

In SIB 2014-07R1, EASA recommends, amongst other things, that:

- Operators develop procedures in their operations manuals for pilots' decision-making on intercepting the glide slope, with explicit operational limits also defined.
- Operators design and deliver dedicated flight crew training on the false glide slope inversion phenomenon, including means to mitigate the related threats.
- Air Navigation Service Providers ensure that Air Traffic Controllers apply prescribed navigation procedures which support flight crew workload and the positioning of an aeroplane for intercepting the glideslope from below.

Furthermore, this safety issue was presented and discussed during the EASA air operations standardisation workshop on 08 October 2014, to increase awareness amongst EASA Member States.

Status: Closed – **Category**: Agreement

Safety Recommendation NETH-2014-002 (DSB)

To the regulators involved with the manufacturing of transport category aircraft; European Aviation Safety Agency (Europe), Federal Aviation Administration (USA), Agência Nacional de Aviação Civil (Brasil), Civil Aviation Administration of China, Federal Air Transport Agency (Russian Federation), Japan Civil Aviation Bureau, and Transport Canada.

Short term measures: ensure with oversight that aviation operators, manufacturers, and Air Navigation Service Providers take mitigating actions to prevent pitch-up upsets due to aircraft exposure to False Glide Slope Reversal as a result of flying with the automatic flight systems engaged in the area above the published or nominated ILS Glide Path. This can be achieved by means of:

a. operational measures;

- raising the interception of the ILS Glide Slope from below to a Standard, or in the event of an interception from above,
- developing additional operating procedures.

b. technical measures;

automated on-board systems when in use should not cause a pitch-up upset, at least not without a preceding clearly recognizable warning and with ample time for flight crew intervention.

Reply

Initially, EASA published the Safety Information Bulletin (SIB) 2014-07 on 25 March 2014 on "Unexpected Autopilot Behaviour on Instrument Landing System (ILS) Approach". This SIB is now being revised to raise further awareness on training for Aircrew and Air Traffic Controller Officers.

Furthermore, EASA has published ED Decision 2015/012/R (4th May 2015) on Upset Recovery Prevention and Training (UPRT).

The safety issue is also being considered by EASA within the framework of the following ongoing Rulemaking Tasks (RMTs):

RMT.0581 and RMT.0582 on loss of control prevention and recovery training;

RMT.0411 on Crew Resource Management (CRM) training;

RMT.0464 on Requirements for Air Traffic Services (ATS).'

Moreover, in the frame of possible technological enhancements to prevent similar occurrences in the future, EASA has identified two main features to:

- warn flight crews of an "High Approach" condition;
- inhibit the automatic glide slope capture arming in "High Approach" conditions.

Since the system is intended to prevent runway excursion by alerting the crew of their position and energy in relation to the runway, EASA has therefore submitted a document to EUROCAE WG-101 on "Runway Overrun Awareness and Alerting System (ROAAS)" recently established, in order to include the abovementioned warning function into the objectives for the WG, assuming that it could be eventually implemented as an industry standard.

This Agency will closely follow the future activity of the WG on this specific subject.

Status: Open – **Category**:

Norway

Registration	Aircraft Type	Location	Date of event	Event Type
LN-DYM	BOEING 737	Kittilä Airport (EFKT)	26/12/2012	Serious incident

Synopsis of the event:

During approach to Kittilä (EFKT) in Finland on 26 December 2012, LN-DYM, a Boeing 737-800 NG on Norwegian Air Shuttle's (NAS') air service NAX5630 from Helsinki airport (EFHK), came close to stalling. The outcome of a stall would most likely have been catastrophic, primarily because the elevator system at that time did not function normally. The elevator system worked only at a ratio of 1:250.

Safety Recommendation NORW-2015-003 (AAIB)

AIBN recommends EASA to ensure that the aircraft manufacturer Boeing conduct a new safety assessment of the Boeing 737 aircraft type as regards blockage of the aircraft type's elevator system, and that the analysis result and established measures satisfy the requirements in EASA CS-25 §25.671.

Reply

EASA has contacted the Boeing Company and the Federal Aviation Administration (FAA) requesting a revised safety assessment of the Boeing 737 aircraft type as regards blockage of the aircraft type's elevator system.

Status: Open – **Category**:

Russian Federation

Registration	Aircraft Type	Location	Date of event	Event Type
F-OGYP	AIRBUS A310	IRKUTSK AIRPORT	08/07/2006	Accident

Synopsis of the event:

On July 8, 2006 at 22:44 UTC1 (7:44 local time on July 9, 2006), as it was landing at Irkutsk airport, an A-310 airplane, registration F-OGYP, operated by OAO Aviakompania Sibir [Sibir airlines], ran down the runway, overran the runway threshold and, at a distance of 2140 m and on a magnetic azimuth of 296° from the aerodrome reference point, collided with barriers, broke apart and burst into flames. As a result of the accident 125 individuals died, including both pilots and 3 of the cabin crew; 60 passengers and 3 cabin crew suffered physical injuries of varying degrees of severity.

Safety Recommendation RUSF-2007-003 (AIB)

It is recommended to EASA and other Certifying authorities together with the manufacturers of large transport aircraft to evaluate the usefulness of cabin crew smoke hood devices in assisting the evacuation of airplanes; to evaluate the possibility of equipping large transport airplanes with devices for passengers and/or flight attendants to be used in case of an emergency evacuation without suffering from the effects of smoke and toxic fumes.

Reply

The safety recommendation comprises two parts;

- It is recommended that cabin crew smoke hood devices be evaluated in regards to whether their use during emergency evacuations might be of benefit.
- It is recommended that the possibility of providing devices for passenger use, that would mitigate the effects of smoke and toxic fumes, be evaluated.
- Cabin Crew Smoke Hood Devices

Airworthiness and operational rules have required for many years that cabin crewmembers be provided with portable Protective Breathing Equipment (PBE). The applicable standards for these devices require that complete protection be provided from a toxic atmosphere for 15 minutes minimum, and that vision and voice communication abilities not be excessively diminished. It is also required that a high level of protection from head contact with heat/flames be provided. The devices were developed and mandated for the purpose of equipping cabin crewmembers to fight in-flight fires. It has never been intended that the devices be used during emergency evacuation. In order to satisfy the requirements for complete protection from a toxic atmosphere and a high level of protection from heat/flame, the design of PBE inevitably involves compromise in regards to other aspects. The devices take up time to don (30 to 60 seconds) and result in a reduced level of voice communication ability and vision.

Reply

A safe and rapid aeroplane evacuation is highly dependent on cabin crewmembers performing their assigned duties efficiently and without delay. This is not compatible with the functional characteristics of PBE. The time taken to access and don PBE, and the reduced ability for a cabin crewmember to both visually appreciate the developing situation and communicate with other cabin crewmembers and passengers, would significantly reduce their ability to manage a rapid evacuation. It is concluded that cabin crewmembers will be in a position to provide the best safety function by instant and continued management of passenger flow out of emergency exits. Furthermore, the current smoke hood devices (i.e. PBE) are not suited for usage other than for in-flight fire-fighting.

After careful consideration of the above factors, and in the light of the critical cabin crewmember role during an emergency evacuation, EASA has concluded that there is no overall benefit to be gained from widening the usage of PBE. Therefore, EASA does not propose to pursue any action regarding widening the usage of cabin crewmember PBE devices beyond that of in-flight fire-fighting.

- Smoke Mitigation Devices for Passengers

The provision of devices for aeroplane passenger use, designed to mitigate the toxic and incapacitating effects of smoke and fumes in fires, has been proposed at various times over the past fifty years or so. In the eighties extensive work was carried out by the airworthiness authorities of the UK, France, Canada and the USA, in response to accidents where appreciable numbers of passengers died as the result of smoke/fumes inhalation.

A standard for a passenger smoke hood was developed, considerable efforts were made by the equipment industry to develop such devices, and trials were performed to assess the overall safety benefit. Whilst it was found that a device might be developed, the assessment of safety benefit was complicated by questionable aspects such as whether or not passengers would take in the information regarding the location and usage of the devices (via the pre-flight briefing/briefing card), would retain the presence of mind to don the hoods, would waste excessive time in doing so, and the complicating issues such as how to cater for special categories of passengers, etc. Furthermore, in parallel the overall fire safety and evacuation performance of aeroplanes was improved. More stringent airworthiness rules for cabin materials flammability characteristics and smoke emission properties, seat cushion fire blocking, low-level escape path marking, exit access and escape slide resistance to puncture and radiant heat damage were introduced. Following extensive analysis, such as the report from the FAA study (Benefits of Passenger Protective Breathing Equipment From Analysis of Past Accidents) it was concluded that, in the light of the safety improvements resulting from the fire safety and evacuation rule changes, the safety benefit to be gained from passenger smoke hoods was too low to justify the costs of mandating them.

After careful consideration, EASA does not propose to pursue any action regarding the provision of smoke hood devices for passengers.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
RA-04109	AEROSPATIALE AS355	Gromovo on Lake Sukhodolskoye	20/01/2011	Accident

Synopsis of the event:

While flying at low height, in conditions of deteriorating visibility, which made it impossible to continue a visual flight, and “whiteness” of the underlying terrain, which made it difficult for the aircraft pilot to determine the helicopter’s position in the air, the helicopter collided with the snowy surface of the lake, which was covered in

ice. The helicopter suffered significant damage, one passenger died and the other passengers and crew were injured to varying degrees of severity. There was no fire

The reason for the air accident involving the AS-355N RA-04109 helicopter was the loss by the aircraft pilot of spatial orientation during the flight in conditions of limited visibility and "whiteness" of the underlying terrain (lack of contrast and lack of visibility of the natural horizon and distant reference points), which made it impossible to continue the flight in visual flying rules, resulting in an uncontrolled steep descent and the collision of the helicopter with the surface of the lake, which was covered in ice.

Safety Recommendation RUSF-2013-003 (AIB)

EASA shall examine the matter of amending the flight and maintenance manuals for the AS-355N helicopter in relation to the drainage, after the flight, of condensate from the system which feeds the pressure instruments when the helicopter is being operated in conditions of low temperatures and non-hangar storage.

Reply

The aircraft maintenance manuals of the AS-355N requires to purge the system before the first flight of the day. This purge aims to drain potential condensate from the system feeding the pressure instruments. This is independent of the temperature and the hangar or non-hangar storage. The risks related to the loss of indication or erroneous indication are addressed by the aircraft design (such as alternate static port) and the associated detection means by the flight crew when operating the aircraft.

The Aircraft Manufacturer, however, has taken a voluntary action to amend the Russian (CIS/IAC) Rotorcraft Flight Manual (RFM) for AS350B2 (RFM code K - RN 0), AS350B3e (amended RFM: code K - RN 0) and AS355NP (RFM code K, RN 03). In all of them, "pre-flight" and "before leaving the helicopter" checks have been added to verify that the system is drained.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
RA-04049	EUROCOPTER EC120	Murmansk	21/07/2013	Accident

Synopsis of the event:

On July, 21st 2013 at 05:53 (hereinafter the UTC time is indicated), at daytime, the air accident occurred to the privately owned EC-120B RA-04049 helicopter. After the helicopter landing on the site, selected from air, and the passengers disembarkation its right rollover with the displacement (turn) occurred with the destruction of the structure. There was no fire. There was the pilot-in-command, Russian citizen, aboard. The PIC was slightly injured.

The passengers that earlier disembarked from the helicopter were fatally injured by the helicopter main rotor blades.

Safety Recommendation RUSF-2014-003 (AIB)

To EASA: To study the reasonability of the development and installation of the system that would inform a pilot of the vertical speed and G load values overlimit at hard landing.

Reply

The Agency has assessed the relevance and practicality of developing and installing a system that would provide the pilot with information related to the exceedance of vertical speed and G-level at landing. As a result, it was found that this information would not be sufficient to ensure detection of overload condition, since it would further need, for instance, the indication of the yaw-rate at landing.

Taking into consideration the high level of accuracy of the instruments needed to provide reliable information, it is believed that the proposal solution is not practical for this class of rotorcraft. When an event such as hard landing is suspected, the normal practice is to cease operation so that a safety inspection can be performed.

Status: Closed – **Category**: Disagreement

Safety Recommendation RUSF-2014-004 (AIB)

To EASA and Airbus Helicopters company: To study the reasonability of the bulletin issue on the compulsory change of the landing gear aft attachment clamp to the reinforced one.

Reply

EASA, in coordination with Airbus Helicopters (AH), has examined the pertinence of mandating the replacement of the landing gear aft attachment clamp with the reinforced one (Service Bulletin No EC120-32-006), and concluded that this would not be an appropriate safety improvement action.

The results of the simulations and analyses carried out by AH agreed with the conclusions of the investigation report that the accident was due to the overload failure of the skid caused by a landing at a very high descent rate, in conjunction with a high yaw rotation, and that this circumstance eventually led to the rollover of the helicopter. However, for this reason it is considered that the application of the reinforced clamp will not prevent the rollover from happening in similar situations, since the skid landing gear itself is not designed to sustain the loads generated from such a landing.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
RA-01978	AGUSTA A119	near Staritsa	14/09/2013	Accident

Synopsis of the event:

The helicopter was scheduled for a private flight from Veliky Novgorod to Myakinino Moscow. On the route, while en cruise, the aircraft crashed into a wooden area near Stariza.

Pilot and the passenger on board suffered fatal injuries.

14.09.2013 г., в 09:18:40 UTC, при выполнении полета по маршруту г. Великий Новгород – район н.п. Селижарово (Тверская обл., промежуточная посадка) – п.п. Мякинино

(Москва) – п.п. Волен (г. Яхрома, Московская обл.), в 27,5 км западнее г. Старицы (6 км южнее д. Сергино Старицкого района Тверской области) произошла катастрофа вертолета AW119 MKII RA-01978. КВС и находившийся на борту пассажир погибли.

Safety Recommendation RUSF-2014-005 (AIB)

[Unofficial translation] EASA to consider the relevance to study the effect of different roll index representation (moveable scale or moveable pointer) for "inside-out" ADIs on roll reversal errors.

[Russian] - Европейскому агентству авиационной безопасности

Рассмотреть вопрос о необходимости проведения исследований влияния типов индикации углов крена (подвижная шкала или подвижная стрелка) авиагоризонтов с «прямой индикацией» на ошибки обратной реакции по крену.

Reply

Several solutions for displaying to pilots the attitude of an aircraft have been developed: the endo-centered principle and the exo-centered principle. The endo-centered principle, where the moving part of the instrument relatively to the cockpit displays the external world with the roll index linked to this moving part, is now the standard largely adopted, and for which pilots are trained since their basic instrument flight training. It is not envisaged to change this standard which would imply to review the training of this large majority of pilots.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
EY-623	AIRBUS A320	Kulob Airport (TJU)	02/02/2014	Accident

Safety Recommendation RUSF-2015-001 (AIB)

[Courtesy translation] To prevent the loss of recording flight data in case of power supply interruptions from the main bus due to power plant failure or shutdown or other in-flight failure, to consider the usage of uninterruptible power supply systems or units on board that could provide the continuous availability of flight data recorders, flight information acquisition and communication systems with a defined time interval after the failure of power supply from the main bus.

Reply

This safety recommendation will be taken into account in the frame of EASA rulemaking task RMT.0249 "Recorders installation and maintenance thereof — certification aspects".

The various objectives of this rulemaking task include the increase of the robustness of flight recorders to a loss of power supply.

The Terms of Reference of RMT.0249 can be found on the EASA Website using the following link:

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

An NPA (Notice of Proposed Amendment) will be published in 2016. Further information will be provided following the progress of RMT.0249.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
RA-01726	DIAMOND DA40	Ulyanovsk Airport (TJU)	08/05/2014	Accident

Synopsis of the event:

08.05.2014 г., в 06:05 UTC (10:05 местного времени), днем, в визуальных метеорологических условиях, при выполнении учебных полетов на аэродроме Солдатская Ташла ФГБОУ ВПО «Ульяновское ВАУ ГА (И)» произошла катастрофа самолета DA 40 NG RA-01726. После взлета, на удалении 1,2 км от выходного торца ВПП 31, самолет с углом наклона траектории 80-85 с опережением на левое полукрыло столкнулся с землей. КВС-инструктор и обучаемый курсант погибли.

Safety Recommendation RUSF-2015-002 (AIB)

[Courtesy translation] To provide the new, developed in June, 2014, design solution that address an inadvertent switch off an aircraft Engine Master to the AR IAC on approval. (The decision was sent to manufacturers as a circular OÄM 40-377, and to operators as a service bulletin OSB 40NG-025 in June, 2014).

Reply

EASA has discussed this safety recommendation with the Type Certificate Holder (TCH) Diamond Aircraft (DAI).

An optional design solution has been approved that improves the inadvertent deactivation of the Engine Master switch. The design solution is included in service bulletin OSB40NG-025 and has been provided to AR IAC (Aviation Register of the Interstate Aviation Committee) for review during a validation visit by EASA at DAI facilities from 19 to 23 October 2015. AR IAC have informed EASA that they will proceed with the approval.

As additional information, the original design already includes a switch that prevents inadvertent operation by the pilot. EASA considers the new design solution to be an improvement to the Engine Master switch, but based on the review of the service history of the type, has concluded that the solution does not need to be mandated.

Status: Closed – **Category**: Agreement

Safety Recommendation RUSF-2015-003 (AIB)

[Courtesy translation] To develop and to provide to the AR IAC on approval the following additions to the documents those regulate the DA 40 NG aircraft operation:

- into AFMs and AMM to include operating and maintenance procedures of APIBOX recorder;
- into AFMs to include the additions those will stipulate the procedure of a safety altitude estimation.

Reply

Regarding the first part of the recommendation, the APIBOX is currently not part of the EASA approved design and therefore no AFM and AMM supplements address this equipment. The design approved by Diamond Aircraft (DAI) includes only provisions for the installation of this equipment. Nevertheless, DAI have informed that they have planned to include a design change for the APIBOX equipment together with the relevant operating and maintenance procedures. The corresponding change will be provided to AR IAC after being approved by EASA.

Regarding the second part of the recommendation, EASA has understood that the request is to include into the AFM, instructions that allow the pilot to estimate a safety altitude to switch off the secondary fuel pump.

The secondary fuel pump is switched on during take-off to provide fuel pressure in case of failure of the main pump. The secondary fuel pump can be switched off when it is identified that, in case of a failure of the main pump, there is enough time to activate the secondary pump and restore fuel pressure to the engine. This time depends on the operating environment and the area of operation and is therefore a pilot's decision.

Based on the above, EASA has determined that such instructions are not necessary.

Status: Closed – **Category**: Partial agreement

Spain

Registration	Aircraft Type	Location	Date of event	Event Type
EC-HFD	BELL 412	25 NM away from Malaga airport over the Mediterranean	16/02/2002	Incident

Synopsis of the event:

The helicopter flown by two pilots was transporting eight passengers from Ceuta to the Malaga Airport and was scheduled to arrive ar 08:00 UTC. Earlier after boarding the passengers in Ceuta and before engine start-up the crew had the in-flight safety demonstration informing the passengers to have their seat belts fastened at all times identifying the emergency exits and explaining the proper use of the exit windows in case of emergency. Opening these windows requires pushing down hard on both bottom corners at the same time, as indicated in Spanish and English on the signs located at these windows.The then commenced the flight. Weather conditions were good and as the helicopter was en route over the Mediterranean Sea some 25 NM from the Malaga Airport at approximately 8:55 the captain heard a noise in the passenger cabin. On looking back he saw the passengers pointing to the left rear of the helicopter where he noticed that the aft of the two emergency windows were missing. Across from the opening left by the detached window were two passengers facing outward.

Safety Recommendation SPAN-2014-001 (CIAIAC)

It is recommended that the European Aviation Safety Agency, in concert with the Authority in the State of design, evaluate the need to impose additional airworthiness requirements on the emergency doors and exits for the transport category helicopters used for the public transport of passengers, so as to reasonably ensure that a deliberate attempt to open such a door or exit will not have a catastrophic effect on the aircraft.

Reply

A review has been carried out by the FAA, Bell Helicopters, Agusta Westland and the Agency. The subject exit window design is common to both the Bell 412 and Agusta AB 412 helicopters. The review has confirmed that the helicopter design is in compliance with the Type Certification Basis. In addition, a review of service experience showed that other similar events have not presented a safety hazard. Helicopter emergency exits must have simple and obvious methods of opening, from the inside and from the outside, which must not require exceptional efforts or skills. As a consequence of this general policy for helicopter emergency exits, there is no mechanical method of preventing a passenger from deliberately releasing an emergency exit in flight.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
EC-DQG	AEROSPATIALE SN601	Airport of Cordoba	25/11/2000	Accident

Synopsis of the event:

El día 25 de noviembre de 2000, la aeronave Aerospatiale SN 601 «Corvette», matrícula EC-DQG, despegó del Aeropuerto de Málaga a las 05.43 horas1 con dos tripulantes a bordo, y destino el Aeropuerto de Córdoba. El vuelo, con indicativo MYO611 y una duración prevista de 20 minutos, tenía como objeto posicionarse en Córdoba para recoger personal sanitario del Servicio Nacional de Trasplantes y trasladarlo a Zaragoza. Cuando la aeronave estaba realizando la aproximación final a la pista 21 del Aeropuerto de Córdoba, aproximadamente a las 06.04 horas, colisionó con un poste de un tendido eléctrico, cayó al suelo, continuó su desplazamiento arrastrándose, impactó con un edificio situado a 1.500 metros del umbral y se detuvo quedando cubierta prácticamente en su totalidad por la techumbre del mismo, que se derrumbó sobre ella. El piloto al mando falleció y el copiloto sufrió heridas de carácter grave. La aeronave quedó totalmentedestruida.

Safety Recommendation SPAN-2015-003 (CIAIAC)

It is recommended to the European Aviation Safety Agency (EASA) that it sets up the obligation of carrying an ELT in every aircraft that travels without a flight plan, in those cases under the scope of regulation EC 1108/2009.

Reply

Several EU regulations in the field of civil aviation have been published since the date of the accident, including Commission Regulation (EU) No 965/2012 laying down technical requirements and administrative procedures related to air operations.

The initial issue, addressing Commercial Air Transport (CAT), has been applicable since 28 October 2014. Subsequent amendments have extended the scope to Non-Commercial operations with Complex motor-powered aircraft (NCC) to be applied by 25 August 2016; Non-Commercial operations with Other-than complex motor-powered aircraft (NCO) to be applied by 25 August 2016; and Specialised Operations (SPO) to be applied by 21 April 2017.

According to the above-mentioned provisions, all aeroplanes are required to be equipped with at least one Emergency Locator Transmitter (ELT) (See CAT.IDE.A.280, NCC.IDE.A.215, NCO.IDE.A.170 and SPO.IDE.A.190).

Emergency locator transmitter is a generic term describing equipment that broadcasts distinctive signals on designated frequencies and, depending on application, may be activated by impact or may be manually activated. ELT types include automatic fixed, automatic portable, automatic deployable and survival ELTs.

The ELT specifications depend on the type of operation, the maximum operational passenger seating configuration and the date of first issue of an individual Certificate of Airworthiness.

For NCO and SPO with aeroplanes certified for a maximum seating configuration of six or less, a personal locator beacon (PLB) may be carried by a crew member or a passenger instead of equipping the aeroplane with an ELT.

A PLB is an emergency beacon other than an ELT that broadcasts distinctive signals on designated frequencies, is standalone, portable and is manually activated by the survivors.

The Agency therefore considers that the necessary legislation is already in place regarding carriage of ELTs and, as such, no further action is required.

Status: Closed – **Category**: Agreement

Registration	Aircraft Type	Location	Date of event	Event Type
EC-KTA	BELL 407	Municipality of Villastar	19/03/2011	Accident

Synopsis of the event:

On the 19 Mach 2011, the Bell 407 helicopter took off from its base in Alcosia (Teruel) at 12:09 and proceeded to the burned area on Los Olmos Mountain, near the locality of Alcorisa. The purpose of the flight was to pick up a firefighting brigade and transport it to a fire that had broken out between the towns of Villel and Cascante. While en route to the fire, the crew reported its location once past the town of Cedrillas at around 12:30. The helicopter crashed into the ground a few minutes later in a large clearing without any obstacles.

Of the aircraft's seven occupants, six died and one was seriously injured.

Safety Recommendation SPAN-2015-004 (CIAIAC)

It is recommended that the European Aviation Safety Agency issue an Airworthiness Directive to make mandatory the Alert Service Bulletin 407-05-70 of 10 November 2005 issued by Bell Helicopter Textron.

Reply

The Canadian EAD CF-2011-17R1 "Incorrect Assembly of Hydraulic Servo Actuators" requests before next flight to perform a one-time visual inspection and the applicable rectifications on the hydraulic servo actuator, in accordance with the Accomplishment Instructions of the Alert Service Bulletin (ASB) 407-11-96 Revision B and previously published with ASB 407-05-70 Revision A. The Alert Service Bulletin 407-05-70 asked within the next 10 flight hours or before the 15th December 2005, whichever comes first, to accomplish a one-time inspection.

The Canadian EAD CF-2011-17R1 was published on the EASA Website on 20 December 2011 and made effective as of 22 December 2011 on European registered aircraft.

Status: Closed – **Category**: Agreement

Registration	Aircraft Type	Location	Date of event	Event Type
EC-LKE	AIRBUS A330	nr Toledo VOR/DME	13/02/2011	Incident

Synopsis of the event:

On Sunday, 13 February 2011, aircraft EC-LKE, an Airbus 330 operated by Air Europa, was on a flight from Madrid (Spain) to Cancun (Mexico) with 344 people on board. At 16:16:03, fourteen minutes after starting the takeoff run, a partial FBO (fan blade off) event occurred in the number 2 (right) engine. The crew declared an emergency (MAYDAY MAYDAY MAYDAY) and returned to Madrid, where the aircraft landed uneventfully.

Safety Recommendation SPAN-2015-005 (CIAIAC)

It is recommended to European Aviation Safety Agency (EASA) to review whether the current protection specifications of the Fan Case Module need to be changed to eliminate the possibility to release pieces of blades interfering with the fuselage structure.

Reply

At engine level, CS-E810 requires engine containment by the engine outer casing in the case of blade failure, including fan blade failure. AMC-E810 also anticipates situations of debris released from the air intake or exhaust, with corresponding declarations in the installation manual (weight, size, trajectory, velocity), as long as debris is not high-energy debris, which would constitute an engine hazardous effect.

At aircraft level, CS 25.903(d) and AMC 20-128A acknowledge the fact that although turbine engine manufacturers are making efforts to reduce the probability of uncontained rotor failures, service experience shows that uncontained compressor and turbine rotor failures continue to occur - including forward debris resulting from fan blade failure, and therefore require that design precautions be taken to minimise the hazard from such events. AMC 20-128A highlights such design precautions and provides a fan blade debris model (size, energy, trajectory) to be considered by the aircraft manufacturer. Specific engine manufacturer data may also be used to define aircraft design precautions.

Although the primary intent is to avoid situations of engine debris with potentially high energy to impact the aircraft fuselage, such events cannot realistically be ruled out. They are nevertheless closely followed as part of the continued airworthiness process in order to define corrective actions that will prevent them from happening again.

At the time of certification the Trent 700 Fan Blade Off (FBO) engine test did not show any significant forward debris. Post initial certification in 1997 (EIS in 1994), a titanium panel was introduced to improve intake retention following an FBO event and was based on experience of another Rolls-Royce engine type. Many years after the retention panel modification was issued, it was found that these panels altered the FBO sequence, generating forward debris whereas the pre-modification standard did not. As part of Part 21 continued airworthiness process, it is now the intention of Rolls-Royce and Airbus that an engine modification will be defined which eliminates the risk of significant forward debris maintaining the means of compliance utilised for original certification.

It is therefore deemed that the combination of existing certification requirements and AMCs, along with the continued airworthiness process, provide an adequate level of safety.

Status: Closed – **Category**: Agreement

Sweden

Registration	Aircraft Type	Location	Date of event	Event Type
SE-HOM	BELL 206	Porjus, Norrbotten County	08/11/2012	Accident

Synopsis of the event:

An autorotation landing was performed during an OPC.

Shortly after touchdown the helicopter began to vibrate and a heavy scraping sound was heard accompanied by vibrations of a frequency corresponding to the rotor speed. The vibrations continued when the main rotor speed decreased and they then increased sharply, after which the entire main rotor separated from the helicopter and ended up about 10 metres to the left of the helicopter.

Those on board, who were uninjured, were able to exit the helicopter unassisted.

Safety Recommendation SWED-2014-005 (AIB)

EASA is recommended to act for a reduction in the oil system's sensitivity to contaminants. [RL 2014:09 R1]

Reply

EASA, in cooperation with Transport Canada Civil Aviation (TCCA), examined the recommended action and agreed that the Bell Helicopter Textron 206B (BHT 206B) transmission and freewheeling system design is adequate and the maintenance instructions thorough, when correctly followed. The BHT 206B Maintenance Manual (MM), contains procedures that refer to installing caps and/or plugs on disconnected lines and openings during maintenance. These procedures are designed to prevent particles from being introduced into a hose during maintenance.

In addition, the BHT MM Chapter 63-27 describes the operational transmission check that has to be performed post maintenance. Maintenance would have proceeded to conduct a flush of the system as per BHT 63-7 entitled Oil Contamination of Transmission. This procedure includes cleaning and inspecting all fittings and filters including the (50-075-1) filter, followed by a second run and filter check. Therefore, it is considered that the risk of oil system contamination is already addressed.

Status: Closed – **Category**: Disagreement

Safety Recommendation SWED-2014-006 (AIB)

EASA is recommended to act so that operators of the helicopter type are provided with information and suggestions for preventive measures regarding the risk of contamination of the free wheel's lubrication system. [RL 2014:09 R2]

Reply

EASA in cooperation with Transport Canada Civil Aviation (TCCA) examined the recommended action and agreed that the Bell Helicopter Textron instructions for Continued Airworthiness adequately describe how to prevent oil contamination within the procedures for the installation of caps or plugs on disconnected fittings and openings (BHT MM 63-00 pg 36 paragraph 17). In addition, the Bell Helicopter Textron 206B Maintenance Manual (BHT 206B MM) contains prescribed procedures that refer to installing caps and /or plugs on disconnected lines and openings during maintenance, provides instruction for the protection of fluid lines when removed for maintenance, and also includes instructions at paragraph 18 for the long term storage of the transmission. These procedures are preventive measures meant to prevent particles from being introduced into a hose during maintenance.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
SE-FLS	ROCKWELL 112	Bromma Stockholm Airport	04/11/2013	Accident

Synopsis of the event:

On 4 November 2013, the second attempt to fly to Stockholm/Bromma Airport was commenced. The flight and approach to runway 12 at Bromma were normal. During landing when the nose wheel was set down, the aircraft swerved and the pilot had difficulties holding the aircraft on a steady course. The aircraft swerved along the runway centre line and finally left the runway, knocking down a sign.

Having informed the tower of the occurred and of the fuel leakage from the right wing, the pilot then shut down the engine, cut the power supply and left the aircraft. The airport's rescue services covered the spilled fuel with foam so as to prevent ignition. No fire arose.

Safety Recommendation SWED-2014-007 (AIB)

EASA is recommended to provide information on the connection between an imbalance in the nose wheel and nose wheel shimmying.

Reply

After contacting the FAA, primary certifying authority for the accident aircraft, EASA has been informed that the maintenance manual of the Commander model 112 provides a clear connection between an imbalance in the nose wheel and nose wheel shimmying. The actions to perform in such a case are to remove the tire and check for balance. This information has been provided by the FAA in their official reply (FAA Memorandum to SR 14.146, dated 18 November 2014) to the corresponding FAA safety recommendation (SR 14.146).

Furthermore, EASA has reviewed the continued airworthiness history of the type and found no relevant similar events.

Based on the above evidence and considering also that on the specific type there is a damper installed to mitigate shimmying from occurring, EASA endorses the FAA's position.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
N5411Z	CESSNA TU206	Granna harbor	14/06/2014	Accident

Synopsis of the event:

The accident occurred on the lake Vättern and involved an amphibious aeroplane of the model Cessna TU206G with registration marks N5411Z. After landing both pilots decided to stop flying due to rough sea and put on the life vests. The engine was shut off in order to sail backwards to the island Visingsö. The water rudders were left in the down position which caused the aeroplane to turn sideways across the wind and turn over. The pilots exited the aircraft.

The commander was killed and the cause of death was drowning. The co-pilot swam ashore.

Safety Recommendation SWED-2015-001 (AIB)

EASA is recommended to investigate whether there is reason to introduce, augment or modify the requirements regarding the colour and function of life vests required in aircraft not covered by Part CAT of Regulation (EU) 965/2012.

Reply

In addition to Commercial Air Transport (CAT) operations, the following civil aviation operations are also addressed by Commission Regulation (EU) No 965/2012:

- Non-Commercial operations with Complex motor-powered aircraft (Part-NCC) to be applied by 25 August 2016;
- Non-Commercial operations with Other-than complex motor-powered aircraft (Part-NCO) to be applied by 25 August 2016;
- Specialised Operations (Part-SPO) to be applied by 21 April 2017.

National legislation applies in the meantime.

According to the above-mentioned provisions, aeroplanes operated over water under specified conditions, shall be equipped with life-jackets (See NCC.IDE.A.220, NCO.IDE.A.175 and SPO.IDE.A.195). Similarly, helicopters shall also be equipped with life-jackets. The pilot-in-command of a balloon or sailplane operated over water shall determine the risks to survival of the occupants of the balloon/sailplane in the event of a ditching, based on which he/she shall determine the carriage of life-jackets.

The life-jackets are required to be approved in accordance with Regulation (EC) No 748/2012 for aircraft registered in the EU, or the airworthiness requirements of the state of registry for aircraft registered outside the EU. For aeroplanes/helicopters, see NCC.IDE.A/H.100, NCO.IDE.A/H.100 and SPO.IDE.A/H.100. For balloons and sailplanes, the risk assessment conducted by the pilot-in-command to determine the carriage of life jackets should also determine the specifications necessary for the life-jackets to perform the required function.

Paragraph 21.A.305 of Commission Regulation (EU) No 748/2012 states that in all cases where the approval of a part or appliance is explicitly required by Union law or Agency measures, the part or appliance shall comply with the applicable European Technical Standard Order (ETSO) or with the specifications recognised as equivalent by the Agency in the particular case.

Reply

ETSO-C13f, dated 18.07.06, on life preservers provides the minimum performance standards for life preservers.

The colour of the life preserver must be an approved international orange-yellow or similar high visibility colour. The colour of the flight crew life preservers may be an approved red-orange or similar high visibility contrasting Colour (see paragraph 4.1.15 of Appendix 1 of ETSO-C13f).

For each adult, adult-child, and child, the life preserver must, within 5 seconds, right the wearer, who is in the water in a facedown attitude. The life preserver must provide lateral and rear support to the wearer's head such that the mouth and nose of a completely relaxed wearer is held clear of the water line with the trunk of the body inclined backward from the vertical position at an angle of 30 degrees minimum (see paragraph 4.1.9.1 of Appendix 1 of ETSO-C13f).

For each infant-small child, the life preserver must prevent contact of the wearer's upper torso (i.e. from the waist up) with the water. There must be a means to confine the wearer in the proper position for utilization of the life preserver and prevent the wearer from releasing the confining means. With the wearer in the most adverse condition of weight and position attainable when the confining means are properly used, there must be no tendency of the life preserver to capsize or become unstable, take on water, or allow contact of the upper torso with water. Means must be provided to prevent the entrapment of rain or choppy water. (see paragraph 4.1.9.2 of Appendix 1 of ETSO-C13f).

As the above-mentioned provisions already address the colour and function of life vests required in aircraft, no further regulatory action is foreseen by the Agency.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
SE-JKJ	MD HELICOPTER 600	Kungsängen	14/06/2014	Accident

Synopsis of the event:

A helicopter of the type MD 600N started from Frösön, Östersund, for a VFR flight to Bromma, Stockholm. Close to Kungsängen at an altitude of 1500 feet, the engine stopped and the pilot turned in an autorotation to search for suitable diversion site. In connection with the emergency landing the helicopter overturned and extensive damage occurred. The pilot was alone on board and was not injured.

Safety Recommendation SWED-2015-002 (AIB)

EASA is recommended to use appropriate means to inform the sector of which forms of foiling of an aircraft that are permitted.

Reply

In order to verify the feasibility of any action for EASA on the recommended topic, the Agency is currently analysing the elements under which a decor foil could be considered a modification.

Contacts will be established with the Swedish Civil Aviation Authority to provide a coordinated response. Further updates will be provided as soon as a consolidated position on the above mentioned point is achieved.

Status: Open – **Category**:

Switzerland

Registration	Aircraft Type	Location	Date of event	Event Type
CN-MBR	EMBRAER (EMB 505)	St. Gallen-Altenrhein (LSZR) regional aerodrome	06/08/2012	Accident

Synopsis of the event:

On 6 August 2012 the Embraer EMB-505 Phenom 300 aircraft, registration CN-MBR, took off at 12:59 UTC from Geneva (LSGG) on a commercial flight to St. Gallen-Altenrhein (LSZR). After the initial call to the aerodrome control centre St. Gallen tower, the crew quickly decided, after an enquiry from the air traffic controller, on a direct approach on the runway 10 in-strument landing system (ILS). Shortly thereafter, the landing gear and flaps were extended. The flaps jammed at approximately 10 degrees and the FLAP FAIL warning message was displayed. The crew carried out a go-around shortly before landing. The landing gear subsequently remained extended. The flaps remained jammed for the remainder of the flight.

The crew decided immediately on a second ILS approach with jammed flaps, which according to the manufacturer's information required an increased approach speed. During the approach, the crew had difficulty in reducing the airspeed to this increased approach speed. At 13:40 UTC, the aircraft subsequently touched down on the wet runway at an indicated air speed of 136 kt, approximately 290 m after the runway threshold, and could not be brought to a standstill on the remaining length of runway. The aircraft then rolled over the end of runway 10, broke through the aerodrome perimeter fence and overrun the road named Rheinholzweg running perpendicular to the runway centreline, on which a public transport bus was travelling. The aircraft rolled very close behind the bus and came to a standstill in a maize field, approximately 30 m from the end of the runway. The female passenger and the two pilots were not injured in the accident. The aircraft was badly damaged. There was crop damage and damage to the aerodrome perimeter fence.

Safety Recommendation SWTZ-2014-482 (AAIB)

Together with the aircraft manufacturer, the European aviation safety agency (EASA) should examine how the manuals can be amended so as to provide optimal assistance to pilots in abnormal situations.

Reply

EASA, together with Embraer and the National Civil Aviation Agency – Brazil (ANAC), the primary certification authority, will check if the amendments to the manuals, already put in place by Embraer, to assist the pilot in abnormal situations are adequate, or they need to be further amended.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
HB-JVH HB-ZRC	FOKKER100 EC 145	2.5 NM North-East of Bern-Belp Airport	24/05/2012	Serious incident

Synopsis of the event:

On 24 May 2012 at 11:37:58 UTC the pilot of an EC 145 helicopter, registration HB-ZRC, operated by Schweizerische Luft-Ambulanz AG (REGA) under radio call sign Rega Romeo Charlie, received clearance from the Bern tower air traffic control officer (ATCO) to cross the Bern-Belp airport control zone on the route VOR FRI - VOR WIL at an altitude of 4500 ft QNH.

At the same time a Fokker 100 aircraft, registration HB-JVH, operated by Helvetic Airways AG under radio call sign OAW 5311, was approaching Bern-Belp airport. After receiving clearance from Bern approach for a visual approach on runway 32 via the right-hand down-wind, the crew first contacted Bern tower. The ATCO requested the crew to continue the ap-proach via the downwind leg for runway 32 and at the same time issued initial traffic infor-mation about the helicopter. Immediately thereafter, the Rega Romeo Charlie pilot received corresponding traffic information regarding OAW 5311, which was on an approach.

Shortly thereafter, the ATCO again issued both crews with traffic information.

Approximately one minute later, the Rega Romeo Charlie pilot reported “traffic in sight”. The helicopter was in level flight at an altitude of 4500 ft QNH. A little later the pilot received an aural warning on his traffic advisory system. The pilot then initiated a heading change to the left in order to cross behind OAW 5311.

Four seconds after the Rega Romeo Charlie pilot reported visual contact, the crew of OAW 5311 reported that they had a helicopter in sight and would avoid it. OAW 5311 was de-scending and passing 5000 ft QNH. At approximately the same time, the crew received on their traffic alert and collision avoidance system (TCAS) at first a traffic advisory (TA) and a little later the resolution advisory (RA) “climb, climb”. The crew attributed the resolution advi-sory to the helicopter they had in sight and therefore decided not to comply with the resolu-tion advisory and continued the approach while descending. As a result of the continued de-scent, the TCAS generated the RA reversal “descend, descend NOW!” when the aircraft was passing 4500 ft QNH. Even after this command the crew did not change the aircraft’s rate of descent.

The two aircraft crossed at 11:47:03 UTC with a lateral distance of 0.7 NM and an altitude difference of 75 ft.

Air traffic control’s short term conflict alert system (STCA) was not activated at any point since it had been disabled for Bern air traffic control many years before.

OAW 5311 subsequently landed uneventfully in Bern-Belp and the helicopter continued its flight to Zurich.

Safety Recommendation SWTZ-2014-489 (AAIB)

The European Aviation Safety Agency (EASA) should, in cooperation with other relevant international organisations, verify the extent to which the use of traffic collision and avoidance systems (TCAS) and the “see-and-avoid” principle can be better coordinated, particularly in airspace without established separation criteria.

Reply

In an event where the two aircraft are not subject to separation by Air Traffic Control Services (ATC), conflict resolution may be provided vertically by the aircraft equipped with airborne collision avoidance system (ACAS), responding correctly and timely to a possible Resolution Advisory (RA) according to AUR. ACAS.2005 of the Commission Regulation (EU) No 1332/2011 and horizontally by aircraft not carrying ACAS following the provisions for right-of-way rules contained in SERA.3210 of the Commission Implementing Regulation (EU) No 923/2012. The awareness of these requirements and procedures should be ensured by effective flight crew training, including also the benefits and limitations of the 'see and avoid' principle. The Agency's view is that proper application of the above mentioned provisions is ensuring sufficient coordination for the use of ACAS and 'see and avoid' principle.

Status: Closed – **Category**: Agreement

Registration	Aircraft Type	Location	Date of event	Event Type
HB-AES	DORNIER 328	Zurich	14/07/2014	Serious incident

Synopsis of the event:

On 14 March 2012 at 14:56 UTC the DO328-100 aircraft took off from Bern-Belp (LSZB) on a scheduled flight according to instrument flight rules to Vienna-Schwechat (LOWW). On board were three crew members and 17 passengers.

At 15:12:21 UTC, the aircraft reached its cruising altitude of flight level 270. Approximately one minute later, at 15:13:22 UTC, the CAB ALT caution message was displayed and at the same time an audible warning tone (triple chime) alerted the crew to this annunciation. At that mo-ment the cabin altitude was 9500 ft and still rising. The crew donned oxygen masks and im-mediately initiated an emergency descent. At 15:14:55 UTC they declared an emergency and promptly received unrestricted clearance to descend from the air traffic control officer.

At this time the aircraft was 20 km south of Zurich. The crew decided to return to Bern-Belp at reduced speed. In accordance with the appropriate checklist the cabin altitude was then con-trolled manually until landing.

The flight attendant and the pilots could not understand each other via interphone. After the crew removed their oxygen masks and opened the cockpit door it was possible to communi-cate with the flight attendant.

Air traffic control supported the crew with flight level information and heading instructions, and the remainder of the flight was uneventful. The aircraft landed on runway 14 in Bern at 15:44 UTC.

Safety Recommendation SWTZ-2014-492 (AAIB)

The European Aviation Safety Agency (EASA) should, together with the aircraft manufacturer, take measures to ensure that an improperly closed forward outflow valve is better recognizable for the crew, particularly in automatic mode.

Reply

The type certificate holder has updated the flight manual procedures to reinforce the need to place the "MAN CAB ALT" selector into the Down "DN" detent prior to flight. EASA agrees that this measure sufficiently mitigates the possibility that an improper closed forward outflow valve is not recognized by the crew. In addition, EASA will continue to monitor possible future events of similar issues.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
HB-CBZ	CESSNA 182	Luzern-Beromünster (LSZO)	13/12/2014	Accident

Synopsis of the event:

Luzern-Beromünster, 13. Dezember 2014, ca. 8:30 Uhr: Beim Start auf der Graspiste 34 rollte das Flugzeug über das Pistenende hinaus und kam abrupt zum Stillstand.

Safety Recommendation SWTZ-2015-497 (AAIB)

[German] - Das Bundesamt für Zivilluftfahrt (BAZL) und die Europäische Agentur für Flugsicherheit (European Aviation Safety Agency – EASA) sollen Massnahmen ergreifen, damit die Insassen von Luftfahrzeugen auch bei besonderen Betriebsformen, wie zum Beispiel beim Absetzen von Fallschirmspringern, während Start, Landung und in Turbulenzen gesichert sind.

Reply

According to Part-SPO (Specialised Operations) of Commission Regulation (EU) No 965/2012, aeroplanes and helicopters shall be equipped with; a seat or station for each crew member or task specialist (such as a parachutist) on board; a seat belt on each seat; and restraint devices for each station (SPO.IDE.A/H.160). The floor of the aircraft may be used as a seat, provided means are available for the task specialist to hold or strap on (SPO.SPEC.PAR.110).

SPO.GEN.106 requires the task specialist to be restrained at his/her assigned station during critical phases of flight or whenever deemed necessary by the pilot-in-command in the interest of safety, unless otherwise specified in the Standard Operating Procedures (SOP).

'Critical phases of flight' in the case of aeroplanes means the take-off run, the take-off flight path, the final approach, the missed approach, the landing, including the landing roll, and any other phases of flight as determined by the pilot-in-command or commander.

'Critical phases of flight' in the case of helicopters means taxiing, hovering, take-off, final approach, missed approach, the landing and any other phases of flight as determined by the pilot-in-command or commander.

According to SPO.OP.230, the operator is required to carry out a risk assessment and establish SOP to mitigate the risks associated with their specific activity. The resulting procedure could include task specialists being restrained during turbulence. There are so many factors to be considered that it is deemed appropriate for each operator to define their own SOP which should be tailored to mitigate the risks associated with their specific operation.

Reply

In addition, according to ARO.GEN.300 in Part-ARO of Commission Regulation (EU) No 965/2012, the competent authority is required to verify that operators within their jurisdiction comply with Part-SPO. Such oversight should detect any weaknesses in the operator's risk assessment and/or SOP, which should be required by the competent authority to be corrected.

It should be noted that Member States have until 21 April 2017 to apply the provisions in Part-SPO and national legislation applies in the meantime.

Status: Closed – **Category**: Agreement

Registration	Aircraft Type	Location	Date of event	Event Type
HB-KPB	TECNAM P2002	3.3 km NW of Geneva Airport (LSGG)	08/09/2013	Accident

Synopsis of the event:

A 10 h 52 min, le HB-KPB décolle de la piste 23 gazon de l'aéroport de Genève. Environ trente secondes plus tard, lors de la montée initiale, le pilote entend un bruit ressemblant à un court-circuit électrique suivi immédiatement d'un bruit d'explosion. Juste après, de la fumée âcre et blanche apparaît au niveau du palonnier. Conformément au circuit d'aérodrome, le pilote entame un virage à droite et decide de maintenir l'altitude de 1700 ft. Puis il informe le contrôleur de la circulation aérienne (CCA) du fait qu'il y a un problème de fumée dans le cockpit et l'avertit qu'il désire rejoindre le circuit d'aérodrome de la piste 23 gazon.

Le CCA accuse réception du message puis ordonne à deux avions de ligne en approche finale pour la piste 23 béton d'effectuer une remise des gaz. Il demande également à un troisième avion de ligne préalablement autorisé à s'aligner sur la piste 23 béton de maintenir sa position au point d'attente. Le CCA appelle à trois reprises le pilote du HB-KPB sans obtenir de réponse.

Peu avant que le HB-KPB ne rejoigne le vent-arrière, une deuxième explosion se produit dans le cockpit et le dégagement de fumée augmente fortement. Les occupants ne voient plus les instruments et sont gênés par la fumée. Alors que le HB-KPB vole au cap nord, son altitude augmente jusqu'à 1900 ft et le pilote aperçoit, à ses dix heures, un champ herbeux orienté vers le nord-ouest. Il effectue un virage à gauche et se dirige vers ce champ. Il demande au passager de l'aider à ouvrir la verrière coulissante, verrouillée par une poignée centrale et par deux loquets latéraux. Les occupants réussissent à ouvrir la verrière et la fumée est aspire hors du cockpit.

Le pilote observe des débris gris sur le plancher. Voyant distinctement le champ herbeux devant lui le pilote décide d'y atterrir en urgence. En fin de manoeuvre, une ligne électrique le contraint à corriger légèrement la trajectoire puis l'avion atterrit dans le champ choisi.

(...)

Deux minutes et vingt secondes après le décollage, l'avion s'immobilise une dizaine de mètres après la tranchée et les deux occupants, indemnes, évacuent immédiatement l'appareil.

Safety Recommendation SWTZ-2015-501 (AAIB)

[French] - L'agence européenne de la sécurité aérienne (European Aviation Safety Agency – EASA) devrait s'assurer que l'installation des condensateurs garantisse la sécurité des occupants en cas de défaillance

Reply

The scope of this reply is tailored to General Aviation aeroplanes certified according to Certification Specifications CS-23, but similar requirements exist in the certification specification for other aircraft categories (light aircraft, rotorcraft, large aeroplanes).

As an electrical component, the capacitors have to meet the general requirements for electrical systems. For CS-23 they are:

- The materials shall be adequate for the scope (CS 23.603);
- The components shall be suitable for the operating environment of the aeroplane (CS 23.1301, CS 23.1351, CS 23.1309);
- The components shall be properly sized and work properly (CS 23.1351, CS 23.1365) and
- In case of failures or malfunctions the Hazards shall be properly addressed (CS 23.1301, CS 23.1351, CS 23.1309).
- Emergency procedures for the safe operation of the aeroplane's systems and equipment, both in normal use and in the event of malfunction, must be developed (CS 23.1585). Procedures for smoke in the cabin are typically developed to address the failure of electrical components.

The above requirements have been reviewed by EASA and are considered adequate to ensure the safety of the occupants in case of failure of the capacitors.

Status: Closed – **Category**: Agreement

United Arab Emirates

Registration	Aircraft Type	Location	Date of event	Event Type
A6-EHF	AIRBUS A340	900 NM WSW Singapore	03/02/2013	Serious incident

Synopsis of the event:

On 2 February 2013, an Airbus A340-600 Aircraft, registration A6-EHF, operating a scheduled passenger flight to Melbourne International Airport, Australia, departed Abu Dhabi International Airport at approximately 1935 UTC. There were a total of 295 persons onboard: 4 flight crew members, 13 cabin crew and 278 passengers..The captain was the pilot flying (PF) and the first officer was the pilot monitoring (PM).

While cruising at FL350, just leaving the Colombo FIR and entering the Melbourne FIR, the Aircraft encountered moderate to heavy turbulence, and experienced significant airspeed oscillations on both the captain's and the standby airspeed indicators. The autopilot, autothrust, and flight directors disconnected automatically. The flight control law changed from "Normal" to "Alternate" Law, leading to the loss of some flight mode and flight envelope protections. Changes from Normal to Alternate Law occurred twice; thereafter the Aircraft remained in Alternate Law until the end of the flight. The autothrust system and the flight directors were successfully re-engaged, however, neither autopilot (autopilots 1 or 2) could be re-engaged, thus the Aircraft was flown manually until landing. In addition to the system anomalies, the Aircraft experienced high N1 vibration on the No. 2 engine.

As the Aircraft had lost capability to maintain Reduced Vertical Separation Minima (RVSM) the flight crew decided to divert to Singapore, Changi International Airport. The diversion required the flight crew to dump fuel in order to land the Aircraft below its maximum landing weight.

The landing was uneventful and none of persons onboard were injured.

Safety Recommendation UNAR-2015-042 (AIB)

The European Aviation Safety Agency (EASA) should consider mandating the qualification aspects of the pitot probes in icing conditions to meet the new requirements of CS-25, Amendment 16, for forward fitting to aircraft in production and for retrofitting to aircraft already in service. [SR 42/2015]

Reply

EASA has decided to mandate the qualification aspects of the pitot probes in icing conditions to meet the new requirements of CS-25, Amendment 16 for all new Type Certificate application received after January 1st, 2010 by a mean of a Special Condition. EASA has mandated via AD 2009-0195 and AD 2015-0205 Goodrich Pitot probes on all Airbus Long Range A330/A340 (retrofit completed) and all Airbus Single Aisle aircraft A318-A321 (which should be retrofitted by November 2016). On those types, Goodrich pitot probes are today the most robust probes in operation according to EASA data.

New pitot probes are under development by Airbus and its suppliers for the A300 A310 A318-A321 A330 A340 and are not certified yet. These new probes will comply with qualification aspects of the pitot probes in icing conditions to meet the new requirements of CS-25, Amendment 16. These new probes will be subject to an operational probation period of at least 6 months to check their in-service performance. Following this probation period, AD 2009-0195 and AD 2015-0205 may be amended to offer new probe standards as a terminating action.

Forward fit and retrofit policies of these new probes are still under evaluation.

Status: Open – **Category**:

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
OHO STUDY			#Missing#	

Synopsis of the event:

"Strategic Safety Review of Offshore Public Transport Helicopter Operations in Support of the Exploitation of Oil and Gas"

Offshore helicopter services provide a vital link to ensure the viability of the UK's oil and gas industry. They transfer the majority of the workforce to and from offshore installations in an open sea environment that is both challenging and hazardous.

Recent accidents have understandably given rise to serious concerns, particularly with offshore workers who rely so heavily on these helicopter flights. We therefore initiated this review in September 2013 to examine thoroughly the risks and hazards of operating in the North Sea and consider how these can be managed more effectively.

The CAA decided to conduct the review in conjunction with the Norwegian Civil Aviation Authority (NCAA) and the European Aviation Safety Agency (EASA) so that a comparison could be made of any safety or operational differences. An independent peer review group was appointed to challenge the work of the review team to ensure that the objectives of the review were appropriate and being met.

In gathering evidence for the review we have engaged with employee representative groups of pilots and the offshore workforce, the oil and gas industry, helicopter operators, manufacturers, government and regulatory bodies and other experts in the field, as well as analysing available data and reports.

There were a total of 25 UK offshore helicopter accidents between 1992 and 2013, equating to 1.35 accidents per 100,000 flying hours; seven involved fatalities. Whilst the collective aim is to prevent accident occurrence, it is unrealistic to expect they can be eliminated altogether. Therefore, the protection of passengers and crew following an accident formed an essential part of the review.

Safety Recommendation UK.CAA-2014-001 (CAA)

It is recommended that EASA leads the development of a management system that provides a structured review of all accident and serious incident reports and recommendations of helicopters operating offshore or events which could have led to a ditching if the helicopter had been over water. This should be done in collaboration with other North Sea NAAs and the CAA to ensure a cohesive assessment of both accident causes (looking for trends) and remedies (looking for suitability and effectiveness) in order to prevent the segregated nature of accident reviews and ensure there is continuity to the safety reviews [R1].

Reply

In the frame of the Safety Risk Management (SRM) process, EASA has established the Helicopter Accident Data Collaboration and Analysis Group (HADCAG), which takes its membership from relevant National Aviation Authorities, Safety Investigation Authorities, Operators, Manufacturers and other associations. The HADCAG has a clear role to support the development of safety risk portfolios, to cover the full range of helicopter operations. The tasks of the HADCAG include reviewing the analysis of all relevant safety data (including the causes and contributory factors from accidents and serious incidents) to support the strategic risk assessments that form the basis of the Sector Safety Risk Portfolios.

In November 2014 the HADCAG Offshore Sub-Group (which involved the UK CAA/ UK AAIB and CAA Norway as well as operators and manufacturers) performed an initial analysis of Offshore Helicopter Accidents and Serious Incidents. The results of this analysis have been used as the basis for the development of an Offshore Helicopter Safety Risk Portfolio, which has been validated by the HADCAG Offshore Sub-Group and the EASA Safety Risk Panel. The Offshore Helicopter Safety Risk Portfolio is published in the EASA Annual Safety Review 2014, available on the EASA website. As part of the SRM process, this Safety Risk Portfolio will be continually assessed and updated to incorporate any new information that becomes available. This ensures that the effectiveness of actions are continually monitored and provides the long term continuity in the management of Offshore Helicopter Safety.

Status: Closed – **Category**: Agreement

Safety Recommendation UK.CAA-2014-003 (CAA)

It is recommended that EASA introduces procedures to monitor and track the efficiency and reliability of maintenance interventions when these are used during the certification activity to assure the safety target of the rotorcraft [R3].

Reply

The Agency agrees with the safety recommendation and addressed it through two different certification memorandums:

- CM-S-007 introducing post certification actions to verify the continued integrity of critical parts.

The actions highlighted in the CM-S-007 will support development of procedures in compliance with CS 29.602, such that critical parts are controlled throughout their service life in order to maintain the critical characteristics on which certification is based. This addresses the effectiveness of any associated design, maintenance and monitoring provisions which have been used during the certification activity to assure the safety target of the rotorcraft.

- CM-RTS-002 introducing guidance for development of Time Between Overhaul for rotorcraft gearboxes.

The validation plan highlighted in the CM-RTS-002 will generate regular feedback on the condition of gearboxes at overhaul, confirming the efficiency and reliability of maintenance interventions that were identified as part of the design assessment during certification activity.

Status: Closed – **Category**: Agreement

Safety Recommendation UK.CAA-2014-020 (CAA)

It is recommended that EASA / Type Certificate Holder confirm the number of false engine fire warnings on offshore helicopters, investigate the reasons for them and determine what actions to take to address this important safety issue [R20].

Reply

The CAP1145 report mentions that the subject is targeted to two rotorcraft types: Super Puma and the S-92.

For the Super Puma (EC225 and AS332), EASA, as the primary certification authority, has worked with the Type Certificate Holder to confirm the number of false engine fire warnings on offshore helicopters, investigate the reasons for them and determine what actions to take to address this safety issue.

This work resulted in the following Service Bulletins and the associated design changes made by Airbus Helicopters (AH) and Turbomeca. In particular, Turbomeca has made modifications to the fire detectors, the wiring harness' and the detectors installation. Airbus Helicopters have made modifications to the acquisition cards.

- Fire detectors improvements:
  - Service Bulletin (SB): At Makila2 Engine level: SB 298 26 2057 + SB 298 26 2816 or SB 298 26 2066
  - Design change: TU 57 modified fire detector washers/nuts or TU 66 tight fire detectors

SB No. 298 26 2057: "Modification of the washers/nuts on the fire detector terminals. Application of modification TU 57". The purpose of this modification is to improve electrical continuity at the wire connections on the fire detector terminals by replacing the tooth lockwashers with flat washers. Nuts are replaced with self-locking nuts to prevent them from loosening during operation. This modification is integrated in modification TU 66 and is also available via this modification.

SB No. 298 26 2816: "Improved reliability of the fire detection system". This SB consists of performing different electrical checks on the fire detectors before the first application of CAF 33 sealing compound. Then the SB calls for applying CAF 33 to the terminals and mica seal of the 6 fire detectors to improve their sealing properties.

SB No. 298 26 2066: "Addition of silicon elastomer inside the fire detectors. Application of modification TU 66". To improve sealing of the fire detectors, the internal sections of the fire detector head are coated with silicon elastomer in the factory. Once this modification has been applied, it is no longer necessary to apply CAF 33 around the mica seal of post TU 66 fire detectors. This reduces the maintenance procedures to be performed on the detectors. This clarification will be integrated in the next update of SB No. 298 26 2816. This modification integrates modification TU 57 and requires the previous application of modification TU 63.

- Wiring harness improvements:
  - Service Bulletin: At Makila2 Engine level: SB 298 26 2065
  - Design change: TU 65 new fire harness

Reply

SB No. 298 26 2065: "New fire detector. Application of modification TU 65". This new fire detector is reinforced by a short section of PTFE-based sheath inserted between the fire harness wires and tube. This modification makes it unnecessary to apply sealing compound between the harness wires and tube gutters (called for in SB No. 298 26 2816). In addition to this new design, the fire harness routing has been modified between the connection socket and the first detector in order to avoid the hot areas near the linking casing vents.

- Detectors installation improvements:
  - Service Bulletin: At Makila2 Engine level: SB 298 72 2058 + SB 298 72 2063
  - Design change: TU 58 new fire detector support + TU 63 fire detector damping in cold area

SB No. 298 72 2058: "New fire detector support. Application of modification TU 58". This allows the vibration environment of the fire detector between modules M02 and M03 to be changed (fire detector located near the bleed valve). Application of this modification allows the electrical signal interference to be significantly reduced in the fire detection system (interference correlated with detector triggering).

SB No. 298 72 2063: "Installation of fire detector supports in cold area with dynamic stress damping. Application of modification TU 63". This modification introduces dampers between the cold area fire detectors and their supports. Therefore dynamic stresses on the detectors are significantly reduced. This allows the risks of unexpected triggering caused by vibrations to be significantly reduced. The introduction of self-locking nuts makes it unnecessary to lock the fire detector screws with lockwire.

- Acquisition card improvements:
  - Service Bulletin: Airbus Helicopters corrective actions at EC225 aircraft level: SB EC225-26-004
  - Design change: MOD 07.26837

SB EC225-26-004 "Evolution of engine and MGB fire detection system logic": This introduces an upgrade to the fire detection boards (corresponding to modification 07.26837). This modification consists of replacing the boards X6 and Y6 in the board rack with 2 new boards integrating new detection thresholds. This enables indication of drifts and implementation of precautionary maintenance operations, in order to prevent false fire indications from appearing in flight. Note that other modifications are related to the MGB.

It has been ascertained that the Super Puma fleet false fire warnings (FFW) have occurred throughout a significant period of time; these have been subject to several fixes (as above discussed) in the time between 2011 and 2012. While the FFW could not be classified as unsafe, a high frequency of them would not be acceptable on the Super Puma for several reasons (generating lack of confidence, additional workload, hiding a real albeit remotely probable fire occurring when the flag went OFF). No further FFW reports have been reported by AH since 2013; it is deemed that the actions progressively taken have satisfactorily addressed the issue and no further actions are considered necessary to date. However the Agency will monitor occurrence reported, to assess the need for reopening the case.

For the Sikorsky S-92A, the number of false engine fire warnings on UK offshore helicopters (Bond, CHC and Bristow) were provided by CAA and analysed by the Agency. EASA worked with the Federal Aviation Administration (FAA) who is the primary certification authority for the type, in order to get the Type Certificate Holder (Sikorsky) investigating the reasons for the false engine warnings, their rate, and determine what actions to take. The technical reason for the issue has been identified and as a result, Sikorsky redesigned stiffened fire detector brackets.

A number of stiffening kits were distributed to UK (and other worldwide) operators for installation tests on their fleet in early 2015. This has proven to be successful as no further false alarms have been reported since, with accumulation of more than 6000 hrs on the fleet so modified. While this is being monitored, Sikorsky is working on an Alert Service Bulletin to require the modification fleet wide.

Although such false warnings on the S-92 are not per se considered an unsafe condition (per the Rotorcraft Flight Manual, the pilot still has to confirm the alarm with additional cues like smoke etc.), a high frequency is not acceptable for several reasons (similar to the Super Puma). For this reason the FAA has identified their intention to mandate the bulletin via an Airworthiness Directive (AD).

Status: Closed – **Category**: Agreement

Safety Recommendation UK.CAA-2014-022 (CAA)

It is recommended that EASA initiate a rulemaking task to adopt the critical parts life monitoring and assessment requirements of Certification Specifications for Engines (CS-E) for large transport rotorcraft, currently subject to CS-29, including retrospective application. This should cover at least for the following areas:

i. Residual stress assessments

ii. Vibratory stress measurements

iii. Manufacturing plan

iv. Laboratory examination of time expired part

[R22]

Reply

EASA has reviewed the CS-29 and CS-E for large transport rotorcraft requirements from the perspective of the suggested areas, and the findings are as follows:

- Residual stress assessments

The current CS-29 Book 1 requirements already provide standards for fatigue tolerance evaluation of critical parts, including a threat assessment, life limit definition, inspection interval and inspection method definition. The fatigue evaluation process required by CS 29.571 includes substantiation of flaw tolerance which is meant to show that residual stress levels will not compromise the integrity of the component, even when subject to flaws as identified in the threat assessment. The expectation in all means of compliance is that the inherent characteristics of the parts that affect fatigue behaviour are accounted for; including material processes or finishes that create residual stress. Nonetheless, residual stress is not explicitly mentioned in FAA Advisory Circular (AC) 29.571 and EASA concludes that it would be beneficial for it to be accounted for in the AC 29.571. EASA has proposed to the FAA the introduction of residual stress in AC 29.571 referenced in CS-29 Book 2.

- Vibratory stress measurements

Vibratory stress is considered for all high and low cycle fatigue assessment. The alternating loads or stress levels in critical components are measured and correlated during flight test campaigns according to test plans established in the certification process as part of the means of compliance with CS 29.571.

From AC 29.571, the fatigue evaluation requires consideration of the stress during operating conditions, operating spectrum or frequency of occurrence and in-flight measurement to determine the loads and stresses (steady and oscillatory) in all critical conditions. Usage spectrum, steady state, transient, and vibratory flight load are considered to be representative of expected GW/CG mission configurations.

- Manufacturing plan

With respect to manufacturing plans, CS 29.605 requests applicants to develop an approved process specification for all fabrication methods. In addition, the determination of the critical characteristics, procedures and processes for manufacturing critical parts are requested by CS 29.602. For example, from the guidance of AC 29.602, the material source, forging procedures, machining operations and sequences, inspection techniques, as well as acceptance and rejection criteria. Any changes to the manufacturing procedures, to the design of a critical part, to the approved operating environment, or to the design loading spectrum are evaluated to establish the effects, if any, on the fatigue evaluation of the part.

Reply

- Laboratory examination of time expired part

CS-E 515 requires an Engineering Plan, a Manufacturing Plan and a Service Management Plan. These three plans define a closed-loop system which link the assumptions made in the Engineering Plan to how the part is manufactured and maintained in service. AC 29.602 explicitly states that "The objective of identifying critical parts is to ensure that critical parts are controlled during design, manufacture, and throughout their service life so that the risk of failure in service is minimized by ensuring that the critical parts maintain the critical characteristics on which certification is based." Furthermore, the AC states that the Instruction for Continuing Airworthiness (ICA) should "Require notification of the manufacturer of any unusual wear or deterioration of critical parts and the return of affected parts for investigation when appropriate".

Nonetheless, in order to ensure the system is a "closed-loop", EASA has published the certification memorandum CM-S-007 detailing the need for post certification actions to verify the continued integrity of Critical Parts.

The Agency believes that the above-mentioned elements ensure that critical parts are monitored and controlled throughout their service life in line with the requirements of CS 29.602, with no need for the initiation of a dedicated Rulemaking Task.

Status: Closed – **Category**: Partial agreement

Safety Recommendation UK.CAA-2014-024 (CAA)

It is recommended that EASA provide additional guidance material to improve standardisation in approach to the classification of critical parts to minimise inconsistencies in the instructions for continuing airworthiness and where appropriate to require revisions to existing Instructions for Continued Airworthiness [R24].

Reply

EASA acknowledges that the current Book 2 of CS-29 refers to AC 29.602, which provides flexibility with regards to the critical parts identification process, however EASA considers that this has not resulted in inconsistencies in the Instruction for Continued Airworthiness (ICA) that would require revision.

Regarding the classification of critical parts, from this AC 29.602, it is recognised that rotorcraft manufacturers having already procedures in place within their companies may have slightly different definitions of critical parts (names and terminology). These procedures have been accepted as providing the expected level of safety. In general, the current guidance material regarding classification of critical parts and associated approaches taken by the Type Certificate Holder (TCH) have shown to be effective. In fact, experience shows that changes or more stringent standardisation in the classification process of critical parts would not have prevented recent European CS-29 accidents, involving mechanical parts failure, as the associated parts were already classified "Critical Parts".

Moreover, more stringent standardisation of critical parts classification that encompassed operational considerations (like operational environment) would then very significantly increase the number of Critical Parts installed on a CS-29 Rotorcraft and eventually result in a very significant heightening in costs without an appreciable increase in safety benefits.

Regarding the inconsistencies in ICA, EASA performed a review of several models from three different manufacturers (EC 225LP; EC 175; AW139; AW 189; S76; and S92) mainly related to helicopter models currently in use in off-shore operations.

Reply

From the three, TCHs investigated and related to the different models listed above, all points from the current guidance material (AC 29.602) are clearly addressed and identified appropriately in the ICAs of all programmes, except for the Sikorsky S92 ICA, which partially cover AC 29.602 elements. This difference in the Sikorsky S92 ICA was discussed with the TCH during a continued airworthiness meeting on 12 October 2015. Sikorsky acknowledges that the current S92 ICA do not address Critical Parts as comprehensively as the S76 ICA and will review this subject accordingly.

Differences found in the Sikorsky S92 ICA are considered specific to the S 92 model (S76 being not impacted) and are being addressed at the S92 project level.

EASA's review neither highlighted any standardisation issue within the current guidance material nor provided justification for requesting TCHs to change their current critical parts classification procedures.

Status: Closed – **Category**: Disagreement

Safety Recommendation UK.CAA-2014-025 (CAA)

It is recommended that EASA consider developing requirements that could be applied to helicopters which carry out Offshore Operations in hazardous environments in a similar fashion to those used for aeroplane Extended Operations and All Weather Operations [R25].

Reply

The Agency agreed with the content of the safety recommendation and addressed it by evaluating the potential benefits of developing requirements that could be applied to helicopters carrying out Offshore Operations in hostile environments, similarly to those used for aeroplane Extended Operations and All Weather Operations. The evaluation was performed by a group of experts and resulted in a discussion paper on the "Potential Safety Benefit from Establishing a Minimum Diversion Capability for Helicopter Offshore Operations". This Paper was sent to the UK CAA in September 2015.

It is evident from service experience that a large proportion of the airworthiness risk of a rotorcraft relates to the critical parts in the Rotor System (including controls) and Rotor Drive System. Typical helicopter Rotor and Rotor Drive System designs, as defined and addressed by CS 29.547 and CS 29.917, contain single hazardous and catastrophic failure modes which would not benefit from an Extended-range Twin-engine Operation Performance Standards (ETOPS) approach, as the likelihood of occurrence of these failures should already have been minimised by compliance with those requirements.

EASA's review of this subject has considered;

1. Engine reliability: Typical In-Flight Shut Down (IFSD) rates for turboshaft engines are around 1 x 10-5 per hour. This achieves an acceptable safety target for the risk of dual engine failure for helicopter operations as the duration necessary to reach a safe landing site is usually less than 1 hour.
2. Non-engine related failures: These can be compared with ETOPS Significant Systems (ETOPSSS) Group 2, which are systems that do not relate to the number of engines on the aeroplane, but are important to the safe operation of the aeroplane on an ETOPS flight. Typical helicopter failures that might be considered similar to this category would include, engine (or APU) fire, gearbox loss of oil, batteries for main power or essential instrumentation and possibly tail rotor drive system failure.

Reply

The conclusion is that ETOPS principles could be applied to helicopter designs. However, the ETOPSSS Group 2 type systems that would be impacted are limited in number. EASA considers that airworthiness related action to improve safety would be better managed by addressing these systems individually through dedicated requirements on the grounds that each of these systems possess unique characteristics affecting risk of occurrence, methods of mitigation and potential for increased duration prior to landing.

Another significant aspect of the ETOPS philosophy is that it considers a mission related risk which can be met by adapting maintenance, MEL and operating limitations (including duration) for each flight depending upon the capability of the aircraft design and operating conditions (including availability of a safe landing site). There may be scope for application of this type of approach for offshore helicopter operations; however, EASA considers that review of service experience doesn't justify rulemaking for application of these principles for helicopter offshore operations at this time.

Status: Closed – **Category**: Partial agreement

Safety Recommendation UK.CAA-2014-027 (CAA)

It is recommended that EASA review AMC 29.1465 to clarify alert generation and management, to ensure it is consistent and a system of amber/red warning thresholds is established to allow maintenance staff to identify the severity of the alert [R27].

Reply

EASA has reviewed the guidance provided in AMC 29.1465 on vibration health monitoring, as published in CS 29 Amdt 3, and agrees that further guidance on the prioritisation of Alerts would be beneficial. Therefore, EASA has published a Certification Memorandum on "Vibration Health Monitoring: Prioritisation of Maintenance Alerts" (Reference CM-DASA-001 Issue 01). This CM provides guidance regarding prioritisation of Alerts and allows also standardisation of the use of colours in relation to urgency and importance of subsequent investigation and associated maintenance action.

Status: Closed – **Category**: Agreement

Registration	Aircraft Type	Location	Date of event	Event Type
G-UKFI	FOKKER F28	Manchester Airport	01/04/2002	Serious incident

Synopsis of the event:

During taxi for takeoff at Manchester International Airport, the aircraft passenger cabin filled with smoke and an emergency evacuation of the aircraft was carried out. The evacuation was carried out expeditiously, but the cabin crew had difficulty opening the Galley Service Door and some passengers using the overwing escape hatches were unsure of how to descend to the ground. The smoke had originated from a damaged Auxiliary Power Unit (APU), which had allowed oil from the unit to leak into the bleed air system.

Safety Recommendation UNKG-2002-042 (AAIB)

The CAA and JAA should review the design, contrast and conspicuity of wing surface markings associated with overwing emergency exits on all relevant Public Transport aircraft, with the aim of ensuring that the route to be taken from the wing to the ground is marked unambiguously.

Reply

The Agency examined this event and another event subject to the same safety recommendation (Embraer ERJ 190-200 LR, G-FBEH, 01/08/2008).

The two AAIB reports highlighted that some passengers were confused because they expected to find a slide at the wing trailing edge.

In addition, the Agency considered the report dated Dec 2009 of 'Study on CS-25 Cabin Safety Requirements' (Project EASA.2008.C18), a study commissioned by the Agency. The aim of this study was to identify both current Cabin Safety threats as experienced in aircraft accidents and future threats that may result from changes in technology. Recommendation have been made on potential changes to airworthiness requirements and research areas. The report did not identify any issue concerning the markings of overwing emergency exits.

Based on this analysis, the Agency could not justify changing the existing specifications of CS 25.810(c) on markings of overwing emergency exits.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
N90AG	BOMBARDIER CL600 2B19	Birmingham Airport	04/01/2002	Accident

Synopsis of the event:

Immediately after takeoff from Runway 15 at Birmingham International Airport the aircraft began a rapid left roll, which continued despite the prompt application of full opposite aileron and rudder. The left winglet contacted the runway shoulder, the outboard part of the left wing detached and the aircraft struck the ground inverted, structurally separating the forward fuselage. Fuel released from ruptured tanks ignited and the wreckage slid to a halt 2 on fire; the Airport Fire Service was in attendance less than 1 minute later. The accident was not survivable.

Safety Recommendation UNKG-2003-060 (AAIB)

It is recommended that the FAA and JAA review the current procedural approach to the pre takeoff detection and elimination of airframe ice contamination and consider requiring a system that would directly monitor aircraft aerodynamic surfaces for ice contamination and warn the crew of a potentially hazardous condition.

Responsibility has passed to EASA, recommendation should be addressed to the Agency.

Reply

Mandating the installation of a system which monitors aircraft aerodynamic surfaces for ice contamination in the frame of on-ground pre-takeoff detection is not envisaged by the Agency. Indeed, available, or under development, sensor technologies are not deemed suitable as they cannot monitor all sensitive aerodynamic surfaces of the aeroplane, and therefore the existing methods of inspection would still be needed. These technologies are rather adapted to monitor a limited area and therefore can be used in-flight to detect icing conditions, or first signs of ice accretion, to support the activation of ice protection systems.

The Agency has decided to launch a rulemaking task RMT.0118 (previously designated as 25.074) with the objective to propose new Certification Specifications for Large Aeroplanes (CS-25) provisions which will require applicants to perform an analysis of the on-ground wings contamination effect on takeoff performance degradation.

The applicant would have to demonstrate that the effect on takeoff performance degradation is not hazardous. If a hazardous effect is possible, then measures shall be put in place to alleviate the risk, which may include a system that monitors the aircraft aerodynamic surfaces.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
G-BXKD	AIRBUS A320	London Gatwick Airport, West Sussex	15/01/2005	Incident

Synopsis of the event:

The left nose wheel detached from the aircraft during the takeoff from London (Gatwick) Airport. Airport staff saw the wheel fall off and the flight crew were notified by Air Traffic Control (ATC). After holding for two hours, to burn off fuel and reduce the landing weight, the aircraft landed safely at Gatwick.

Safety Recommendation UNKG-2005-074 (AAIB)

For newly manufactured aircraft, the European Aviation Safety Agency should require that no single electrical bus failure terminates the recording on both cockpit voice recorder and flight data recorder.

Reply

This safety recommendation is considered within the framework of EASA rulemaking task RMT.0249 entitled “Recorders installation and maintenance thereof - certification aspects”, whose Terms of Reference were published on 18 September 2014 on the EASA website.

RMT.0249 is dealing with new or revised aircraft certifications specifications (i.e. applicable to new designs). The general objective of this rulemaking task is to improve the availability and quality of data recorded by flight recorders in order to better support safety investigation authorities in the investigation of accidents and incidents. One of the specific objectives is to “increase the robustness of flight recorders to a loss of power supply”.

Regarding potential requirements applicable to existing designs, this will be considered in the framework of EASA rulemaking task RMT.0308 entitled “Amendment of requirements for data recorders II”.

Status: Open – **Category**:

Safety Recommendation UNKG-2005-075 (AAIB)

For newly manufactured aircraft, the European Aviation Safety Agency should require that the cockpit voice recorder and cockpit area microphone are provided with an independent 10 minute back-up power source, to which the cockpit voice recorder and cockpit area microphone are switched automatically, in the event that normal power is interrupted.

Reply

Regarding backup power for the Cockpit Voice Recorder (CVR), the more flexible concept of 'alternate power source' has been recognised by flight recorder experts and it has replaced the concept of 'recorder independent power supply' in both EUROCAE Document 112A (performance specifications for crash-protected airborne recorders) and ICAO Annex 6 Part I (International commercial air transport operations with aeroplanes).

This safety recommendation is considered within the framework of EASA rulemaking task RMT.0249 entitled "Recorders installation and maintenance thereof - certification aspects", whose Terms of Reference were published on 18 September 2014 on the EASA website.

RMT.0249 is dealing with new or revised aircraft certifications specifications (i.e. applicable to new designs). The general objective of this rulemaking task is to improve the availability and quality of data recorded by flight recorders in order to better support safety investigation authorities in the investigation of accidents and incidents. One of the specific objectives is to "increase the robustness of flight recorders to a loss of power supply".

Regarding potential requirements applicable to existing designs, this will be considered in the framework of EASA rulemaking task RMT.0308 entitled "Amendment of requirements for data recorders II".

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
VP-CRC	BOMBARDIER BD700 1A10	London Luton Airport	29/01/2008	Accident

Synopsis of the event:

Following an extended period of heavy rain, VP-CRC took off from a dry runway for a long-range flight to London Luton Airport. During the subsequent landing roll, the left inboard main landing gear tyre suffered a slide-through failure resulting from an initially locked wheel. This tyre failure caused extensive damage to the flight control system. Although the aircraft landed safely, the investigation revealed a significant flight safety risk and four Safety Recommendations are made.

Safety Recommendation UNKG-2008-074 (AAIB)

It is recommended that the Federal Aviation Administration and the European Aviation Safety Agency review the certification requirements for automatically stopping flight recorders within 10 minutes after a crash impact, with a view to including a specific reference prohibiting the use of `g` switches as a means of compliance as recommended in ED112 issued by EUROCAE Working Group 50.

Reply

EUROCAE Document 112 revision A (entitled "Minimum Operational Performance Specification for Crash Protected Airborne Recorder Systems") was published in September 2013. The provisions of this standard regarding the use of "g" switches to stop a recorder after an accident have been updated. Instead of completely banning its use, ED-112A recommends that this type of sensor shall not be used as sole means of detection. EASA intends to propose amending the applicable regulations accordingly.

Concerning new designs, EASA rulemaking task RMT.0249, entitled "Recorders installation and maintenance thereof - certification aspects", will propose new or revised Certification Specifications. The Terms of Reference of RMT.0249 were published on 18 September 2014 on the EASA website, and refer to this safety recommendation. The general objective of this rulemaking task is to improve the availability and quality of data recorded by flight recorders in order to better support safety investigation authorities in the investigation of accidents and incidents. One of the specific objectives is to "prevent premature termination of recording due to the triggering of a negative acceleration sensor".

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
G-OJMC	AIRBUS A330	Sangster International Airport, Montego Bay	28/10/2008	Serious incident

Synopsis of the event:

Due to an error in the takeoff performance calculations, incorrect takeoff speeds were used on departure. On rotation, the aircraft initially failed to become airborne as expected, causing the commander to select TOGA power. The aircraft then became airborne and climbed away safely. Whilst the investigation could not identify the exact source of the error, deficiencies were revealed in the operator's procedures for calculating performance using their computerised performance tool.

Safety Recommendation UNKG-2009-080 (AAIB)

It is recommended that the European Aviation Safety Agency develop a specification for an aircraft takeoff performance monitoring system which provides a timely alert to flight crews when achieved takeoff performance is inadequate for given aircraft configurations and airfield conditions.

Reply

A EUROCAE Working Group (WG-94) was convened in 2012, at the request and with the participation of EASA, with the aim to undertake preparative work to establish the feasibility of the development of (a) EUROCAE standard(s) defining the requirements for a Take Off Performance Monitoring System (TOPMS) that will provide a timely alert to flight crew when the achieved take off performance is inadequate for the given aircraft configuration and aerodrome conditions.

WG-94 issued their report in February 2015, concluding that the development of standards to define performance requirements and operational conditions for TOPMS is not possible at the moment. This is due to a multitude of factors, including the maturity of the technology, a lack of real-time data (e.g. environmental parameters, runway conditions, airport databases, etc) and/or suitable aeroplane performance models, a lack of consensus in design criteria and testing methods. WG-94 activity is therefore terminated. However, it is recognised that the industry will continue investigating technical solutions and this will be monitored. A reactivation of this WG or a new activity may be launched at a later date.

Reply

Nevertheless, other actions have been launched to mitigate the safety risk of using or computing wrong aeroplane take-off performance data.

First, concerning the operational approval of Electronic Flight Bags, the Acceptable Means of Compliance (AMC) 20-25 dated 09 February 2014 includes detailed guidelines for the operational evaluation which will improve the protection against the risk of take-off performance calculation errors.

Paragraph D.3.2 of Appendix D to AMC 20-25, entitled 'Performance applications and mass & balance calculations' has different provisions to maximise the clarity of data input and output, and to minimise the risk of errors. For example, a paragraph is dedicated to the risk of errors which exists when making modifications to a previous performance calculation:

"The user should be able to modify performance calculations easily, especially when making last minute changes.

Calculation results and any outdated input fields should be deleted:

(a) when modifications are entered;

(b) when the EFB is shut down or the performance application is closed; and

(c) when the EFB or the performance application have been in a standby or 'background' mode long enough, i.e. such that it is likely that when it is used again the inputs or outputs are outdated."

Finally, another potential means which can contribute to mitigate take-off performance data errors is the concept of on board weight and balance system (OBWBS). After a positive feasibility study, a EUROCAE Working Group (WG-88), with participation of EASA, is now working to prepare Minimum Operational Performance Specifications (MOPS). When the MOPS is delivered, the Agency aims to launch a rulemaking activity to propose mandating the installation of OBWBS.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
G-FBEH	EMBRAER ERJ190	40 nm NW of Wallesey, en route from Manchester to Belfast City	01/08/2008	Serious incident

Synopsis of the event:

The aircraft was operating a scheduled passenger transport flight with the No 2 air conditioning pack inoperative, as permitted by the Minimum Equipment List (MEL). Whilst en route, a failure of the No 1 Air Cycle Machine (ACM) occurred, releasing smoke and fumes into the aircraft. A MAYDAY was declared and an expeditious diversion was carried out. After donning oxygen masks the pilots had great difficulty communicating with each other, ATC and cabin crew, because of technical problems with the masks. During the emergency evacuation the right overwing emergency exit door became jammed and unusable. Passengers who evacuated via the left overwing exit were unaware of how to get from the wing down to the ground.

Safety Recommendation UNKG-2010-007 (AAIB)

It is recommended that the European Aviation Safety Agency review the design, contrast and conspicuity of wing surface markings associated with emergency exits on Public Transport aircraft, with the aim of ensuring that the route to be taken from wing to ground is marked unambiguously.

Reply

The Agency examined this event and another event subject to the same safety recommendation (Fokker F28, G-UKFI, 01/04/2002).

The two AAIB reports highlighted that some passengers were confused because they expected to find a slide at the wing trailing edge.

The Agency considered the report dated Dec 2009 entitled 'Study on CS-25 Cabin Safety Requirements' (Project EASA.2008.C18), a study comissioned by the Agency. The aim of this study was to identify both current Cabin Safety threats as experienced in aircraft accidents, and future threats that may result from changes in technology. Recommendations have been made on potential changes to airworthiness requirements and research areas. The report did not identify any issue concerning the markings of over-wing emergency exits.

Based on this analysis, the Agency could not justify changing the existing specifications of CS 25.810(c) on markings of overwing emergency exits.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
G-CJCC	CESSNA 680	London Luton Airport	30/09/2010	Serious incident

Synopsis of the event:

The crew experienced an uncommanded transfer of fuel from the right to the left fuel tank after following the checklist procedures for a left main electrical bus fault indication. The aircraft subsequently became left wing heavy and exceeded the lateral imbalance limits. It returned to Luton Airport where a flapless landing was completed without further incident.

Safety Recommendation UNKG-2011-027 (AAIB)

It is recommended that the European Aviation Safety Agency review their certification requirements, guidance and procedures to ensure that controlled documentation, sufficient to satisfy operator flight data recorder documentation requirements, are explicitly part of the type certification and supplemental type certification processes where flight data recorder installations are involved.

Reply

As a temporary measure, the Agency updated Safety Information Bulletin (SIB) 2009-28, Flight Data Recorder and Cockpit Voice Recorder Systems Serviceability (Revision 1, published on 08 January 2015). SIB 2009-28 Revision 1 recommends that 'the TC or STC Holder should provide the necessary information to convert FDR raw data into flight parameters expressed in engineering units.'

In addition, SIB 2009-28 Revision 1 recommends that National Aviation Authorities transmit to the Agency reports from aircraft operators of cases where a TC or STC holder fails to provide the information needed by an aircraft operator to comply with Commission Regulation (EU) No 965/2012. Annex IV to this Regulation requires in paragraph CAT.GEN.MPA.195 that the aircraft operator 'keeps and maintains up-to-date documentation that presents the necessary information to convert FDR raw data into parameters expressed in engineering units.'

Reply

Furthermore, this safety recommendation is considered within the framework of EASA rulemaking task RMT.0249 entitled "Recorders installation and maintenance thereof - certification aspects", whose Terms of Reference were published on 18 September 2014 on the EASA website.

The general objective of this rulemaking task is to improve the availability and quality of data recorded by flight recorders in order to better support safety investigation authorities in the investigation of accidents and incidents. One of the specific objectives is "optimise data recovery and analysis process by adding provisions to clearly establish the (Supplemental) Type Certificate applicant's obligation to provide the necessary information to convert FDR raw data into engineering units, as well as maintenance procedures".

Status: Open – **Category**:

Safety Recommendation UNKG-2011-029 (AAIB)

It is recommended that the European Aviation Safety Agency provides guidance detailing the standards for the flight data recorder documentation required for the certification of systems or system changes associated with flight data recorders.

Reply

The Agency accepted to improve the certification specifications to better indicate that the TC (or STC) holder has to provide adequate FDR documentation to the operator or owner of the aircraft.

This subject is part of rulemaking task RMT.0249 entitled "Recorders installation and maintenance thereof - certification aspects", whose Terms of Reference were published on 18 September 2014 on the EASA Website.

In this framework, the Agency will also review the existing FDR documentation standards and will provide guidance in the Certification Specifications. A reference to this safety recommendation has been included in the Terms of Reference of RMT.0249.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
G-REDL	AEROSPATIALE AS332	11 miles NE Petershead (Offshore)	01/04/2009	Accident

Synopsis of the event:

The accident occurred whilst the helicopter was operating a scheduled passenger flight from the Miller Platform in the North Sea, to Aberdeen. Whilst cruising at 2,000 ft amsl, and some 50 minutes into the flight, there was a catastrophic failure of the helicopter's Main Rotor Gearbox (MGB). The helicopter departed from cruise flight and shortly after this the main rotor and part of the epicyclic module separated from the fuselage. The helicopter then struck the surface of the sea with a high vertical speed.

Safety Recommendation UNKG-2011-045 (AAIB)

It is recommended that the European Aviation Safety Agency require the 'crash sensor' in helicopters, fitted to stop a Cockpit Voice Recorder in the event of an accident, to comply with EUROCAE ED62A.

Reply

This safety recommendation is considered within the framework of EASA rulemaking task RMT.0249 entitled "Recorders installation and maintenance thereof - certification aspects", whose Terms of Reference were published on 18 September 2014 on the EASA website.

RMT.0249 is dealing with new or revised aircraft certifications specifications (i.e. applicable to new designs). The general objective of this rulemaking task is to improve the availability and quality of data recorded by flight recorders in order to better support safety investigation authorities in the investigation of accidents and incidents. One of the specific objectives is to "prevent premature termination of recording due to the triggering of a negative acceleration sensor".

Regarding potential requirements applicable to existing designs, this will be considered in the framework of EASA rulemaking task RMT.0308 entitled "Amendment of requirements for data recorders II".

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
G-REDU	EUROCOPTER EC225	132 NM east of Aberdeen, offshore	18/02/2009	Accident

Synopsis of the event:

The Helicopter departed Aberdeen Airport at 1742 hrs on a scheduled flight to the Eastern Trough Area Project (ETAP). The flight consisted of three sectors with the first landing being made, at night, on the ETAP Central Production Facility platform. Weather conditions at the platform deteriorated after the aircraft departed Aberdeen; the visibility and cloud base were estimated as being 0.5 nm and 500 ft respectively. At 1835 hrs the flight crew made a visual approach to the platform during which the helicopter descended and impacted the surface of the sea. The helicopter remained upright, supported by its flotation equipment which had inflated automatically. All those onboard were able to evacuate the helicopter into its liferafts and they were successfully rescued by air and maritime Search and Rescue (SAR) assets.

Safety Recommendation UNKG-2011-063 (AAIB)

It is recommended that the European Aviation Safety Agency, in conjunction with the Federal Aviation Administration, defines standards governing the content, accuracy and presentation of obstacles in the Terrain Awareness and Warning System obstacle database for helicopters operating in the offshore environment.

Reply

EASA has issued European Technical Standard Order (ETSO) C194 Helicopter Terrain Awareness and Warning System (HTAWS) in amendment 7 of Certification Specifications for European Technical Standard Orders (CS-ETSO) applicable since 05 July 2012 for new designed HTAWS. ETSO-C194 endorses Radio Technical Commission for Aeronautics (RTCA) Document DO-309, Minimum Operational Performance Standards (MOPS) for HTAWS Airborne Equipment, dated 13 March 2008, as the applicable requirements for HTAWS systems. That standard provides requirements for the Terrain Awareness and Warning System obstacle database and refers further to EUROCAE ED-76/RTCA DO-200A, Standards for Processing Aeronautical Data, as the applicable standard for the processing of such database. The standard is giving the responsibility to the equipment manufacturer to demonstrate that the accuracy and resolution of the obstacle database is suitable for the intended operation [DO-309 2.4.3.4.b]. EASA considers that the standards to define accuracy and presentation of obstacles in the database of the equipment are adequate. These requirements are passed along the database supply chain. This is facilitated through the EUROCAE ED-76/RTCA DO-200A process standard.

Regarding the updating of the Terrain and Obstacle Databases, in order to ease the oversight of the database supply chain EASA is offering the voluntary Letter of Acceptance process based on EASA opinion 1/2005, which can be used for aeronautical data published by states. With Opinion 02/2015 'Technical requirements and operating procedures for the provision of data to airspace users for the purpose of air navigation' EASA is proposing to the Commission to mandate organisation oversight for aeronautical database providers instead of the current voluntary process oversight.

The data quality requirements on the interface between states and database providers for obstacle data are defined in EUROCAE ED-98/RTCA DO-276 'User Requirements for Terrain and Obstacle Data'. Annex 15 of the Chicago Convention establishing the International Civil Aviation Organization (ICAO) requires states to publish obstacle data. Additionally, European Commission Regulation (EU) No 73/2010 lays down requirements on the quality of aeronautical data and aeronautical information for the single European sky.

The operator is responsible for ensuring that the aeronautical database used is adequate for the intended operation. With Opinion 02/2015 it is proposed to the Commission to amend Commission Regulation (EU) No 965/2012 CAT.IDE.H.355 and further guidance material is developed to ensure controlled handling of state published obstacle data along the database chain.

In case the state is not publishing obstacle data of sufficient quality or coverage, but such data is identified to be needed either by the equipment manufacturer or the operator, the proposed regulation in Opinion 02/2015 has provisions to allow data enhancement along the data chain.

EASA considers that all elements are in place, to govern the issuance and use of obstacle data in respect to content, accuracy, and presentation of obstacles in the Terrain Awareness and Warning System for helicopters including the operating in the offshore environment.

Status: Closed – **Category**: Agreement

Registration	Aircraft Type	Location	Date of event	Event Type
G-CHZN	ROBINSON R22	Ely, Cambridgeshire	06/01/2012	Accident

Synopsis of the event:

This Robinson R22 helicopter, was flying from Manston to Fenland. Near Ely, witnesses on the ground saw it pitch and roll rapidly, the two main rotor blades separated from the rotor head and the aircraft fell to the ground. The pilot was fatally injured.

The accident was caused by main rotor divergence resulting in mast bumping, the rotor blades striking the airframe and rotor blade separation.

Safety Recommendation UNKG-2012-038 (AAIB)

The European Aviation Safety Agency should amend the requirements in Certification Specification Part 27 to reduce the risk of 'loss of main rotor control' accidents in future light helicopter designs.

Reply

EASA launched a study entitled 'Regulatory Impact Assessment (RIA) to support future rulemaking on single engine helicopters with increased pilot intervention times following power failure'. It was completed and its final report published on EASA website in April 2014.

The final outcome can be summarised as follows:

1. From a safety standpoint alone, the study proposed that moving to a 2 second time delay (all flight conditions) would be desirable.
2. Both existing and new technologies are available or being developed that could achieve the desired time delay, but come with a weight/cost penalty. For example, adding a stored energy device or electric motor, would add approximately the same weight as additional blade tip-weights.
3. The cost/benefit analysis shows an imbalance between safety benefit and the associated costs. Safety data has been key in this study. With very few accidents identified (2 accidents + 1 fatality /year) that can be attributed to failure to enter autorotation, any safety enhancement will not exceed the associated costs.

In view of these study findings, the Agency has no immediate plan to launch a rulemaking activity to amend CS-27. However, it should be noted that the Agency is currently looking to introduce FAA Special Federal Aviation Regulation (SFAR) No. 73 as part of Operational Suitability Data (OSD) for the Robinson R22 and R44. Providing enhanced training to ensure an increased level of pilot proficiency and experience will increase operational safety. Furthermore, safety reports are continuously being monitored and analysed for adverse trends. Any change in the current level of safety may trigger further actions in the future.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
G-VSXY	AIRBUS A330	Gatwick Airport	16/04/2012	Accident

Synopsis of the event:

The aircraft was operating a flight from London Gatwick Airport to McCoy International Airport in Orlando, USA with three flight crew, 10 cabin crew and 304 passengers on board including three infants. Early in the flight the crew received a series of smoke warnings from the aft cargo hold and the commander elected to return to London Gatwick. The crew carried out the appropriate emergency drills, including the discharge of the fire extinguishers in the aft cargo hold, but the smoke warnings continued. The aircraft landed safely, the crew brought it to a halt on the runway and endeavoured to establish the extent of any fire.

This produced conflicting evidence and, with smoke warnings continuing, the commander ordered an emergency evacuation.

The passengers all left the aircraft within 90 seconds but two injuries, classed as 'Serious', were incurred. Subsequent examination of the aircraft and its systems showed that the smoke warnings had been spurious.

Safety Recommendation UNKG-2014-011 (AAIB)

It is recommended that the European Aviation Safety Agency review the certification requirements for the location of fire extinguisher nozzles in relation to the smoke detectors, on aircraft equipped with multi-criteria smoke detectors, in order to minimise the adverse effects associated with activation of the fire extinguishing system.

Reply

The Agency considers that the current certification specifications (CS 25.858) are adequate and no change is deemed necessary. The adherence of flight crews to the aircraft flight manual (AFM) emergency procedure ensures an adequate level of safety.

The AFM emergency procedure, to be followed in case of cargo smoke alert, requires the flight crew to do the following actions:

- LAND ASAP (land as soon as possible);
- Turn off affected cargo compartment isolation valves;
- Turn off cabin fans;
- Discharge affected cargo compartment agent;
- After landing: When aircraft stopped: Disembark passengers before opening cargo doors.

Secondary activations of the smoke detection system should not influence the execution of the AFM procedure by the crew and therefore are not considered to pose an additional safety risk.

Furthermore, as reminded in the flight crew operating manual (FCOM), the pilots can 'Expect the smoke warning to remain after agent discharge, even if the smoke source is extinguished. Gases from smoke source are not evacuated, and smoke detectors are also sensitive to the extinguishing agent.' This means that the alert can be repeated, even with a non-degraded detection system.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
G-EUOE	AIRBUS A319	LHR - UK	24/05/2013	Accident

Synopsis of the event:

During takeoff from Runway 27L at London Heathrow Airport, the fan cowl doors from both engines detached from the aircraft, damaging the airframe and a number of aircraft systems. The flight crew elected to return to Heathrow and on the approach to land on Runway 27R, leaking fuel from a damaged fuel pipe on the right engine ignited and an external fire developed. The left engine continued to operate satisfactorily throughout the

flight. The right engine was shut down promptly, reducing the intensity of the fire, and the aircraft landed safely. It was brought to a stop on the runway and the emergency services were quickly in attendance. The fire in the right engine was extinguished and the passengers and crew evacuated via the emergency escape slides on the left side of the aircraft.

Safety Recommendation UNKG-2015-001 (AAIB)

It is recommended that the European Aviation Safety Agency publishes amended Acceptable Means of Compliance and Guidance Material in Part 145.A.47(b) of European Commission Regulation (EC) No 2042/2003, containing requirements for the implementation of an effective fatigue risk management system within approved maintenance organisations.

Reply

The Agency is working on Rulemaking Task RMT.0251 (MDM.055) which is intended to introduce Safety Management (SMS) requirements for Part-145 organisations with one of the most important elements being the identification and mitigation of risks one of which is fatigue.

The envisaged timeline for this task is to issue an NPA in 2017, with a final Opinion for 2018.

Status: Open – **Category**:

Safety Recommendation UNKG-2015-002 (AAIB)

It is recommended that the European Aviation Safety Agency requires Airbus to modify A320-family aircraft to incorporate a reliable means of warning when the fan cowl doors are unlatched.

Reply

Airbus has developed a warning flag, as a design solution for retrofit, that will be more obvious to maintenance crews and pilots to indicate when the fan cowl doors are not properly closed. This flag solution will be available for retrofit for the majority of single aisle fleet in service. An EASA airworthiness directive is planned before the end of 2015 to mandate the implementation of this design change.

Status: Open – **Category**:

Safety Recommendation UNKG-2015-003 (AAIB)

It is recommended that the European Aviation Safety Agency amends Certification Specification 25.901(c), Acceptable Means of Compliance (AMC) 25.901(c) and AMC 25.1193, to include fan cowl doors in the System Safety assessment for the engine installation and requires compliance with these amended requirements during the certification of modifications to existing products and the initial certification of new designs.

Reply

Based on the lessons learnt from in-service events, the Agency introduced, in 2013, a new Certification Review Item (CRI) providing Special Conditions (SC) for the retention of engine cowls.

The SC requires a cowling design that minimizes any inflight opening or loss of cowling. It also provides some requirements for the retention system of each openable or removable cowling:

- Keep the cowling closed and secured under the operational loads and after improper fastening of any single latching, locking, or other retention device, or the failure of single latch or hinge;
- Have readily accessible means of closing and securing the cowling that do not require excessive force or manual dexterity; and
- Have a reliable means for effectively verifying that the cowling is secured prior to each take-off.

This Special Condition has been applied since 2013, on several large aeroplane certification projects where the design of the cowling and its installation have similarities with the aeroplanes subject to the in-service events of engine cowl separation.

The Agency plans an amendment of CS-25 to introduce such new provisions aiming at better protecting against the risk of engine cowls separation.

Status: Open – **Category**:

Registration	Aircraft Type	Location	Date of event	Event Type
G-EWZZ	OTHER (CZAW SportCruiser)	Kingarth, Isle of Bute, Scotland	09/08/2014	Accident

Synopsis of the event:

Shortly after takeoff from Runway 27 at Bute airstrip, the pilot reported that the engine appeared to lose power and the aircraft was no longer able to climb. With the area around the airfield unsuitable for a landing he attempted to return to the runway, but in doing so flew into the ground. The aircraft came to rest upside down in a ditch and caught fire. The pilot and passenger sustained serious burns from which the passenger later died. The aircraft was fitted with a ballistic parachute recovery system which had not been activated during the flight.

Safety Recommendation UNKG-2015-006 (AAIB)

It is recommended that the European Aviation Safety Agency review the requirement for the placarding of aircraft fitted with a Ballistic Parachute Recovery System so that the warning placards contain information on the location of the rocket-launcher and the actuating device, and can be read from a safe distance regardless of the stationary attitude of the aircraft.

Reply

Ballistic Parachute Recovery Systems (BPRS) for EASA certified aircraft are regulated in the Certification Specifications for Light Sport Aeroplanes, CS-LSA, which refers to the ASTM F2316-12 international standard in its Subpart K.

The same reference standard can be applied to other small aeroplanes category certified by EASA through a Special Condition.

This ASTM standard requires providing three different 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 by this standard. These minimum sizes and colours are considered adequate to provide an alerting function when a personnel is approaching the aircraft at a reasonable distance. It includes the indication of the egress point of the rocket launcher.

The intent of this standard is that the placards should provide enough information to the rescue personnel to identify the presence of the equipment and find the contact information to seek advice from the manufacturer of the ballistic device. When installed according to such standard, the placards will quickly provide the needed information in most of the accident scenarios.

Status: Closed – **Category**: Partial agreement

Safety Recommendation UNKG-2015-007 (AAIB)

It is recommended that the European Aviation Safety Agency introduce the requirement that the rocket-launcher in an aircraft Ballistic Parachute Recovery System is fitted in a position where it can be readily disarmed following an accident.

Reply

The design and the installation of a Ballistic Parachute Recovery System (BPRS) should comply with at least the following requirements: recovering of the airframe and its occupants at a survivable rate of descent; its activation system shall ensure a reliable deployment of the parachute, but it shall also mitigate inadvertent deployment; protection of the aircraft and its occupants against the associated inherent hazards (e.g. fire hazard).

Requiring that the installation of the rocket-launcher is such that it can be 'readily' disarmed in all possible after-crash scenarios, and with occupants on-board, could create design constraints that are not compatible with the functional requirements mentioned above.

In practice, rocket-launchers are installed so that they can be easily disarmed following the instructions of the BPRS manufacturer after most of the accidents, in particular the survivable ones.

Status: Closed – **Category**: Disagreement

Safety Recommendation UNKG-2015-008 (AAIB)

It is recommended that the European Aviation Safety Agency disseminate information for first responders and accident investigators to allow them to identify if an aircraft is equipped with a Ballistic Parachute Recovery System. This information system should include details on the actions required to make the system safe.

Reply

A Ballistic Parachute Recovery System (BPRS) can be installed as part of the initial Type Certification, but it can also be installed (or removed) via a Supplemental Type Certificate (STC).

BPRS certified by EASA are regulated in the Certification Specifications for Light Sport Aeroplanes, CS-LSA, which refers to the ASTM F2316-12 international standard in its Subpart K. The same reference standard can be applied to other small aeroplanes category certified by EASA through a Special Condition.

The intent of the ASTM F2316-12 standard is that the placards installed on the aeroplane should provide information to the rescue personnel to identify the presence of the BPRS and find the contact information to seek advice from the manufacturer of the ballistic device.

Status: Closed – **Category**: Partial agreement

Registration	Aircraft Type	Location	Date of event	Event Type
G-GAVA	BAE JETSTREAM3100	Doncaster Sheffield Airport, Yorkshire	15/08/2014	Accident

Synopsis of the event:

The aircraft's left main landing gear failed shortly after it landed on Runway 20 at Doncaster Sheffield Airport. The left main landing gear detached from its mounts and the aircraft slid along the runway on its remaining landing gears, left wingtip and luggage pannier before veering off the runway and coming to rest on the adjacent grass. The single passenger and the flight crew vacated the aircraft without injury.

Safety Recommendation UNKG-2015-013 (AAIB)

It is recommended that the European Aviation Safety Agency require BAE Systems to expedite the proposed aircraft integration trial, to investigate whether any other mechanisms have the potential to cause migration of the special washer or to induce similar damage to the pintle housing.

Reply

EASA is in contact with the Type Certificate Holder (TCH) BAE Systems who has reported that the referred aircraft integration trial was performed in June 2015. The trial confirmed that no other potential mechanisms for migration of the special washer or damage to the pintle housing were identified.

Status: Closed – **Category**: Agreement

Registration	Aircraft Type	Location	Date of event	Event Type
G-JMAB	BOEING 757	during takeoff from London Gatwick	31/10/2014	Serious incident

Synopsis of the event:

A 'wing slide' advisory message activated on the Engine Indication and Crew Alerting System (EICAS) during takeoff. The crew entered a hold to burn off fuel until the aircraft was at an appropriate landing weight and returned to Gatwick. Whilst positioning for final approach, the right over-wing slide unravelled from the slide carrier and subsequently detached from the aircraft. Although the crew experienced some uncommanded roll on final approach the aircraft landed safely.

Safety Recommendation UNKG-2015-022 (AAIB)

It is recommended that the European Aviation Safety Agency, in conjunction with the Federal Aviation Administration and other regulators, implement a standardised system of door and emergency exit designations to reduce potential misunderstanding between aircraft crews and airport emergency services in the event of an emergency evacuation.

Reply

The Agency reviewed the ways large aeroplanes doors are designated by manufacturers, operators, Rescue and Fire Fighting Services (RFFS). It appears that there is indeed no full harmonization among the different documents used by the stakeholders, either in term of names or numbering designations. The Agency understands that the term 'standardised system of door and emergency exit designations' used in the investigation report and this safety recommendation refers to a designation based on numbering.

A survey conducted by EASA in September 2015 has been made among European airports RFFS in order to gather information on how they designate doors during an emergency intervention, what kind of crash cards they use (if any), what is the source of information they consider, and what are their in-service experience in this domain. According to the 30 responses received, it appears that the majority of the RFFS use a clear and plain wording to designate the doors in their communications with aircraft crews (e.g. forward left door), as well as alternative modes of communication such as hand signals; a minority of them declared using a numbering (e.g. 1L, 2L, etc), and one RFFS explained that they stopped using the numbering designation because their experience has shown it was prone to errors.

Furthermore, not all RFFS have aircraft type specific crash cards (or equivalent document) in their vehicles. For some aircraft types, no information is available at all. During an RFFS emergency, very little or no time at all is available to consult a crash card or equivalent document. Finally, the 30 RFFS surveyed have not experienced any safety issue related to a confusion on doors designation during an event at their airport.

In view of the information gathered, the majority of stakeholders prefers to designate doors and emergency exits with a plain text designation. As no evidence of a safety case has been reported, the Agency will not impose a standard of doors numbering.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
G-LBAL	Agusta Westland AW139	Site near Gillingham, Norfolk	13/03/2014	Accident

Synopsis of the event:

The helicopter departed from a private site with little cultural lighting at night and in fog. Although the commander had briefed a vertical departure, the helicopter pitched progressively nose-down until impacting the ground. The four occupants were fatally injured.

Safety Recommendation UNKG-2015-025 (AAIB)

The European Aviation Safety Agency should amend its definition of Vmini, to provide a clear definition that reflects the legitimacy of flight under instrument flight rules by reference to external visual cues at speeds below Vmini.

Reply

VMINI is the minimum speed which is determined during the certification process in order to comply with the handling quality requirements for operation under instrument flight rules (IFR). It is provided to ensure that the helicopter is stable enough to allow safe flight according to IFR rules.

During operation, transitioning to IFR is carried out according to the published procedural requirements or air traffic control requirements. This entails minimum visibility and altitude requirements. In addition, at the time of the transition point, the airspeed must be equal or above VMINI.

CS-29 defines VMINI in the context of Book 1 Appendix B dedicated to Airworthiness Criteria For Helicopter Instrument Flight.

In addition, CS-29 Book 2 refers to FAA AC 29-2C which provides a definition of VMINI (see chapter 2, page G-2) in the chapter dedicated to operating limitations:

"VMINI (Minimum IFR Speed). The minimum speed for which compliance with the IFR handling qualities requirements has been demonstrated should be established as a limit for IFR operations."

The Agency considers that the provisions above, harmonised with the FAA, adequately reflect the purpose of VMINI for aircraft certification. It is not aimed at defining the conditions under which a transition to IFR can be made, for which visual cues is one element among others.

Status: Closed – **Category**: Disagreement

Registration	Aircraft Type	Location	Date of event	Event Type
G-SPAO	EUROCOPTER EC135	Glasgow City Centre, Scotland	29/11/2013	Accident

Synopsis of the event:

The helicopter departed Glasgow City Heliport (GCH) at 2044 hrs on 29 November 2013, in support of Police Scotland operations. On board were the pilot and two Police Observers. After their initial task, south of Glasgow City Centre, they completed four more tasks; one in Dalkeith, Midlothian, and three others to the east of Glasgow,

before routing back towards the heliport. When the helicopter was about 2.7 nm from GCH, the right engine flamed out. Shortly afterwards, the left engine also flamed out. An autorotation2, flare recovery and landing were not achieved and the helicopter descended at a high rate onto the roof of the Clutha Vaults Bar, which collapsed. The three occupants in the helicopter and seven people in the bar were fatally injured. Eleven others in the bar were seriously injured.

Safety Recommendation UNKG-2015-030 (AAIB)

It is recommended that, when the European Aviation Safety Agency requires a radio altimeter to be fitted to a helicopter operating under an Air Operator's Certificate, it also stipulates that the equipment is capable of being powered in all phases of flight, including emergency situations, without intervention by the crew.

Reply

EASA acknowledges receipt of this Safety Recommendation. Please be advised that it is under consideration and that the outcome will be communicated to you in due course.

Status: Open – **Category**:

Safety Recommendation UNKG-2015-035 (AAIB)

It is recommended that the European Aviation Safety Agency mandate the ICAO Annex 6 flight recorder requirements for all helicopter emergency medical service operations, regardless of aircraft weight. The last two hours of flight crew communications and cockpit area audio should be recorded. The cockpit area audio recording should continue for 10 minutes after the loss of normal electrical power.

Reply

This safety recommendation will be considered within the framework of rulemaking task RMT.0271 'In-flight recording for light aircraft', which was launched by EASA on 25 July 2014 with the publication of the associated Terms of Reference.

Status: Open – **Category**:

Safety Recommendation UNKG-2015-036 (AAIB)

It is recommended that the European Aviation Safety Agency mandate image flight recorder requirements for all helicopter emergency medical service operations, regardless of aircraft weight. The image recordings should have sufficient coverage, quality and frame rate characteristics to include actions by the crew, control selections and instrument displays that are not captured by a data recorder. The recording should be of the last two hours of operation, including at least 10 minutes after the loss of normal electrical power to the flight recorder.

Reply

A consultation with Contracting States, conducted by the International Civil Aviation Organization (ICAO) in 2009 and 2010, revealed that most States had not implemented any legislation to protect the contents of cockpit image recorders from improper use, and that many States were concerned that safety data collection might be adversely impacted by the misuse of image recordings.

Legal protection of cockpit image recorder data at a global level through ICAO Standards and Recommended Practices is an essential prerequisite to mandating the carriage of cockpit image recorders. In addition, while the protection of cockpit image recorders in the context of a safety investigation is addressed in ICAO Annex 13, there is no equivalent ICAO provision addressing their use in day-to-day operations.

ICAO is currently considering this during work to establish standards on the carriage of cockpit image recorders and the legal protection of the associated data (refer to ICAO State Letter of AN 6/1.2-15/13 of 24 March 2015, containing proposed amendments to ICAO Annex 6 and Annex 13). EASA is actively engaged with ICAO in this work.

While a mandatory action is for the time inappropriate given the insufficient legal protection of cockpit recorder data at the global level, voluntary initiatives are already taking place with manufacturers fitting their helicopter with cockpit image recorders.

Status: Closed – **Category**: Partial agreement

Definitions

ANNEX B: Definitions

The following definitions are extracted from Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010.

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,

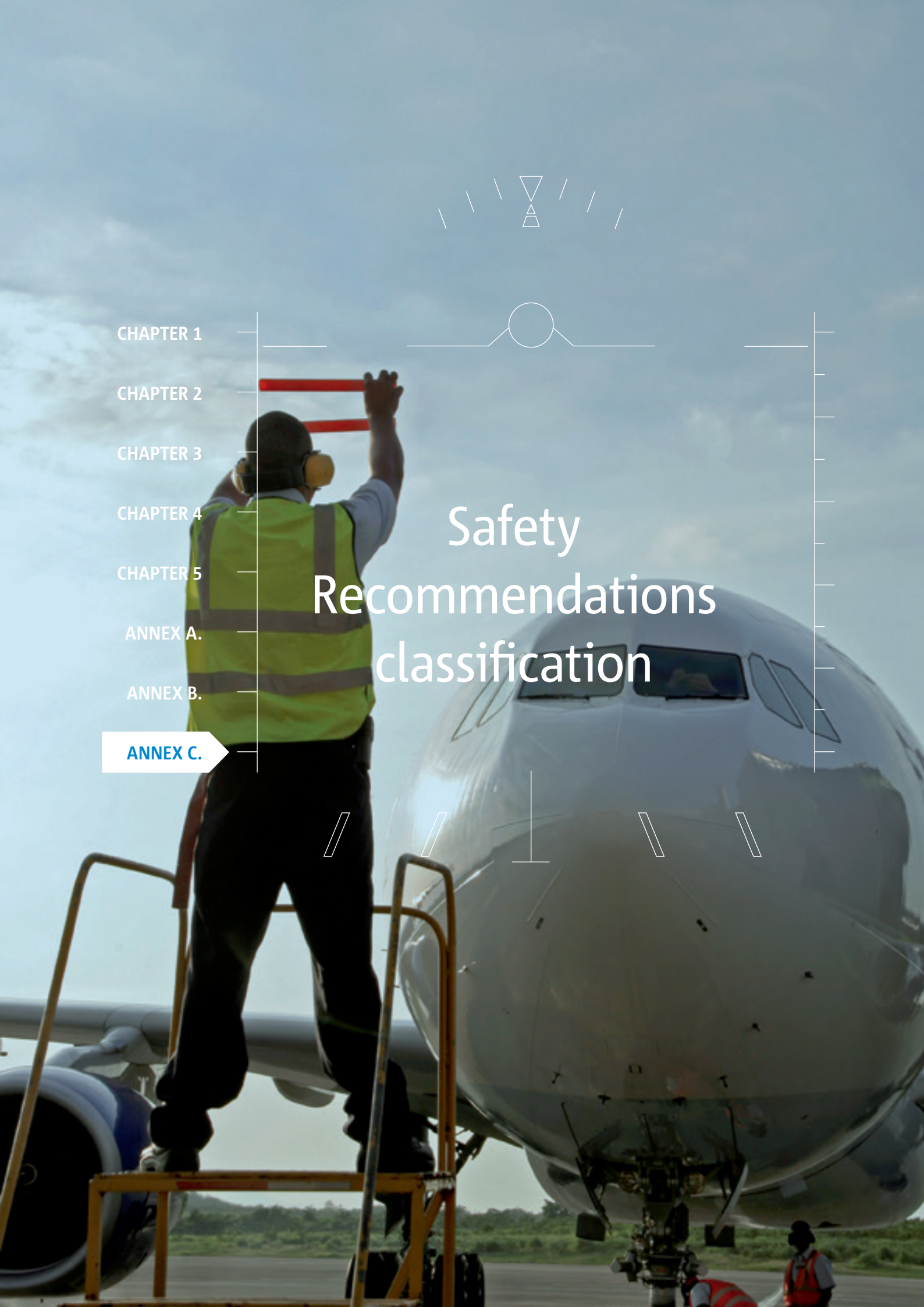
- controlled flight into terrain only marginally avoided,
- aborted take-offs on a closed or engaged runway, on a taxiway, excluding authorised operations by helicopters, or from an unassigned runway,
- take-offs from a closed or engaged runway, from a taxiway, excluding authorised operations by helicopters, 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 Recommendations classification

ANNEX C: Safety Recommendations classification

The classification has been established in the scope of the safety recommendations taxonomy working group in cooperation with representatives from European Accident 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.

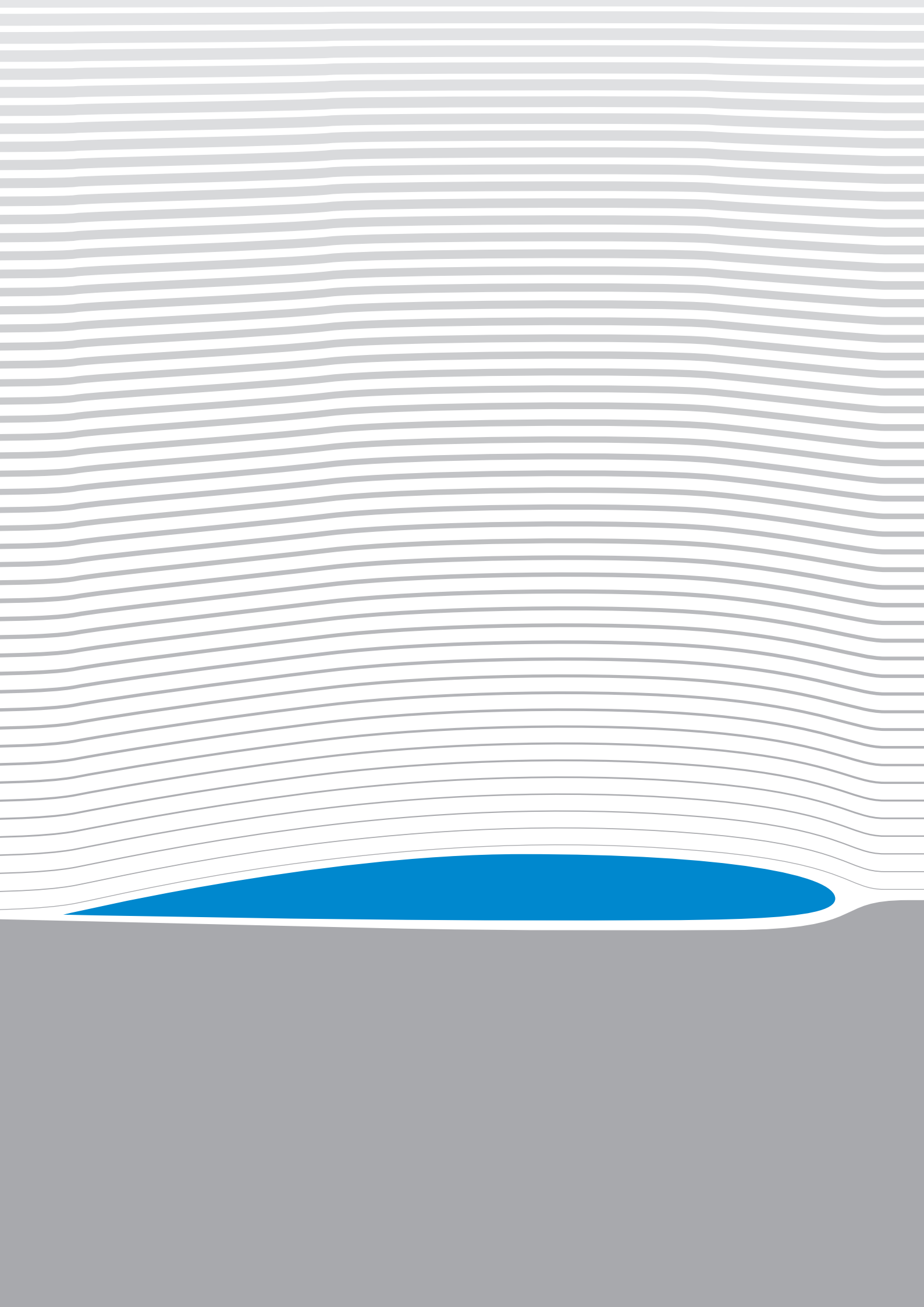
In addition to common definitions, the taxonomy also defines a unique pre-defined format for referencing safety recommendations. This format is composed by a 4 digits originating state name followed by the year it was issued and then a three digits number (ex: UNKG-2007-001 for recommendation #1 issued 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.

Classification category: 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.

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

- **Open safety recommendation:** safety recommendation for which the reply has not yet been defined or the appropriate action addressing the safety concern is still in progress.
- **Closed safety recommendation:** safety recommendation for which appropriate action has been taken and completed addressing the safety issue.



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