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LIST OF 2021 SAFETY RECOMMENDATIONS REPLIES

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United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-EZAC	AIRBUS A319	near Nantes, France	15/09/2006	Serious incident

Synopsis of the event:

The serious incident occurred to an Airbus A319-111 aircraft operating a scheduled passenger flight between Alicante, Spain and Bristol, UK. The aircraft had experienced a fault affecting the No 1 (left) electrical generator on the previous flight and was dispatched on the incident flight with this generator selected off and the Auxiliary Power Unit generator supplying power to the left electrical network.

While in the cruise at Flight Level (FL) 320 in day Visual Meteorological Conditions (VMC), with the autopilot and autothrust systems engaged, a failure of the electrical system occurred which caused numerous aircraft systems to become degraded or inoperative. Some of the more significant effects were that the aircraft could only be flown manually, all the aircraft's radios became inoperative and the Captain's electronic flight instrument displays blanked.

Attempts by the flight crew to reconfigure the electrical system proved ineffective and the aircraft systems remained in a significantly degraded condition for the remainder of the flight, making operation of the aircraft considerably more difficult. The flight crew were unable to contact air traffic control for the rest of the flight. The aircraft landed uneventfully at Bristol, with the radios and several other systems still inoperative.

Safety Recommendation UNKG-2008-089:

It is recommended that the EASA and the FAA require that approved component repair organisations have procedures in place to identify units with an excessive service rejection rate or recurrent faults.

Reply No 1 sent on 13/10/2009: 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.

Reply No 2 sent on 28/05/2010: A new Rulemaking Task has been added to the Rulemaking Programme. The objective of this task will be to upgrade the existing regulation EC 2042/2003 to require maintenance organisations putting in place procedures for identification and control of components with recurrent faults.

Reply No 3 sent on 27/04/2016: On 11 December 2015, the EASA Management Board reviewed Rulemaking Programme 2016-2020, replacing the due rulemaking task covering safety recommendation UNKG-2008-089 by the issuance of a Safety Information Bulletin. This SIB is scheduled to be issued before end of 2016.

Reply No 4 sent on 26/04/2021: The European Union Aviation Safety Agency (EASA) has included the topic of "Recurrent Defects" in its Safety Promotion programme. In December 2020, an article was published on the EASA Safety Promotion website which details possible options for managing recurrent faults effectively and for reducing the associated risks within a Continuing Airworthiness Maintenance Organisation (CAMO).

The main points outlined are as follows:

- Correctly report and record defects in the technical log book.
- Monitor, analyse and investigate recurrent faults through the defect control system.
- Establish clear policies and coordination between the CAMO, the maintenance organisation and all personnel involved in any maintenance activity.
- Follow the relevant maintenance and troubleshooting procedures provided by the Type Certificate Holder.

The full article is published at the following link:

https://www.easa.europa.eu/community/topics/recurrent-defects

Status: Closed

Austria

Registration	Aircraft Type	Location	Date of event	Event Type
OE-FCL	DIAMOND DA42	Sankt Pantaleon, Austria	20/09/2007	Accident

Synopsis of the event:

The pilot with a passenger carried out a private flight from Linz airport to Krems/Gneixendorf. In the return flight to Linz, shortly after take-off the right engine suffered a loss of power and the pilot switched it off. He decided to continue to his destination, so he tried to start up the engine again but failed. In the next attempt the aircraft started to lose altitude slowly but continuously. Because of the lower altitude he decided to carry out a forced landing near St. Valentin. In the final approach he spotted a power line running perpendicular to the approach direction, that he tried to overpass. Then the aircraft brushed some long vegetation and finally touched down with all three gears on a field with grass at knee height. After a short rolling distance the aircraft overturned. The pilot suffered severe and the passenger light injuries. The aircraft was destroyed.

Safety Recommendation AUST-2009-011:

[Unofficial English Translation: Amend the certification requirements for piston engines, CS-E:
After the certification of the DA 40 and DA 42 with TAE engine Centurion 1.7 and 2.0 a number of serious incidents and loss of engine power have occurred.
The certification regulations should be amended in such way that before the first delivery to customers, the overall system is proven to be fully functioning over a given time period, within TBO (Time Between Overhaul), without experiencing loss of power, or major mechanical failures.]
[[%_A133%]] - Änderung der Zertifizierungsvorschriften für Kolbentriebwerke CS-E:
Nach der Zertifizierung der DA 40 und DA 42 mit TAE Triebwerken Centurion 1,7 und 2,0 sind eine Vielzahl von schweren Störungen und Antriebsausfälle aufgetreten.
Die Zertifizierungsvorschriften sollten dahingehend geändert werden, dass vor der ersten Auslieferung an Kunden die Funktion des Gesamtsystems in voll konformer Installation über einen wesentlichen Zeitraum der angestrebten TBO ohne Antriebsausfall oder markantem mechanischen Defekt nachgewiesen wird.

Reply No 1 sent on 13/10/2009: 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.

Reply No 2 sent on 05/12/2011: The Agency has initiated a rulemaking task RMT.0180 (former E.010) 'Initial Maintenance Inspection' to address this issue. The Agency will consider the Safety Recommendation as part of this rulemaking task.

Reply No 3 sent on 28/04/2017: This Safety Recommendation will be considered within the framework of rulemaking task RMT.0180 'CS-E engine testing,

endurance/IMI/ETOPS' which is included in the Agency's rulemaking programme 2017-2021 and planned to be launched in the first quarter of 2018 with the publication of its terms of reference.

Reply No 4 sent on 31/07/2021: Paragraph (c)(5) of CS-E 25 'Instructions for Continued Airworthiness' states:
'Scheduling information for each part of the Engine that provides the recommended periods at which it should be cleaned, inspected, adjusted, tested and lubricated, and the degree of inspection, the applicable serviceability limits, and work recommended at these periods. Necessary cross references to the airworthiness limitations section must also be included. In addition, if appropriate, an inspection programme must be included that states the frequency of the inspections necessary to provide for the continued airworthiness of the Engine.'
However, paragraph (c)(5) of CS-E 25 and the related AMC do not provide any means to substantiate a time between overhaul (TBO).

In practice, a project-specific certification review item (CRI) means of compliance (MoC) is agreed between EASA and applicants to define how a TBO may be substantiated. The substantiation is primarily based on the outcome of the 150-hour engine endurance test that is carried out in accordance with CS-E 440. EASA nevertheless accepts only a limited initial TBO based on this test (e.g. the credit that may be taken depends on whether the design of the engine is completely new or derives from an existing design). To substantiate TBO values higher than the commonly accepted initial TBO values, the CRI MoC may define additional means of substantiation that typically include an engine cyclic endurance test that is run on an engine representative of the type design, and using a cycle profile that is based on estimated aircraft flight profiles.

Although the process above is conducted in a way to ensure a robust demonstration of the TBO and therefore complies with the intent of this safety recommendation, the absence of CS-E certification specifications (CSs) and acceptable means of compliance (AMC) for the substantiation of the TBO does not necessarily ensure a rigorous and harmonised demonstration by different applicants. Also, the above mentioned CRI process may be well known among established applicants, but potential new applicants may not be aware of EASA's expectations.
Recognising this situation and taking into account this safety recommendation, EASA decided to address this issue in the frame of EASA rulemaking task RMT.0180 for which the Terms of Reference Issue 1 were published on 7 May 2021 on the EASA Website: https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0180

A Notice of Proposed Amendment (NPA) will propose to amend CS-E to indicate how applicants should substantiate the TBO interval and the related maintenance programme. This proposal will be based on the established substantiation method used in the CRI process mentioned above.
The publication of the NPA for public consultation is foreseen by 2022Q3 in the European Plan for Aviation Safety (EPAS) 2021-2025 (https://www.easa.europa.eu/document-library/general-publications/european-plan-aviation-safety-2021-2025).

Status: Open

United States

Registration	Aircraft Type	Location	Date of event	Event Type
N106US	AIRBUS A320	the Hudson River about 8,5 miles from La Guardia Airport, New York, USA	15/01/2009	Accident

Synopsis of the event:

On January 15, 2009, accident involving the ditching of US Airways flight 1549 on the Hudson River occurred about 8.5 miles from LaGuardia Airport, New York City, after an almost complete loss of thrust in both engines following an encounter with a flock of birds. The 150 passengers, including a lap-held child, and 5 crewmembers evacuated the airplane by the forward and overwing exits.

One flight attendant and four passengers were seriously injured, and the airplane was substantially damaged.

Safety Recommendation UNST-2010-091:

The National Transportation Safety Board makes the following recommendations to the European Aviation Safety Agency: Require applicants for aircraft certification to demonstrate that their ditching parameters can be attained without engine power by pilots without the use of exceptional skill or strength. (A-10-091)

Reply No 1 sent on 28/05/2010: 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.

Reply No 2 sent on 06/01/2012: Certification Specification (CS) 25.801 (c) requires that "The probable behaviour of the aeroplane in a water landing must be investigated by model tests or by comparison with aeroplanes of similar configuration for which the ditching characteristics are known". The requirement does not specify whether this should be investigated in an engine power on or power off condition.

EASA understands the "ditching parameters" are those parameters assumed at the point of impact for demonstration of compliance with CS 25.801 (c) (such as: descent rate, pitch attitude, forward velocity, etc.), and which are also used as inputs to define the ditching emergency procedure.

EASA believes that the ditching parameters of in-service aircraft might be potentially difficult to attain in a power off condition, in addition such a demonstration was not required explicitly by the certification requirements nor routinely investigated by applicants.

For new certification projects, EASA requires a demonstration that the ditching parameters can be attained by pilots without the use of exceptional skill, but not explicitly accounting for a power off condition. It is considered that the introduction of

the power off condition is a significant change in the means of compliance to the rule, with a potential impact on dimensioning load cases for the aircraft structure.

However, it is recognised that the majority of actual ditching cases are power off events, therefore EASA accepts to review how this Safety Recommendation could be best addressed and the rulemaking task RMT.0453 'Ditching parameters without engine power' is added to the Rulemaking Programme inventory list.

Reply No 3 sent on 15/03/2016: Certification Specification (CS) 25.801 (c) requires that "The probable behaviour of the aeroplane in a water landing must be investigated by model tests or by comparison with aeroplanes of similar configuration for which the ditching characteristics are known". The requirement does not specify whether this should be investigated in an engine power on or power off condition.

Therefore the Agency has planned rulemaking task RMT.0453 in the Rulemaking Programme 2016-2020 to investigate how this safety recommendation could be addressed in the CS-25 certification specifications.

RMT.0453 will also consider the outcome from the ARAC Crashworthiness and Ditching Working Group which has been tasked to provide recommendations regarding the incorporation of airframe-level crashworthiness and ditching standards, which includes the topic subject to this safety recommendation (refer to FAA task notice in Federal Register / Vol. 80, No. 107 / Thursday, June 4, 2015). EASA is represented in this ARAC group, and the schedule of RMT.0453 will be adjusted taking into account the ARAC progress.

Reply No 4 sent on 23/03/2021: Certification Specifications CS-25 amendment 24 was published on 13 January 2020 (Executive Director (ED) Decision 2020/001/R): https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2020001r

It introduces an amendment to CS 25.671 providing specifications applicable to large aeroplanes flight control systems.

CS 25.671(d) requires the following:
"The aeroplane must be designed so that, if all engines fail at any time of the flight:
(…)
(3) a flare to a landing, and a flare to a ditching can be achieved; (…)

A new Acceptable Means of Compliance (AMC) 25.671 is also introduced that includes the following elements in Section 8. EVALUATION OF ALL-ENGINES-FAILED CONDITION — CS 25.671(d):
"b. Procedures.
(1) The aeroplane should be evaluated to determine that it is possible, without requiring exceptional piloting skill or strength, to maintain control following the failure of all engines and attain the parameters provided in the operational procedure of the aeroplane flight manual (AFM), taking into account the time necessary to activate any backup systems. The aeroplane should also remain controllable during restart of the most critical engine, whilst following the AFM recommended engine restart procedures.
(…)
(4) It should be possible to perform a flare to a safe landing and ditching attitude, in the most critical configuration, from a stabilised approach using the recommended approach speeds, pitch angles, and the appropriate AFM procedures, without requiring exceptional

piloting skills or strengths.”

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
4X-BAU	BOEING 757	London Gatwick Airport, United Kingdom	03/10/2000	Incident

Synopsis of the event:

After an uneventful flight from Ben Gurion Airport, Tel Aviv, the crew made an ILS approach to Runway 26 Left at London Gatwick Airport. The commander was 'pilot not flying' (PNF) in the right seat and another captain was the 'pilot flying' (PF) in the left seat.

The landing was made with Flap 25 and Mode 2 autobrake selected in conditions of slight drizzle. The crew considered that a normal landing had been made, touching down at approximately 135 kt, just beyond the PAPIs and slightly left of the runway centre-line.

Shortly after touchdown the commander stated that the autobrake had disconnected. The PF acknowledged and reselected Mode 2 on the autobrake. The PF had selected reverse thrust and both pilots considered that retardation was normal until 100 kt when some vibration was felt. Around this time an engineer working on an aircraft to the north of the runway heard what he described as two separate distinct "bangs", separated by some 5 to10 seconds. The PF continued to slow the aircraft and, on the instructions from ATC, cleared the runway at fast exit. On initial check-in with the ground controller, the PNF advised that they would be holding position as they suspected a "flat tyre". The crew had also noticed an indicated loss of some hydraulic fluid contents in both left and right systems.

Safety Recommendation UNKG-2002-014:

It is recommended that Airworthiness Authorities such as the JAA and FAA consider implementing the measures outlined in AAIB Safety Recommendations 99-11 and 99-12 concerning requirements for tyre pressure monitoring and warning systems.

Reply No 1 sent on 13/09/2010: 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.

Reply No 2 sent on 18/12/2012: The Agency prepared a pre-Regulatory Impact Assessment (pre-RIA) proposing the creation of a rulemaking task that would require the installation of a tyre pressure monitoring system on large aeroplanes. The pre-RIA will be used to consult with our advisory bodies representing aviation authorities and industry. The Agency will make a decision to create a rulemaking task after this consultation.

Reply No 3 sent on 07/07/2017: With the amendment 14 of CS-25 (effective on 20 December 2013, applicable to new certification projects of large aeroplanes), the Agency

introduced new certification specifications to upgrade the protection against the damaging effects of tyre and wheel failures.

However, the Agency has initiated a new rulemaking task, RMT.0586, to propose a regulatory change to better ensure that the inflation pressures of tyres of large aeroplanes remain within the pressure specifications defined by the aeroplane manufacturer.
The terms of reference and the rulemaking group composition were published on 30 May 2017 on the EASA Website:
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0586

Mandating the installation of a tyre pressure monitoring system is one of the elements to be considered among the objectives of RMT.0586.

The next step of RMT.0586 is the publication of a Notice of Proposed Amendment (NPA) which is envisaged during 03Q2018.

Reply No 4 sent on 22/06/2020: With amendment 14 of CS-25 (Certification specifications and acceptable means of compliance for large aeroplanes) (effective as of 20 December 2013, applicable to new certification projects of large aeroplanes), the European Union Aviation Safety Agency (EASA) introduced new certification specifications to upgrade protection against the damaging effects of tyre and wheel failures.

After that, EASA initiated rulemaking task RMT.0586 to propose a regulatory change to better ensure that the inflation pressures of tyres of large aeroplanes remain within the pressure specifications defined by the aeroplane manufacturer.
The terms of reference and the rulemaking group composition were published on 30 May 2017 on the EASA website:
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0586

This safety recommendation has been taken into account in this rulemaking task. Notice of Proposed Amendment (NPA) 2020-05 ('Tyre pressure monitoring') was published for consultation on 6 March 2020:
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-05

This NPA proposes to amend CS-25 to require applicants to provide a means to ensure that no tyre is below its minimum serviceable inflation pressure during operation. This can be achieved either by providing a task in the instructions for continued airworthiness (ICA) that requires operators to perform tyre pressure checks at a suitable time interval (i.e. daily or at another substantiated interval), or by installing a tyre pressure monitoring system that alerts the flight crew in the case of a tyre with an unsafe pressure. It also proposes to amend Annex I (Part-26) to Commission Regulation (EU) 2015/640) and CS-26 (Certification specifications and guidance material for additional airworthiness specifications for operations) to require the same objective to be implemented by operators of large aeroplanes, i.e. either by including in the aeroplane maintenance programme (AMP) tyre inflation pressure checks at a suitable time interval, or by installing a tyre pressure monitoring system. The related EASA Decision and Opinion are scheduled for Q1/2021.

Reply No 5 sent on 03/03/2021: With amendment 14 of the certification specification CS-25 (effective on 20 December 2013, applicable to new certification projects of large aeroplanes), the European Union Aviation Safety Agency (EASA) introduced new certification specifications to upgrade the protection against the damaging effects of tyre and wheel failures.

After that, EASA initiated rulemaking task RMT.0586 to propose a regulatory change to better ensure that the inflation pressures of tyres of large aeroplanes remain within the pressure specifications defined by the aeroplane manufacturer.
The terms of reference and the rulemaking group composition were published on 30 May 2017 on the EASA website:
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0586

This safety recommendation has been taken into account in this rulemaking task.
Notice of Proposed Amendment (NPA) 2020-05 ('Tyre pressure monitoring') was published for consultation on 6 March 2020:
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-05

Executive Director (ED) Decision 2020/024/R on amendment 26 of CS-25 was published on 22 December 2020.
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2020024r
This therefore applies to the certification of new large aeroplane designs.
A new objective based certification specification CS 25.733(f) has been created to require that the applicant provides a means to minimise the risk that a tyre is below its minimum serviceable inflation pressure during operation. The corresponding new acceptable means of compliance AMC 25.733(f) indicates how the applicant can demonstrate compliance.
These new provisions are not prescriptive and do not universally mandate the installation of a system indicating the tyre inflation pressures in the cockpit. The applicant should use one, or a combination, of the following means:
(a) Provide a task in the Instructions for Continued Airworthiness (ICA) that requires tyres inflation pressure checks to be performed at a suitable time interval,
(b) Install a system that monitors the tyres inflation pressures and:
(1) provides an alert to the flight crew, in compliance with CS 25.1322, whenever a tyre inflation pressure is below the minimum serviceable inflation pressure, or
(2) allows the tyres inflation pressures to be checked prior to the dispatch of the aeroplane, and a tyre inflation pressure check task is included in the Aeroplane Flight Manual (AFM) pre-flight procedures.

Concerning already certified large aeroplanes, EASA plans to issue an Opinion to the European Commission that intends to propose an amendment to Part-26 (Annex I) to Commission Regulation (EU) 2015/640 to require operators of large aeroplanes to minimise the risk that a tyre is below its minimum serviceable inflation pressure during operation. Certification specifications to comply with this requirement is also planned to be adopted by EASA in an amendment to CS-to26. Flexibility would be provided to the operators who may choose to include a task in the aeroplane maintenance programme (AMP) to perform tyre inflation pressure checks at a suitable time interval, and/or install a system that monitors the tyres inflation pressures.
The Opinion is scheduled for publication during Q3 2021.

Status: Open

Denmark

Registration	Aircraft Type	Location	Date of event	Event Type
OY-KFF	BOMBARDIER CL600 2B19	Copenhagen Airport, Kastrup (EKCH), Runway 04R	09/10/2009	Incident

Synopsis of the event:

Following initial take-off from Runway 04R, the pilots noticed a flock of birds in the beam of the aircraft's searchlights. Immediately thereafter, at an altitude of 256 ft, the aircraft was hit by birds, which resulted in powerful vibrations in the aircraft.

The vibrations made it difficult for the pilots to read the engine instruments, but they were nevertheless able to read the level of vibrations in the right engine which were fluctuating around the maximum values.

The pilots were not able to tell whether the left engine had been hit which is why, in the first instance, they were hesitant to stop the right engine. Since the vibrations in the right engine only partially ceased when the pilots pulled the throttle grip back, they decided to stop the engine. The left engine functioned normally throughout the flight.

Safety Recommendation DENM-2010-003:

It is recommended that the authorities evaluate possible technical solutions for the observation of and warning against migratory birds in darkness and in reduced visibility. This includes the option of installing and using radar equipment for this purpose.

Reply No 1 sent on 13/09/2010: 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.

Reply No 2 sent on 22/03/2011: The Agency accepts that wildlife may be a risk to the safety of aircraft operation.

The Agency will therefore evaluate the existing technical solutions for the observation of birds in darkness and in reduced visibility conditions, and will then consider the best course of action in the context of the Implementing Rules on aerodromes.

Reply No 3 sent on 30/01/2012: The Notice of Proposed Amendment (NPA) 2011-20 (Authority, Organisation and Operations Requirements for Aerodromes) published on 13 December 2011 includes the operational requirements for wildlife management by the aerodrome operators (ADR-OPS.B.020, AMC—ADR-OPS.B.020, as well GM1—ADR-OPS.B.020 up to GM4—ADR-OPS.B.020).

As far as the issue of technical equipment for wildlife monitoring in darkness and in reduced visibility is concerned, the Agency intends to address it through rulemaking task RMT.0161/0162 [requirements for systems, constituents and equipment used in air

traffic management (ATM)/air navigation services (ANS) and aerodromes (ADR)] of the Agency's rulemaking programme 2012-2015.

Reply No 4 sent on 20/06/2014: Commission Regulation (EU) No 139/2014 of February 2014 includes the operational requirements for wildlife hazard management by the aerodrome operators (ADR.OPS.B.020) and Annex to ED Decision 2014/012/R includes the necessary acceptable means of compliance (AMC) and guidance material (GM). As far as the issue of technical equipment for wildlife monitoring in darkness and in reduced visibility conditions, the Agency intends to address the issue through a dedicated rulemaking task.

Reply No 5 sent on 16/01/2018: The Agency is considering this safety recommendation under RMT.0591 'Regular update of aerodrome rules', which is expected to be finalised by the end of 2019. In the meantime, EASA is planning to organise workshops related to wildlife strikes prevention, to raise awareness and address the issue.

Reply No 6 sent on 10/06/2021: Commission Regulation (EU) No 139/2014 includes requirements on wildlife hazard management by aerodrome operators (ADR.OPS.B.020). The related Annex to Executive Director Decision (EDD) 2014/012/R provides the associated Acceptable Means of Compliance (AMC) and Guidance Material (GM). Effective implementation of these provisions should minimise the risk of collisions between wildlife and aircraft. The provisions focus on the establishment of means and procedures to limit the presence of wildlife at aerodromes and in their surroundings through a wildlife risk management process. This also includes monitoring the presence of wildlife but without specifying the use of certain equipment, thus providing flexibility for applying suitable technical solutions. The 'avian' radar and other technical solutions need to be evaluated on a case-by-case basis depending on the environmental conditions of the aerodrome, the local wildlife activity, and the type of operations at the aerodrome.
According to ADR.AR.C.005, Competent Authorities are required to verify compliance by aerodrome operators with the applicable provisions on wildlife strike hazard reduction (ADR.OPS.B.020). When doing so, Competent Authorities must evaluate if appropriate means are provided by the aerodrome operator to ensure a robust wildlife hazard reduction. The installation of an 'avian' radar is one of the available means that may be considered by the aerodrome operator to support their risk management processes.
Moreover, the bird strike safety issue is identified by the European Union Aviation Safety Agency (EASA) in the applicable safety risk portfolios. This is a systematic approach which is embedded in EASA's safety risk management process. Through this process, EASA monitors, with input from stakeholders through the established collaborative analysis groups, the safety performance of all aviation domains and takes appropriate action where an additional need is identified.
EASA has published Safety Information Bulletin (SIB) No 2020-07R1 on 17 July 2020 and revised SIB No 2020-07R2 on 27 January 2021 on 'Progressive Restart of Aerodrome Operations after Complete or Partial Closure'. The SIB provides detailed guidelines for Competent Authorities and aerodrome operators on how to ensure the safety of operations at the aerodromes, also concerning wildlife hazard management, under the changing circumstances related to the COVID-19 pandemic. Detailed guidance is available under point 7 of the SIB, including a recommendation on an increase in the frequency of inspections for wildlife presence. The SIB can be accessed at: https://ad.easa.europa.eu/blob/EASA_SIB_2020_07_R2.pdf/SIB_2020-07R2_1

EASA has also shared information from aviation stakeholders on wildlife hazard management in the context of the COVID-19 pandemic (on 26 August 2020 and updated on 14 April 2021). This collaborative document produced under EASA's 'Together4Safety' initiative includes guidance on wildlife detection and can be accessed at: https://www.easa.europa.eu/community/topics/wildlife-hazard-management
Finally, it should also be considered that currently Annex 14, Volume I of the International Civil Aviation Organisation (ICAO) does not include a Standard or Recommended Practise (SARP) on technical solutions (including radar equipment) for the observation of and warning against migratory birds in darkness and in reduced visibility.
In conclusion, EASA considers that the existing provisions under Commission Regulation (EU) No 139/2014 together with the above-mentioned actions taken by EASA to support the industry in the implementation of wildlife risk management processes should minimise the risk of collisions between wildlife and aircraft. It should be noted that the current regulatory framework does not preclude use of technical solutions for the observation of and warning against migratory birds in darkness and in reduced visibility if deemed appropriate.

Status: Closed

United Kingdom

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. As a result of this incident, Special Bulletin S1/2010 was published on 8 October 2010, containing two Safety Recommendations. The investigation established that the isolation of the left main bus had caused a false fuel cross-feed command which resulted in the uncommanded fuel transfer. The aircraft manufacturer has published a temporary flight crew procedure to mitigate the effects of a recurrence and has also issued a service bulletin to incorporate a design solution.

Safety Recommendation UNKG-2011-027:

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 No 1 sent on 16/09/2011: 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.

Reply No 2 sent on 05/12/2011: Part 21 (Annex to Commission Regulation (EC) 1702/2003) and CS-25 (Certification Specifications for Large Aeroplanes) require the type certificate (TC) [or supplemental type certificate (STC)] holder to provide instructions for continued airworthiness and this is considered applicable to flight data recorders (FDR).

Nevertheless the Agency accepts to review ways of improvement of the certification specifications to better indicate that the TC (or STC) holder has to provide the adequate documentation to the operator or owner of the aircraft, which should include:
?the necessary information to convert FDR raw data into engineering units, and
?FDR maintenance requirements.

This subject will be treated as part of rulemaking task RMT.0268 (former MDM.068) dealing with revision of FDR and cockpit voice recorder (CVR) certification specifications. This task is currently part of the Agency's Rulemaking Programme inventory.

Reply No 3 sent on 06/02/2015: 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.'

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".

Reply No 4 sent on 09/05/2018: This safety recommendation has been taken into account within the framework of EASA rulemaking task RMT.0249 entitled "Recorders installation and maintenance thereof - certification aspects".

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 optimise the 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 Flight Data Recorder (FDR) raw data into engineering units as well as maintenance procedures.

This topic is identified in the Terms of Reference Issue 2 of RMT.0249, under item 1.5 'Provisions for ensuring serviceability of flight recorders':
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0249-mdm051

It will be addressed in the second Notice of Proposed Amendments (NPA) of RMT.0249, currently planned to be published in Q2/2019.

Reply No 5 sent on 18/12/2019: This safety recommendation has been taken into account within the framework of EASA rulemaking task RMT.0249.

The second Notice of Proposed Amendment (NPA) of this rulemaking task (NPA 2019-12) entitled 'Installation and maintenance of recorders – certification aspects' has been published for consultation on 13.11.2019.
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2019-12

This NPA proposes to amend AMC 25.1459 (for large aeroplanes) and AMC 29.1459 (for large rotorcraft) to include FDR decoding documentation in the list of items to be included in the FDR Instructions for Continued Airworthiness.

The objective is for FDR decoding documentation to be prepared for every new FDR system installation and updated for every change to an FDR system installation, and that this documentation should be made available to aircraft operators so that they can fulfil their responsibilities with regard to FDR decoding documentation and FDR serviceability. Guidance should also be provided on the content and format of the FDR decoding documentation.

Reply No 6 sent on 03/03/2021: This safety recommendation has been taken into account within the framework of European Union Aviation Safety Agency (EASA) rulemaking task RMT.0249.

The second Notice of Proposed Amendment (NPA) of this rulemaking task (NPA 2019-12) entitled 'Installation and maintenance of recorders – certification aspects' was published for consultation on 13 November 2019.
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2019-12

This NPA proposed to amend the Acceptable Means of Compliance (AMC) 25.1459 (for large aeroplanes) and AMC 29.1459 (for large rotorcraft) to include Flight Data Recorder (FDR) decoding documentation in the list of items to be included in the FDR Instructions for Continued Airworthiness.

The objective is for FDR decoding documentation to be prepared for every new FDR system installation and updated for every change to an FDR system installation, and that this documentation should be made available to aircraft operators so that they can fulfil their responsibilities with regard to FDR decoding documentation and FDR serviceability.

Executive Director (ED) Decision 2020/024/R on amendment 26 of certification specification CS-25 was published on 22 December 2020. This amendment contains these new provisions in a new section 7 of AMC 25.1459 dedicated to FDR instructions for continued airworthiness.
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2020024r

An equivalent ED Decision is planned to be issued in 2021 to amend CS-29 in a similar way.

Reply No 7 sent on 19/08/2021: This safety recommendation has been taken into account within the framework of European Union Aviation Safety Agency (EASA) rulemaking task RMT.0249.

The second Notice of Proposed Amendment (NPA) of this rulemaking task (NPA 2019-12) entitled 'Installation and maintenance of recorders – certification aspects' was published for consultation on 13 November 2019.
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2019-12

This NPA proposed to amend the Acceptable Means of Compliance (AMC) 25.1459 (for large aeroplanes) and AMC 29.1459 (for large rotorcraft) to include Flight Data Recorder (FDR) decoding documentation in the list of items to be included in the FDR Instructions for Continued Airworthiness.

The objective is for FDR decoding documentation (document that presents the information necessary to retrieve the raw binary data of an FDR data file and convert it into engineering units and textual interpretations) to be prepared for every new FDR system installation and updated for every change to an FDR system installation, and that this documentation is made available to aircraft operators so that they can fulfil their responsibilities with regard to FDR decoding documentation and FDR serviceability.

Executive Director (ED) Decision 2020/024/R on amendment 26 of Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes (CS-25) was published on 22 December 2020. This amendment contains these new provisions in a new section 7 of AMC 25.1459 dedicated to FDR instructions for continued airworthiness.
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2020024r

Executive Director (ED) Decision 2021/010/R on amendment 9 of Certification Specifications, Acceptable Means of Compliance and Guidance Material for Large Rotorcraft (CS-29) was published on 16 June 2021. This amendment contains these new provisions in a new section 4 of AMC 29.1459 dedicated to FDR instructions for continued airworthiness.
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2021010r

Status: Closed

United Kingdom

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-2011-029:

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 No 1 sent on 16/09/2011: 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.

Reply No 2 sent on 05/12/2011: In response to Safety Recommendation UNKG-2011-027 the Agency accepts to review ways of improvement of the certification specifications to better indicate that the type certificate (TC) [supplemental type certificate (STC)] holder has to provide the adequate flight data recorder (FDR) documentation to the operator or owner of the aircraft. This subject will be treated as part of rulemaking task RMT.0268 (former MDM.068) dealing with revision of FDR and cockpit voice recorder (CVR) certification specifications.

In this framework, the Agency will also review the existing FDR documentation standards and will provide guidance in the certification specifications.

Reply No 3 sent on 06/02/2015: 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.

Reply No 4 sent on 09/05/2018: This safety recommendation has been taken into account within the framework of EASA rulemaking task RMT.0249 entitled "Recorders installation and maintenance thereof - certification aspects".

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 optimise the 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 Flight Data Recorder (FDR) raw data into engineering units as well as maintenance procedures.

This topic is identified in the Terms of Reference Issue 2 of RMT.0249, under item 1.5 'Provisions for ensuring serviceability of flight recorders':
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0249-mdm051

It will be addressed in the second Notice of Proposed Amendment (NPA) of RMT.0249, currently planned to be published Q2/2019.

In this frame, the Agency will also review the existing FDR documentation standards and will provide guidance in the certification specifications.

Reply No 5 sent on 18/12/2019: This safety recommendation has been taken into account within the framework of EASA rulemaking task RMT.0249.

The second Notice of Proposed Amendment (NPA) of this rulemaking task (NPA 2019-12) entitled 'Installation and maintenance of recorders – certification aspects' has been published for consultation on 13.11.2019.
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2019-12

This NPA proposes to amend AMC 25.1459 (for large aeroplanes) and AMC 29.1459 (for large rotorcraft) to include FDR decoding documentation in the list of items to be included in the FDR Instructions for Continued Airworthiness.

The objective is for FDR decoding documentation to be prepared for every new FDR system installation and updated for every change to an FDR system installation, and that this documentation should be made available to aircraft operators so that they can fulfil their responsibilities with regard to FDR decoding documentation and FDR serviceability. Guidance should also be provided on the content and format of the FDR decoding documentation.

Reply No 6 sent on 03/03/2021: This safety recommendation has been taken into account within the framework of European Union Aviation Safety Agency (EASA) rulemaking task RMT.0249.

The second Notice of Proposed Amendment (NPA) of this rulemaking task (NPA 2019-12) entitled 'Installation and maintenance of recorders – certification aspects' was published for consultation on 13. November 2019.

https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2019-12

This NPA proposed to amend Acceptable Means of Compliance (AMC) 25.1459 (for large aeroplanes) and AMC 29.1459 (for large rotorcraft) to include Flight Data Recorder (FDR) decoding documentation in the list of items to be included in the FDR Instructions for Continued Airworthiness.

The objective is for FDR decoding documentation to be prepared for every new FDR system installation and updated for every change to an FDR system installation, and that this documentation should be made available to aircraft operators so that they can fulfil their responsibilities with regard to FDR decoding documentation and FDR serviceability. The proposal also included guidance regarding the content and the format of the FDR decoding documentation.

Executive Director (ED) Decision 2020/024/R on amendment 26 of CS-25 was published on 22 December 2020. This amendment contains these new provisions in a new section 7 of AMC 25.1459 dedicated to FDR instructions for continued airworthiness.
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2020024r

An equivalent ED Decision is planned to be issued in 2021 to amend CS-29 in a similar way.

Reply No 7 sent on 19/08/2021: This safety recommendation has been taken into account within the framework of European Union Aviation Safety Agency (EASA) rulemaking task RMT.0249.

The second Notice of Proposed Amendment (NPA) of this rulemaking task (NPA 2019-12) entitled 'Installation and maintenance of recorders – certification aspects' was published for consultation on 13. November 2019.
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2019-12

This NPA proposed to amend Acceptable Means of Compliance (AMC) 25.1459 (for large aeroplanes) and AMC 29.1459 (for large rotorcraft) to include Flight Data Recorder (FDR) decoding documentation in the list of items to be included in the FDR Instructions for Continued Airworthiness.

The objective is for FDR decoding documentation (document that presents the information necessary to retrieve the raw binary data of an FDR data file and convert it into engineering units and textual interpretations) to be prepared for every new FDR system installation and updated for every change to an FDR system installation.
The proposal also included guidance regarding the content and the format of the FDR decoding documentation.

Executive Director (ED) Decision 2020/024/R on amendment 26 of Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes (CS-25) was published on 22 December 2020. This amendment contains these new provisions in a new section 7 of AMC 25.1459 dedicated to FDR instructions for continued airworthiness.
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2020024r

Executive Director (ED) Decision 2021/010/R on amendment 9 of Certification Specifications, Acceptable Means of Compliance and Guidance Material for Large

Rotorcraft (CS-29) was published on 16 June 2021. This amendment contains these new provisions in a new section 4 of AMC 29.1459 dedicated to FDR instructions for continued airworthiness.
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2021010r

Status: Closed

Iceland

Registration	Aircraft Type	Location	Date of event	Event Type
TF-FIJ	BOEING 757	SSE London Gatwick Airport	04/06/2009	Serious incident

Synopsis of the event:

Icelandair B757-200, TF-FIJ, departed Paris Charles de Gaulle airport (LFPG) France at 11:39 UTC (13:39 local time) on June 4th 2009 for its flight to Keflavik airport (BIKF) Iceland.

Seventeen minutes into the flight the flight crew noticed white smoke entering the flight deck. The smoke intensified rapidly to such an extent that the flight crew could barely see their instruments. Shortly after, smoke also entered the whole cabin section and intensified rapidly. The commander noticed engine #1 surging and shut it down. Shortly thereafter the smoke started to decrease. The airplane diverted and made an emergency landing at London Gatwick airport (EGKK) United Kingdom.

Safety Recommendation ICLD-2013-001:

EASA and ICAO: Set guiding rule for airframe and engine manufacturers such that Maintenance Planning Document (MPD) and Engine Maintenance Manual (EMM) clearly include recommended maintenance information from subcomponent Component Maintenance Manuals (CMM).

Reply No 1 sent on 10/07/2013: 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.

This reply gives the status within the 90 days period in compliance with Article 18 of Regulation (EU) No 996/2010.

Reply No 2 sent on 13/08/2013: This safety recommendation will be submitted to the working group of EASA rulemaking task MDM.056 (RMT.0252) "Instructions for continued airworthiness".

This reply will be amended once the outcome of the working group discussion is available.

Reply No 3 sent on 08/09/2016: This safety recommendation has been evaluated by the sub-group 1 of EASA rulemaking task RMT.0252 (MDM.056) 'Instructions for Continued Airworthiness'.

The current position of this sub-group is summarised below.

The determination of applicable instructions for continued airworthiness (ICA) and maintenance instructions of a product, especially those to be performed on the aircraft, is under the responsibility of the Design Approval Holder (DAH) of this product. This includes appliances which are part of the certified product.

For that purpose, the DAH may consider maintenance instructions provided by suppliers if considered applicable and effective. Those maintenance instructions may be then incorporated either by reference or may be copied (with or without changes) directly into the ICA and maintenance instructions of the DAH.

On the other hand this also means that the DAH may decide not to endorse maintenance instructions provided by suppliers if considered either not applicable or not effective.

Therefore, it is not appropriate to enforce on airframe and engine manufacturers that "Maintenance Planning Document (MPD) and Engine Maintenance Manual (EMM) clearly include recommended maintenance information from subcomponent Component Maintenance Manuals (CMM)."

At this stage, the sub-group 1 intends to propose in guidance material, that DAH should systematically review initial maintenance recommendations provided by suppliers and to consider them if applicable and effective.

This review included European Technical Standard Order (ETSO) articles where certain maintenance instructions may be even required to be picked up by the DAH to ensure that the ETSO article continues to satisfy the terms of its ETSO authorization after installation.

Further information will be provided in the Notices of Proposed Amendment (NPA) dealing with this topic (publication currently planned 01Q2017).

Reply No 4 sent on 22/03/2018: This safety recommendation has been evaluated by the sub-group 1 of EASA rulemaking task MDM.056 (RMT.0252) 'Instructions for Continued Airworthiness'. The current position of this sub-group is summarised below.

The determination of applicable instructions for continued airworthiness (ICA) and maintenance instructions of a product, especially those to be performed on the aircraft, is under the responsibility of the Design Approval Holder (DAH) of this product. This includes appliances which are part of the certified product.

For that purpose, the DAH may consider maintenance instructions provided by suppliers if considered applicable and effective. Those maintenance instructions may be then incorporated either by reference or may be copied (with or without changes) directly into the ICA and maintenance instructions of the DAH.

On the other hand this also means that the DAH may decide not to endorse maintenance instructions provided by suppliers if considered either not applicable or not effective.

Therefore it is not appropriate to enforce on airframe and engine manufacturers that "Maintenance Planning Document (MPD) and Engine Maintenance Manual (EMM) clearly include recommended maintenance information from subcomponent Component Maintenance Manuals (CMM)."

The sub-group 1 proposed guidance material stating that DAH should systematically review initial maintenance recommendations provided by suppliers and consider them if applicable and effective. This review should include ETSO articles where certain maintenance instructions may be even required to be picked up by the DAH to ensure that the ETSO article continues to satisfy the terms of its ETSO authorisation after installation.

This position is reflected in the proposal of NPA 2018-01 'Instructions for continued airworthiness' which has been published on 29 January 2018 on the EASA Website: https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2018-01
It includes a proposal for guidance material as indicated above (refer to page 14, GM N°2 to 21.A.7(a) 'Determination of which supplier's data are part of ICA').

The next step of this rulemaking task will be an Opinion to the European Commission (EC) by end of 2018, proposing an amendment of Part-21 (Annex I to Commission Regulation (EU) No 748/2012). The EASA ED Decision amending the corresponding AMC/GM to Part-21 will be issued once the associated amending regulation to Part-21 is published.

Reply No 5 sent on 31/07/2021: This safety recommendation has been taken into account by the European Union Aviation Safety Agency (EASA) in the frame of rulemaking task MDM.056 (RMT.0252) 'Instructions for Continued Airworthiness', and in particular within its Subtask 1 'Definition and identification of ICA, Completeness of ICA and Certification of ICA by the competent authority'. The Terms of Reference of this RMT are available under:
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-mdm056-rmt0252

EASA then published notice of proposed amendment (NPA) 2018-01 'Instructions for continued airworthiness' on 29 January 2018 on the EASA website:
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2018-01
The NPA proposed to amend Annex I (Part-21) to Commission Regulation (EU) No 748/2012 as well as the corresponding Acceptable Means of Compliance (AMC) and Guidance Material (GM).

After reviewing the comments received, EASA published Opinion 07/2019 in December 2019 proposing an amendment of Part 21 to the European Commission:
https://www.easa.europa.eu/document-library/opinions/opinion-072019

On 28 April 2021, Commission Delegated Regulation (EU) 2021/699 of 21 December 2020 was published, thereby amending Regulation (EU) No 748/2012.
This amendment provides in point 21.A.7 a definition of 'instructions for continued airworthiness' (ICA) and establishes ICA as part of the type certificate (point 21.A.41) in order to strengthen their control by the design approval holder (DAH), including the amendments to the ICA (ref. point 21.A.7 – in particular subparagraph (d) related to changes to ICA) that will enter into force on18/05/2022.
https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0699&from=EN

On 28 May 2021, EASA published Executive Director Decision 2021/007/R amending the AMC and GM to Part 21 (Issue 2, Amendment 12). The amendment provides guidance

and acceptable means of compliance explaining how DAH should develop and identify ICA, as well as what kinds of publication format may be used.
https://www.easa.europa.eu/sites/default/files/dfu/amc_gm_to_part_21_-_issue_2_amendment_12.pdf

The determination of applicable ICA and maintenance instructions of a product, especially those to be performed on the aircraft, is under the responsibility of the DAH of this product.

This includes appliances which are part of the certified product.
For that purpose, the DAH may consider maintenance instructions provided by suppliers if considered applicable and effective. Those maintenance instructions may then be incorporated either by reference or may be copied (with or without changes) directly into the ICA and maintenance instructions of the DAH.

On the other hand, the DAH may decide not to endorse maintenance instructions provided by suppliers if they are considered either not applicable or not effective.

The new GM2 21.A.7(a) ('Determination of which supplier data is part of the ICA') explicitly states that scheduled maintenance on components should be endorsed by the DAH before becoming part of the aircraft ICA, to define and confirm that the supplier data is applicable and effective.

It is not deemed appropriate to universally enforce on aircraft and engine manufacturers that "Maintenance Planning Document (MPD) and Engine Maintenance Manual (EMM) clearly include recommended maintenance information from subcomponent Component Maintenance Manuals (CMM)."

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-EENN	SCHEMPP HIRTH NIMBUS3	Portmoak Airfield, Scotlandwell, Kinross	04/09/2012	Accident

Synopsis of the event:

The glider was being winch launched from a grass airfield. At an early stage of the launch the right wing tip contacted the ground, the left wing lifted and the glider cartwheeled to the right before coming to rest, inverted. The pilot was fatally injured.

Safety Recommendation UNKG-2013-008:

It is recommended that the European Aviation Safety Agency amend the certification standard for Sailplanes and Powered Sailplanes (CS 22) to include the requirement that the cable release mechanisms can be operated at any stage of the launch without restricting the range of movement of any flying control.

Reply No 1 sent on 13/08/2013: EASA support the proposal to make a change to Certification Specifications (CS) 22 that introduces a specification for the cable release mechanism in line with the safety recommendation.

The plan is to develop this change in cooperation with the Organisation Scientifique et Technique du Vol à Voile (OSTIV) Sailplane Development Panel (SDP). Because this existing forum has support and involvement of a high number of stakeholders, EASA intends to introduce the necessary change to CS-22 through rulemaking task RMT.0037 (22.010) 'Regular update of CS-22' that is already in the current EASA rulemaking programme.

Reply No 2 sent on 28/04/2017: EASA supports the proposal to make a change to Certification Specifications (CS) CS-22 that introduces a specification for the cable release mechanism for sailplanes and powered sailplanes in line with the safety recommendation.

The plan is to develop this change in cooperation with the Organisation Scientifique et Technique du Vol à Voile (OSTIV) Sailplane Development Panel (SDP). Because this existing forum has the support and involvement of a high number of stakeholders, EASA intends to introduce the necessary change to CS-22 through rulemaking task RMT.0037 (22.010) 'Regular update of CS-22' that is already in the current EASA rulemaking programme 2017-2021. A Notices of Proposed Amendment (NPA) is planned to be published in 2nd quarter 2018.

Reply No 3 sent on 03/03/2021: In accordance with certification specification CS 22.777(b) 'The controls must be located and arranged so that the pilot, when strapped in the seat, has full and unrestricted movement of each control without interference from either clothing (including winter clothing) or from the cockpit structure. The pilot must

be able to operate all the controls necessary for the safe operation of the aeroplane from the seat designated to be used for solo flying'.

This certification specification is generic and it does not specifically mention that it should be possible to operate the cable release mechanisms at any stage of the launch without being restricted by the range of movement of any flight controls.

However, in the frame of rulemaking task RMT.0037 (22.010) "Regular update of CS-22" the European Union Aviation Safety Agency (EASA) published notice of proposed amendment (NPA) 2020-013 on 14 December 2020 that, under item 2, takes into account this safety recommendation.
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-13.

In particular, the NPA proposes a new acceptable means of compliance (AMC) to 22.777(b) to address this feature. The proposal reads as follows:
"Special consideration should be given to ensuring that cable release mechanisms can be operated at any stage of the launch without restricting the range of movement of any flying control, including when the pilot has the hand on the release during the launch."

Reply No 4 sent on 02/12/2021: CS-22 (Certification Specifications for Sailplanes and Powered Sailplanes) states at CS 22.777(b) the following: 'The controls must be located and arranged so that the pilot, when strapped in the seat, has full and unrestricted movement of each control without interference from either clothing (including winter clothing) or from the cockpit structure. The pilot must be able to operate all the controls necessary for the safe operation of the aeroplane from the seat designated to be used for solo flying'.

This certification specification is generic and it does not specifically mention that it should be possible to operate the cable release mechanisms at any stage of the launch without being restricted by the range of movement of any flight controls.

In the frame of the European Union Aviation Safety Agency (EASA) rulemaking task RMT.0037 (Regular update of CS-22), EASA published Notice of Proposed Amendment (NPA) 2020-013 on 14 December 2020.
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-13

This NPA made reference to this safety recommendation under item 2 and proposed a new AMC (Acceptable Means of Compliance) 22.777(b) to address the identified safety issue.

Following the NPA public consultation, EASA published on 17 September 2021 Executive Director Decision 2021/013/R amending CS-22 (CS-22 Amendment 3).

A new AMC 22.777(b) has been created that reads:
"Special consideration should be given to ensuring that cable release mechanisms can be operated at any stage of the launch without restricting the range of movement of any flying control, including when the pilot has the hand on the release during the launch."

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-EENN	SCHEMPP HIRTH NIMBUS3	Portmoak Airfield, Scotlandwell, Kinross	04/09/2012	Accident

Synopsis of the event:

The glider was being winch launched from a grass airfield. At an early stage of the launch the right wing tip contacted the ground, the left wing lifted and the glider cartwheeled to the right before coming to rest, inverted. The pilot was fatally injured.

Safety Recommendation UNKG-2013-009:

It is recommended that the European Aviation Safety Agency require that Type Certificate holders of EASA Type Certificated gliders ensure, where practicable, that the cable release control can be operated at any stage of the launch without restricting the range of movement of any flying control.

Reply No 1 sent on 13/08/2013: EASA is investigating the issue in cooperation with sailplane Type Certificate Holders in order to identify affected sailplanes and possible retrofit. A rulemaking activity is planed [reference rulemaking task RMT.0037 (22.010) 'Regular update of CS-22']. Practical solutions and the way to implement them will be decided also taking into account the certification basis for these aircrafts at the time of certification.

Reply No 2 sent on 07/07/2017: The Agency assessed the issue and had identified the sailplane Types that are potentially affected, with the support of the Type Certificate Holders (TCH).
Following this investigation, the following actions will be pursued:
•EASA will issue within 2017 a Safety Information Bulletin (SIB) to make owners and pilots aware of the possible interference between the flight and the cable release controls. Owners/Pilots who identify their sailplane (specific serial number) being affected will be requested to get in contact with the respective TCH.
•A clearer and more specific wording of the Acceptable Means of Compliance (AMC) to Certification Specifications (CS) 22.777 'Cockpit Controls' has been developed and agreed by the external advisory body the International Scientific and Technical Soaring Organisation (OSTIV) and will be included by the next revision of CS-22.

Reply No 3 sent on 02/12/2021: Certification Specifications for Sailplanes and Powered Sailplanes (CS-22) amendment 3 was issued by the European Union Aviation Safety Agency (EASA) on 15 September 2021 by Executive Director Decision 2021/013/R and includes a new Acceptable Means of Compliance AMC 22.777 (b) foreseeing that special consideration should be given to ensuring that the cable release mechanisms can be operated at any stage of the launch without restricting the range of movement of any flying control.

For the current fleet, EASA has not received further occurrence reports of similar events and will take safety action in accordance with its continuing airworthiness procedures in case other occurrences are reported.

Status: Closed

United Arab Emirates

Registration	Aircraft Type	Location	Date of event	Event Type
N571UP	BOEING 747	Dubai Airport UAE	03/09/2010	Accident

Synopsis of the event:

A Boeing 747-44AF departed Dubai International Airport (DXB) on a scheduled cargo flight to Cologne, Germany. Twenty two minutes into the flight, at approximately 32,000 feet, the flight crew advised Bahrain Air Traffic Control (BAH-C) that there was an indication of an onboard fire. The crew declared an emergency and requested a return to Dubai International Airport. The crew further advised ATC that the cockpit was 'full of smoke' and that they 'could not see the radios'. The Cockpit Voice Recorder (CVR) detailed a pitch control problem discussed by the crew in the first five minutes of the emergency.

After the airplane turned back toward DXB, on the descent one of the crew experienced an emergency oxygen problem, leading to the probable incapacitation of the crew member. As the airplane approached DXB the crew were advised that they were 'too high and too fast' as they approached the airport and that a '360° turn was required'. The crew responded 'Negative, negative, negative' to the 360° turn request. The airplane overflew the airport.

Following the airport over flight a relay aircraft advised the flight crew that an alternate airport , Sharjah International Airport (SHJ), was available to the airplane's left at approximately 10 nm. Following confirmation of the heading change by the crew, the airplane reduced speed, entered into a descending right turn south of Dubai International Airport before radar contact was lost.

Safety Recommendation UNAR-2013-050:

The NTSB, FAA and/or EASA fire test divisions to perform a test on lithium batteries to determine the ignition properties for lithium type batteries when subjected to external sources of mechanical energy, including acoustic energy in flight range modes, acoustic harmonic modes and a separate test to determine the susceptibility of lithium batteries to vibration from a mechanical source. The purpose of this testing is to determine the safe limits for the air carriage of lithium type batteries in dynamic aeroelastic, vibrating structures where the battery electrolyte composed of an organic solvent (and dissolved lithium salt) could become unstable when exposed to these forms of mechanical energy.

Reply No 1 sent on 13/08/2013: 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.

This reply gives the status within the 90 days period in compliance with Article 18 of Regulation (EU) No 996/2010.

Reply No 2 sent on 17/11/2017: The Agency and the European Commission are involved in a research project: "Safe transport of lithium batteries by Aircraft". One of the firsts steps of this project is to identify the hazards that may be encountered during the air transport of lithium batteries (e.g. battery chemistry, design, size) to further identify mitigating measures that can be used to enhance safety when transporting lithium metal and lithium ion batteries on board an aircraft. The risks and measures will be fed to a risk assessment method to enable operators to establish and evaluate safe conditions for transport.

Reply No 3 sent on 26/04/2021: The European Union Aviation Safety Agency (EASA) and the European Commission have been involved in a research project: "Safe transport of lithium batteries by Aircraft" (Sabatair).

The main objective of the Sabatair project was to propose and evaluate the existing and novel potential mitigating measures to enhance the safe transportation of both lithium-metal and lithium-ion cells and batteries as cargo on passenger and cargo aeroplanes.

The testing activities conducted provided relevant information to generate representative thermal models enabling the simulation of thermal runaway propagation inside lithium cell packages.

A cell thermal model was built to:
(i) simulate the thermal runaway initiation mechanism and the associated heat propagation inside the cell;
(ii) model the propagation of a thermal runaway inside a package filled with Liion cells, and
(iii) predict the performance of a given packaging scenario.

Mitigating measures have been proposed and full-scale fire tests were conducted to assess the effectiveness of certain mitigation measures identified, in particular, the use of a Fire Containment Cover, to prevent the involvement of lithium cells or batteries in a fire event initiated externally to the lithium battery packaging. The tests were performed in a test chamber designed to evaluate the performance of the extinguishing agents used for fire suppression in Class C cargo compartments of large aeroplanes.

Guidance to assist operators in the creation of their own safety risk assessments for the transport of lithium batteries when carried as cargo have been proposed.

EASA believes that the extent of testing suggested by this safety recommendation would not be practical (Lithium type batteries in dynamic aeroelastic, vibrating structures where the battery electrolyte composed of an organic solvent could become unstable) and that the thermal models validated by tests enable the simulation of thermal runaway propagation inside lithium cell packages similar to that of the accident batteries

In line with the above, EASA considers that it has effectively addressed the intent of this safety recommendation and considers the action complete.

Status: Closed

Austria

Registration	Aircraft Type	Location	Date of event	Event Type
EC-FPD	MCDONNELL DOUGLAS MD88	Vienna Schwechat Airport (LOWW)	31/07/2008	Serious incident

Synopsis of the event:

The MD 88 aircraft took off from the Vienna Schwechat airport for Madrid on 31.07.2008 at 17:34 UTC. During the take-off run immediately before becoming airborne, the left engine experienced loss of power and vibration, as well as a smell of burning, upon which the pilots shut the engine off. The pilots returned to the airport and landed at 18:50. The aircraft was able to leave the runway under its own power.

The incident did not cause any personal injury, but the aircraft was seriously damaged.

Safety Recommendation AUST-2013-008:

EASA, FAA: SE/SUB/ZLF/8/2013: Supplement to Certification Specifications 25 (CS-25), pressure displays of landing gear tyres: Insufficient pressure in landing gear tyres can, as happened in this serious incident, cause massive damage to the aircraft and result in flight situations with increased risk. On this topic also see, for example, the accident report issued by the US National Transportation Safety Board (NTSB): Runway Overrun During Rejected Takeoff, Global Exec Aviation, Bombardier Learjet 60, N999LJ, Columbia, South Carolina, September 19, 2008, http://www.ntsb.gov/doclib/reports/2010/aar1002.pdf. CS-25 should be revised to specify installation of pressure indicators for all landing gear tyres in the cockpit of commercial aircraft.
[[%_A133%]] - EASA, FAA: SE/SUB/ZLF/8/2013: Ergänzung der Certification Specifications 25 (CS-25), Druckanzeigen der Fahrwerksreifen: Unzureichender Reifendruck in Fahrwerksreifen kann, wie bei gegenständlicher schwerer Störung aufgetreten, zu massiven Schäden am Luftfahrzeug und Flugsituationen mit erhöhtem Risiko führen. Siehe zu diesem Thema auch z. B. den Unfallbericht des US National Transportation Safety Board (NTSB): Runway Overrun During Rejected Takeoff, Global Exec Aviation, Bombardier Learjet 60, N999LJ, Columbia, South Carolina, September 19, 2008, http://www.ntsb.gov/doclib/reports/2010/aar1002.pdf. Die CS-25 sollten dahingehend ergänzt werden, dass im Cockpit von Verkehrsflugzeugen Druckanzeigen aller Fahrwerksreifen vorgeschrieben werden.

Reply No 1 sent on 19/02/2014: 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.

This reply gives the status within the 90 days period in compliance with Article 18 of Regulation (EU) No 996/2010.

Reply No 2 sent on 05/06/2014: The Agency recognizes the importance of ensuring that tyres remain correctly inflated within the pressure specifications defined by the aircraft manufacturer.

The Agency acknowledges that rulemaking to review and improve, as far as possible, current regulations enforcing tyre inflation requirements could contribute to mitigating the identified risk. The installation of tyre pressure monitoring systems can mitigate the cases escaping current safety barriers (e.g. air leakage in the tyre/wheel assembly, maintenance error or negligence, failure/inaccuracy of the inflation equipment, operator not correctly performing the regular checks, etc.).

The Agency considers implementing a new task in the rulemaking programme, and an updated response will be provided when the decision has been taken.

Please note that CS-25 was also recently amended to upgrade large aeroplane certification standards for protection against the effects of tyre and wheel failures (which includes the threat from under-inflated tyres).

Reply No 3 sent on 07/07/2017: With the amendment 14 of CS-25 (effective on 20 December 2013, applicable to new certification projects of large aeroplanes), the Agency introduced new certification specifications to upgrade the protection against the damaging effects of tyre and wheel failures.

However, the Agency has initiated a new rulemaking task, RMT.0586, to propose a regulatory change to better ensure that the inflation pressures of tyres of large aeroplanes remain within the pressure specifications defined by the aeroplane manufacturer.
The terms of reference and the rulemaking group composition were published on 30 May 2017 on the EASA Website: https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0586

Mandating the installation of a tyre pressure monitoring system is one of the elements to be considered among the objectives of RMT.0586.

The next step of RMT.0586 is the publication of a Notice of Proposed Amendment (NPA) which is envisaged during 03Q2018.

Reply No 4 sent on 22/06/2020: With amendment 14 of CS-25 (Certification specifications and acceptable means of compliance for large aeroplanes) (effective as of 20 December 2013, applicable to new certification projects of large aeroplanes), EASA introduced new certification specifications to upgrade protection against the damaging effects of tyre and wheel failures.

After that, EASA initiated rulemaking task RMT.0586 to propose a regulatory change to better ensure that the inflation pressures of tyres of large aeroplanes remain within the pressure specifications defined by the aeroplane manufacturer. The terms of reference and the rulemaking group composition were published on 30 May 2017 on the EASA website:
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0586

This safety recommendation has been taken into account in this rulemaking task. Notice of Proposed Amendment (NPA) 2020-05 ('Tyre pressure monitoring') was published for consultation on 6 March 2020:
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-05

This NPA includes a proposal to amend CS-25 to require applicants to provide a means to ensure that no tyre is below its minimum serviceable inflation pressure during operation. This can be achieved either by providing a task in the instructions for continued airworthiness (ICA) that requires operators to perform tyre pressure checks at a suitable time interval (i.e. daily or at another substantiated interval), or by installing a tyre pressure monitoring system that alerts the flight crew in the case of a tyre with an unsafe pressure. The related EASA Decision is scheduled for Q1/2021.

Reply No 5 sent on 03/03/2021: With amendment 14 of certification specification CS-25 (effective on 20 December 2013, applicable to new certification projects of large aeroplanes), EASA introduced new certification specifications to upgrade the protection against the damaging effects of tyre and wheel failures.

After that, the European Union Aviation Safety Agency (EASA) initiated rulemaking task RMT.0586 to propose a regulatory change to better ensure that the inflation pressures of tyres of large aeroplanes remain within the pressure specifications defined by the aeroplane manufacturer.
The terms of reference and the rulemaking group composition were published on 30 May 2017 on the EASA website:
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0586

This safety recommendation has been taken into account in this rulemaking task.
Notice of Proposed Amendment (NPA) 2020-05 ('Tyre pressure monitoring') was published for consultation on 6 March 2020:
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-05

Executive Director (ED) Decision 2020/024/R on amendment 26 of CS-25 was published on 22 December 2020.
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2020024r
A new objective based certification specification CS 25.733(f) has been created to require that the applicant provides a means to minimise the risk that a tyre is below its minimum serviceable inflation pressure during operation. The corresponding new AMC 25.733(f) indicates how the applicant can demonstrate compliance.

These new provisions are not prescriptive and do not universally mandate the installation of a system indicating the tyre inflation pressures in the cockpit. The applicant should use one, or a combination, of the following means:
(a) Provide a task in the Instructions for Continued Airworthiness (ICA) that requires tyres inflation pressure checks to be performed at a suitable time interval,
(b) Install a system that monitors the tyres inflation pressures and:
(1) provides an alert to the flight crew, in compliance with CS 25.1322, whenever a tyre inflation pressure is below the minimum serviceable inflation pressure, or
(2) allows the tyres inflation pressures to be checked prior to the dispatch of the aeroplane, and a tyre inflation pressure check task is included in the Aeroplane Flight Manual (AFM) pre-flight procedures.

Status: Closed

Ireland

Registration	Aircraft Type	Location	Date of event	Event Type
G-COBS **G-FCSL**	DIAMOND DA42PIPER PA31	5 NM east of Ireland West Airport (EIKN), Knock, Co. Mayo	22/04/2013	Serious incident

Synopsis of the event:

While in the process of conducting separate flights for the calibration of navigation aids at EIKN, the lateral separation between two calibrating aircraft reduced to 0.42 nautical miles (NM) with no vertical separation. One aircraft initiated avoiding action following a Traffic Advisory System (TAS) warning and subsequently declared an AIRPROX. Both aircraft landed without further incident. There were no injuries.

Safety Recommendation IRLD-2014-017:

The European Aviation Safety Agency (EASA) should consider a requirement for calibration aircraft operating in Europe to be fitted with TCAS.

Reply No 1 sent on 01/08/2014: EASA current 2014-2017 rulemaking programme includes rulemaking task RMT.0376 'Carriage of ACAS II equipment on aircraft other than aeroplanes in excess of 5700kg or 19 Pax'. This task envisages amendments to regulation 1332/2011 and regulation 965/2012 as last amended, in particular Part-NCC (non-commercial operations with complex motor-powered aircraft), Part-NCO (non-commercial operations with other-than complex motor-powered aircraft) and Part-SPO (specialised operations). The intent of this safety recommendation will be considered within the framework of the above rulemaking task.

Reply No 2 sent on 31/08/2017: EASA Rulemaking Task RMT.0376 'Carriage of ACAS II equipment on aircraft other than aeroplanes in excess of 5700 kg or 19 Pax' is included in the Rulemaking programme 2017-2021 to ensure alignment with other on-going developments within the Agency, namely the efforts to find a solution for cost-effective collision avoidance equipment for General Aviation aircraft.

This task will also include a thorough impact assessment aimed at evaluating the cost-benefit of ACAS II equipment anti-collision systems carriage.

The publication of the associated terms of reference (ToR) for the rulemaking task RMT.0376, is planned to be published in the second quarter of 2018.

Reply No 3 sent on 02/12/2021: Based on the outcome of the Best Information Strategy (BIS) report on Airborne Collision, the European Plan for Aviation Safety (EPAS) 2021-2025 deleted rulemaking task (RMT) RMT.0376 on anti-collision and traffic awareness systems for aircraft with a maximum take-off mass less than 5700 kg or carrying less than 19 passengers. The BIS considers a different approach instead, through which the European Union Aviation Safety Agency (EASA) intends to undertake

a set of actions that are deemed to be more effective in reducing the risk of airborne collisions.

The BIS concluded that a broader use of iConspicuity solutions and improvement of their interoperability together with a better airspace utilisation and design, while ensuring compatibility with the U-space regulatory framework established under Implementing Regulation (EU) 2021/664, should be at the heart of the future actions.
iConspicuity (or in-flight electronic conspicuity plus) means in-flight capability to transmit position of aircraft and/or to receive, process and display positions of other aircraft in a real time with the objective to enhance pilots' situational awareness about surrounding traffic. It is an umbrella term for a range of technologies and solutions, regardless whether airborne or on the ground, which can help airspace users and other affected stakeholders to be more aware of other aircraft in their vicinity or in a given airspace.

Additional justifications of the new approach are provided in the BIS report, which describes a detailed review and assessment of the airborne collision risk, and whose outcome was validated through a survey and a stakeholders' consultation. The new approach results in a strategy composed of a set of EPAS tasks compounded of existing rulemaking tasks which will be implemented together with new safety promotion (SPT), research (RES) and member state tasks (MST). The best safety benefits are expected to be achieved through synergies of all actions, while utilising the U-space regulatory framework as a catalyst for safety improvements.

The following bullet points summarize the collective actions which are planned to be implemented for anti-collision and traffic awareness systems for aircraft with maximum take-off mass less than 5700 kg or carrying less than 19 passengers:
• EASA, with support of technical partners, to demonstrate and validate feasibility of achieving interoperability of different iConspicuity devices/systems through network of stations while respecting data privacy requirements.
• EASA to analyse 'Net Safety Benefit' and 'Operational Safety Assessment' concepts for the use of iConspicuity devices/systems in Flight Information Services.
• EASA to facilitate installation of iConspicuity devices in all EASA certified aircraft types and promote their use by airspace users at user affordable cost.
• EASA to actively support initiatives enhancing interoperability of iConspicuity devices/systems.
• EASA to promote good practices in airspace design that reduce 'airspace complexity' and 'traffic congestion' with the aim to reduce the risk of collisions involving uncontrolled traffic.
• Member States to consider 'airspace complexity' and 'traffic congestion' as safety relevant factors in airspace changes affecting uncontrolled traffic, including the changes along international borders.
• EASA to ensure technical and operational compatibility of U-space and iConspicuity solutions.
• EASA to conduct a Safety Issue Assessment (SIA) of airspace infringements.
• EASA to explore the use of iConspicuity data for enhanced safety monitoring of Airborne Collision Risk.

Collectively, the aforementioned EASA actions serve as a multi-pronged final strategy in response to airborne collision risks. This strategy will be reviewed at regular intervals.

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-REDW	EUROCOPTER EC225	20 NM east of Aberdeen	10/05/2012	Accident

Registration	Aircraft Type	Location	Date of event	Event Type
G-CHCN	EUROCOPTER EC225	North Sea, 32nm southwest of Sumburgh	22/10/2012	Accident

Synopsis of the event:

While operating over the North Sea, in daylight, the crews of bot helicopters experienced a loss of main rotor gearbox oil pressure, which required them to activate the emergency lubrication system. Both helicopters should have been able to fly to the nearest airport; however shortly after the system had activated, a warning illuminated indicating that the system had failed. This required the crews to ditch their helicopters immediately in the North Sea. Both ditchings were successful and the crew and the passengers evacuated into the helicopter's life rafts. There were no injuries.

Safety Recommendation UNKG-2014-013:

It is recommended that the European Aviation Safety Agency provide Acceptable Means of Compliance (AMC) material for Certification Specification (CS) 29.1585, in relation to Rotorcraft Flight Manuals, similar to that provided for Aeroplane Flight Manuals in the AMC for CS 25.1585 to include cockpit checklists and systems descriptions and associated procedures.

Reply No 1 sent on 01/08/2014: An amendment of the Acceptable Means of Compliance where EASA would take into account the specificity of helicopter type and intended operations is under consideration.

An update will be provided as soon as any progress is available.

Reply No 2 sent on 04/02/2019: This safety recommendation will be taken into account in the frame of rulemaking task RMT.0724 entitled 'Rotorcraft flight crew operating manuals (FCOMs)'.

This RMT is included in the EASA European Plan for Aviation Safety (EPAS) 2019-2023 published on 15th January 2019, with Terms of Reference planned to be issued in 2019Q3.

The objective of this RMT is to improve the operational information provided to rotorcraft flight crew in the aircrew manuals. This could be achieved by standardising the structure and approach used to present operational information in rotorcraft manuals, thereby improving the clarity of this information.

Reply No 3 sent on 10/06/2021: This safety recommendation will be taken into account in the frame of rulemaking task RMT.0724 for which the Terms of Reference (ToR) (entitled 'Improvement of operating information provided to rotorcraft flight crew') and the Rulemaking Group Composition have been published on 12 March 2021 on the European Union Aviation Safety Agency (EASA) website: https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0724

The objective is to improve the operational information provided to the rotorcraft flight crew.

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

A Notice of Proposed Amendment (NPA) will be prepared and published for public consultation. The NPA will propose amendments of CS-29, CS-27 and, if considered necessary, CS-VLR. The publication is foreseen for Q1 of 2023 according to the European Plan for Aviation Safety (EPAS) 2021-2025.

Status: Open

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:

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:

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 No 1 sent on 18/08/2015: 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.

Reply No 2 sent on 26/04/2021: The European Union Aviation Safety Agency (EASA) has cooperated with Airbus Helicopters (AH) and the Federal Aviation Administration (FAA) to improve post-crash fire protection in the in-service AS350/EC130 helicopter fleet.

Within this framework, new Crash-Resistant Fuel System (CRFS) modifications have been recently developed by different applicants, approved by EASA and made available for new helicopter deliveries or, as a retrofit kit, for helicopters already in service as detailed below:

-EASA Major Change 10072097 approved on 18/12/2019, developed by AH and applicable to all AS350 B3 helicopter models without any limitation.
-EASA Supplemental Type Certificate (STC) 10064703 dated 20/06/2018, developed by Standard Aero (previously known as Vector Aerospace Helicopter Service USA, Inc.) and applicable to AS350 D, AS350 B, AS350 B1, AS350 B2, AS350 BA, AS350 B3 and EC130 B4 helicopter models without any limitation.
-EASA STC 10061056 Rev. 01 dated 24/01/2020 (original issue of the Supplemental Type Certificate is dated 16/02/2017), developed by AH and applicable to AS350 B3, if equipped with Safran Helicopter Engines Arriel 2D engine, and EC130 B4 helicopter models without any limitation.

-EASA STC 10060852 Rev. 01 dated 27/01/2020 (original issue of the Supplemental Type Certificate is dated 30/01/2017), developed by AH and applicable to AS350 B3, if equipped with Safran Helicopter Engines Arriel 2D engine, and EC130 B4 helicopter models with limitation forbidding underbelly installations.

EASA considers that the installation of any of the modifications listed above will reduce the risk of post-crash fires for the in-service AS350/EC130 helicopters fleet and contribute to increase occupant escape time after a survivable crash.

Consequently, their installation has been recommended by EASA via the release of EASA Safety Information Bulletin (SIB) ref. 2017-18R2 ("Installation of Crash Resistant Fuel System") dated 14/01/2021. This is strongly promoted by AH through retrofit campaign incentives for operators.

In addition, EASA, in cooperation with the Robinson Helicopter Company (RHC) and the FAA took additional actions to improve post-crash fire protection for the RHC in-service helicopters fleet. This activity led to the development of modifications approved by EASA and made available for new helicopter deliveries or, as a retrofit kit, for helicopters already in service as detailed below:

-EASA Major Change 10028494 approved on 18/01/2010 ("Installation of bladder fuel tanks"), applicable to R44 and R44 II helicopter models and mandated via the EASA AD 2014-0070 dated 19/03/2014.
-EASA Major Change 10046416 approved on 18/09/2013 ("Installation of bladder fuel tanks"), applicable to R22, R22 Alpha, R22 Beta and R22 Mariner helicopter models.

EASA considers that these actions have increased the number of existing helicopters fitted with a crash-resistant fuel system or having an equivalent level of safety in respect of post-impact fire and, therefore, the intent of this Safety Recommendation has been properly met.

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-WNSB	AEROSPATIALE AS332	on approach to Sumburgh Airport in the Shetland Islands	23/08/2013	Accident

Synopsis of the event:

Super Puma helicopter with sixteen passengers and two crew on board crashed in the sea during the approach to land at Sumburgh Airport. Four of the passengers did not survive. The approach was flown with the autopilot in 3-axes mode, which required the commander to manually operate the collective pitch control. The co-pilot was responsible for monitoring the helicopter's vertical flightpath against the published approach vertical profile and for seeking the external visual references necessary to continue with the approach and landing. The procedures permitted the helicopter to descend to a height of 300 ft, the Minimum Descent Altitude (MDA) for the approach, at which point a level-off was required if visual references had not yet been acquired. However, the helicopter continued to descend below the MDA, even though the required visual references had not been acquired.

Although the approach vertical profile was maintained initially, insufficient collective pitch control input was applied by the commander to maintain the approach profile and the target approach airspeed of 80 kt. This resulted in insufficient engine power being provided and the helicopter's airspeed reduced continuously during the final approach. During the latter stages of the final approach the helicopter's airspeed had decreased below 35 kt and a high rate of descent had developed.

The decreasing airspeed went unnoticed by the pilots until a very late stage, when the helicopter was in a critically low energy state. The commander's attempt to recover the situation was unsuccessful and the helicopter struck the surface of the sea approximately 1.72 nm west of Sumburgh Airport. It rapidly filled with water and rolled inverted, but was kept afloat by the flotation bags which had deployed.

Safety Recommendation UNKG-2016-005:

It is recommended that the European Aviation Safety Agency amends the Certification Specifications for Large Rotorcraft (CS 29) to align them with the Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes (CS 25), with regard to the provision of operational information in Flight Manuals.

Reply No 1 sent on 27/04/2016: The Agency supports the intent of this safety recommendation. Options are being considered to launch a rulemaking activity on this subject.

Reply No 2 sent on 04/02/2019: This safety recommendation will be taken into account in the frame of rulemaking task RMT.0724 entitled 'Rotorcraft flight crew operating manuals (FCOMs)'.

This RMT is included in the EASA European Plan for Aviation Safety (EPAS) 2019-2023 published on 15th January 2019, with Terms of Reference planned to be issued in 2019Q3.

The objective of this RMT is to improve the operational information provided to rotorcraft flight crew in the aircrew manuals. This could be achieved by standardising the structure and approach used to present operational information in rotorcraft manuals, thereby improving the clarity of this information.

Reply No 3 sent on 10/06/2021: This safety recommendation will be taken into account in the frame of rulemaking task RMT.0724 for which the Terms of Reference (ToR) (entitled 'Improvement of operating information provided to rotorcraft flight crew') and the Rulemaking Group Composition have been published on 12 March 2021 on the European Union Aviation Safety Agency (EASA) website: https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0724

The objective is to improve the operational information provided to the rotorcraft flight crew.

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

A Notice of Proposed Amendment (NPA) will be prepared and published for public consultation. The NPA will propose amendments of CS-29, CS-27 and, if considered necessary, CS-VLR. The publication is foreseen for Q1 of 2023 according to the European Plan for Aviation Safety (EPAS) 2021-2025.

Status: Open

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-WNSB	AEROSPATIALE AS332	on approach to Sumburgh Airport in the Shetland Islands	23/08/2013	Accident

Synopsis of the event:

Super Puma helicopter with sixteen passengers and two crew on board crashed in the sea during the approach to land at Sumburgh Airport. Four of the passengers did not survive. The approach was flown with the autopilot in 3-axes mode, which required the commander to manually operate the collective pitch control. The co-pilot was responsible for monitoring the helicopter's vertical flightpath against the published approach vertical profile and for seeking the external visual references necessary to continue with the approach and landing. The procedures permitted the helicopter to descend to a height of 300 ft, the Minimum Descent Altitude (MDA) for the approach, at which point a level-off was required if visual references had not yet been acquired. However, the helicopter continued to descend below the MDA, even though the required visual references had not been acquired.

Although the approach vertical profile was maintained initially, insufficient collective pitch control input was applied by the commander to maintain the approach profile and the target approach airspeed of 80 kt. This resulted in insufficient engine power being provided and the helicopter's airspeed reduced continuously during the final approach. During the latter stages of the final approach the helicopter's airspeed had decreased below 35 kt and a high rate of descent had developed.

The decreasing airspeed went unnoticed by the pilots until a very late stage, when the helicopter was in a critically low energy state. The commander's attempt to recover the situation was unsuccessful and the helicopter struck the surface of the sea approximately 1.72 nm west of Sumburgh Airport. It rapidly filled with water and rolled inverted, but was kept afloat by the flotation bags which had deployed.

Safety Recommendation UNKG-2016-009:

It is recommended that the European Aviation Safety Agency collaborates with National Aviation Authorities and helicopter operators to develop and publish guidance material on detection logic for Helicopter Flight Data Monitoring programmes.

Reply No 1 sent on 27/04/2016: The Agency intends to propose to the European Authorities coordination group on flight data monitoring (EAFDM) the topic of detection logic for helicopter FDM programmes.

European helicopter operators will also be contacted in order to determine if they are willing to support it.

Reply No 2 sent on 20/01/2017: In June 2016, the Agency discussed the idea of developing guidance material on detection logic for helicopter Flight Data Monitoring

(FDM) programmes with the European Authorities coordination group on Flight Data Monitoring (EAFDM). The need for such guidance material was acknowledged by this group. Further to that, in September 2016, the Agency launched an industry survey on FDM programmes addressed to helicopter offshore operators. Among others, the results of this survey indicate that three quarters of respondents identify a need for guidance on detection logic for helicopter FDM programmes.

In the meantime, the Civil Aviation Authority of United Kingdom (CAA-UK) announced its intention to produce 'guidance on best practice to support the new European Air Operations Regulations for offshore operations (SPA.HOFO)': refer to CAP1386 (Safety review of offshore public transport helicopter operations in support of the exploitation of oil and gas: Progress report 2016) available on the CAA-UK website. This guidance material is foreseen to include 'new or revised "events" or "measurements" to monitor for adherence to company Standard Operating Procedures'. For this project, the CAA UK plans to work with 'UK helicopter operators and EASA'.

It is considered that this CAA-UK project will satisfy the intent of the safety recommendation, and the Agency is supporting it.

Reply No 3 sent on 03/03/2021: The United Kingdom Civil Aviation Authority (UK CAA) announced in document CAP1386, issued in 2016, its intention to produce flight data monitoring (FDM) guidance for helicopter offshore operations, in coordination with 'UK helicopter operators and EASA'. In its closing reply to UNKG-2016-007, the CAA UK announced that it aimed at completing such work in 2017. Consequently, the European Union Aviation Safety Agency (EASA) decided to avoid a duplication of effort and to support this UK CAA activity instead of launching a parallel activity to address Safety Recommendation UNKG-2016-009.

However, EASA adopted guidance material (GM) GM2 SPA.HOFO.145 on March 2017, after Safety Recommendation UNKG-2016-009 was issued and this GM contains examples of FDM event definitions for use by helicopter offshore operators. These examples cover all phases of flight and they are taken from Helicopter Flight Data Monitoring (HFDM), Industry Best Practice (version 1.1) published by Global HFDM Steering Group, a helicopter industry association promoting FDM.

In September 2020, HeliOffshore, a helicopter offshore industry association, published Helicopter Flight Data Monitoring (HFDM), Recommended Practice for Oil and Gas Passenger Transport Operations (HeliOffshore document HO-HFDM-RP-v1.0). This industry guidance was developed by a working group including 12 helicopter operators and was reviewed by several authorities, including EASA. The FDM event definitions provided in Appendix 4 of HeliOffshore document HO-HFDM-RP-v1.0 are the same as in GM2 SPA.HOFO.145. Appendix 5 of HeliOffshore document HO-HFDM-RP-v1.0 contains additional examples of safety events to be monitored with FDM.

It is considered that HeliOffshore document HO-HFDM-RP-v1.0 together with GM2 SPA.HOFO.145 fulfils the purpose of Safety Recommendation UNKG-2016-009.

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-WNSB	AEROSPATIALE AS332	on approach to Sumburgh Airport in the Shetland Islands	23/08/2013	Accident

Synopsis of the event:

Super Puma helicopter with sixteen passengers and two crew on board crashed in the sea during the approach to land at Sumburgh Airport. Four of the passengers did not survive. The approach was flown with the autopilot in 3-axes mode, which required the commander to manually operate the collective pitch control. The co-pilot was responsible for monitoring the helicopter's vertical flightpath against the published approach vertical profile and for seeking the external visual references necessary to continue with the approach and landing. The procedures permitted the helicopter to descend to a height of 300 ft, the Minimum Descent Altitude (MDA) for the approach, at which point a level-off was required if visual references had not yet been acquired. However, the helicopter continued to descend below the MDA, even though the required visual references had not been acquired.

Although the approach vertical profile was maintained initially, insufficient collective pitch control input was applied by the commander to maintain the approach profile and the target approach airspeed of 80 kt. This resulted in insufficient engine power being provided and the helicopter's airspeed reduced continuously during the final approach. During the latter stages of the final approach the helicopter's airspeed had decreased below 35 kt and a high rate of descent had developed.

The decreasing airspeed went unnoticed by the pilots until a very late stage, when the helicopter was in a critically low energy state. The commander's attempt to recover the situation was unsuccessful and the helicopter struck the surface of the sea approximately 1.72 nm west of Sumburgh Airport. It rapidly filled with water and rolled inverted, but was kept afloat by the flotation bags which had deployed.

Safety Recommendation UNKG-2016-017:

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

Reply No 1 sent on 27/04/2016: The Terms of Reference for Rulemaking task RMT.0120 (`Helicopter ditching and water impact occupant survivability') includes the task of considering retroactive requirements for already certified helicopters. Following EASA NPA 2016-01 (dedicated to Certification Specifications, published 23/03/2016), the application of the requirement to existing helicopters will be considered in a second NPA.

Based on this second NPA consultation, the Agency will develop an Opinion for a Part-26 regulation.

Reply No 2 sent on 28/08/2018: The Terms of Reference for Rulemaking Task RMT.0120 ('Helicopter ditching and water impact occupant survivability') includes the task of considering retroactive requirements for already certified helicopters.

A proposed amendment of Certification Specification CS-27 and CS-29 has been publically consulted through the first Notice of Proposed Amendment, (NPA) 2016-01, which was published on 23/03/2016. CS-27 and CS-29 were amended on 25 June 2018 through Executive Director Decision 2018/007/R.

A second NPA will be published to propose retrospective requirements through an amendment of Commission Regulation (EU) No 2015/640 Additional airworthiness specifications for operations (Part-26). The current target for publication is 4Q2018 (per the European Plan for Aviation Safety (EPAS) 2018-2022).

Reply No 3 sent on 03/03/2021: In the frame of rulemaking task RMT.0120, EASA published a second Notice of Proposed Amendment (NPA): NPA 2020-16 on 23.12.2020. https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-16

An assessment has been conducted of the appropriateness of requiring design improvements to existing helicopter designs and the in-service helicopter fleet based on the certification specifications (CS) introduced in CS-27 and CS-29 at Amendment 5.

Based on that assessment, this NPA proposes to amend Annex I (Part-26) to Commission Regulation (EU) 2015/640 and corresponding CS-26 to require the following design improvements for helicopters that are operated for extended time periods over water:

— Easier identification of the operating mechanisms for emergency ditching underwater exits;
— Provision of remote life raft deployment;
— Substantiated sea conditions for capsize resistance in the rotorcraft flight manual (RFM);
— Verified easy opening force for emergency ditching underwater exits;
— Life raft attachment means of a sufficient length to prevent damage to the life raft;
— Easy access to life preservers;
— Automatic illumination of emergency ditching underwater exits;
— Improved ratio of passengers to emergency ditching exits;
— Verified robustness of existing emergency flotation systems to resist damage in the event of a water impact;
— Automatic deployment and arming (if required) of the emergency flotation system.

Kindly note that this list is not exhaustive and not all of these improvements would be applied to small non-Category A helicopters or helicopters that are not required to be certified with ditching provisions (i.e. emergency flotation system only).

The proposed regulatory changes will improve the safety of offshore helicopter operations and provide a pragmatic balance of the associated minimal economic impact, and with no environmental or social impact.

Status: Open

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-WNSB	AEROSPATIALE AS332	on approach to Sumburgh Airport in the Shetland Islands	23/08/2013	Accident

Synopsis of the event:

Super Puma helicopter with sixteen passengers and two crew on board crashed in the sea during the approach to land at Sumburgh Airport. Four of the passengers did not survive. The approach was flown with the autopilot in 3-axes mode, which required the commander to manually operate the collective pitch control. The co-pilot was responsible for monitoring the helicopter's vertical flightpath against the published approach vertical profile and for seeking the external visual references necessary to continue with the approach and landing. The procedures permitted the helicopter to descend to a height of 300 ft, the Minimum Descent Altitude (MDA) for the approach, at which point a level-off was required if visual references had not yet been acquired. However, the helicopter continued to descend below the MDA, even though the required visual references had not been acquired.

Although the approach vertical profile was maintained initially, insufficient collective pitch control input was applied by the commander to maintain the approach profile and the target approach airspeed of 80 kt. This resulted in insufficient engine power being provided and the helicopter's airspeed reduced continuously during the final approach. During the latter stages of the final approach the helicopter's airspeed had decreased below 35 kt and a high rate of descent had developed.

The decreasing airspeed went unnoticed by the pilots until a very late stage, when the helicopter was in a critically low energy state. The commander's attempt to recover the situation was unsuccessful and the helicopter struck the surface of the sea approximately 1.72 nm west of Sumburgh Airport. It rapidly filled with water and rolled inverted, but was kept afloat by the flotation bags which had deployed.

Safety Recommendation UNKG-2016-018:

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

Reply No 1 sent on 27/04/2016: In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), NPA 2016-01 was published on 23/03/2016. The NPA 2016-01 proposal includes a provision for a requirement meeting the intent of this safety recommendation.

CS 29.801(c): 'Emergency flotation systems that are stowed in a deflated condition during normal flight must:
(…)

(2) if operable within a restricted flight envelope, have an automatic means of arming, disarming and rearming, to enable the system to function, except in flight conditions in which float deployment may be hazardous to the rotorcraft; otherwise the system shall be armed at all times in flight; and
(3) have a means of automatic deployment following water entry.'

The application of the requirement to existing helicopters will be considered in a second NPA.

Reply No 2 sent on 07/06/2016: In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), Notice of Proposed Amendment (NPA) 2016-01 was published on 23/03/2016. The proposal includes provisions for requirements meeting the intent of this safety recommendation.

The proposed CS 27.801(c) and CS 29.801(c) read: 'Emergency flotation systems that are stowed in a deflated condition during normal flight must:
(…)
(2) if operable within a restricted flight envelope, have an automatic means of arming, disarming and rearming, to enable the system to function, except in flight conditions in which float deployment may be hazardous to the rotorcraft; otherwise the system shall be armed at all times in flight; and
(3) have a means of automatic deployment following water entry.'

The application of the requirements to existing helicopters will be considered in a second NPA.

Reply No 3 sent on 28/08/2018: In the frame of Rulemaking Task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment, NPA (2016-01), was published on 23/03/2016 proposing an amendment of certification specifications (CS-27 and CS-29) to address this safety recommendation.

CS-27 and CS-29 have been amended on 25 June 2018 by Executive Director Decision 2018/007/R.
These amendments include the following new specifications:

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

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

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

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

The retrospective application of the requirements to existing helicopters, through an amendment of Commission Regulation (EU) No 2015/640 , Additional airworthiness specifications for operations (Part-26) will be considered in a second NPA. The current target for publication is 4Q2018 (per the European Plan for Aviation Safety (EPAS) 2018-2022).

Reply No 4 sent on 03/03/2021: In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA (2016-01) was published on 23 March 2016 and proposed an amendment of certification specifications CS-27 and CS-29 to address this safety recommendation.

CS-27 and CS-29 were amended on 25 June 2018 by ED Decision 2018/007/R.
These amendments include the following new specifications:

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

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

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

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

The retrospective application of these specifications to small Category A helicopters and large helicopters (required to be designed for landing on water or certified for ditching) is proposed under NPA 2020-16 which was published on 23 December 2020.
The NPA proposes a new point 26.435 on 'Automatic deployment of an emergency flotation system' in Annex I (Part-26) to Commission Regulation (EU) No 2015/640. A corresponding specification CS 26.435 as well as guidance material GM 26.435 are also proposed to be introduced in CS-26.

Status: Open

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-WNSB	AEROSPATIALE AS332	on approach to Sumburgh Airport in the Shetland Islands	23/08/2013	Accident

Synopsis of the event:

Super Puma helicopter with sixteen passengers and two crew on board crashed in the sea during the approach to land at Sumburgh Airport. Four of the passengers did not survive. The approach was flown with the autopilot in 3-axes mode, which required the commander to manually operate the collective pitch control. The co-pilot was responsible for monitoring the helicopter's vertical flightpath against the published approach vertical profile and for seeking the external visual references necessary to continue with the approach and landing. The procedures permitted the helicopter to descend to a height of 300 ft, the Minimum Descent Altitude (MDA) for the approach, at which point a level-off was required if visual references had not yet been acquired. However, the helicopter continued to descend below the MDA, even though the required visual references had not been acquired.

Although the approach vertical profile was maintained initially, insufficient collective pitch control input was applied by the commander to maintain the approach profile and the target approach airspeed of 80 kt. This resulted in insufficient engine power being provided and the helicopter's airspeed reduced continuously during the final approach. During the latter stages of the final approach the helicopter's airspeed had decreased below 35 kt and a high rate of descent had developed.

The decreasing airspeed went unnoticed by the pilots until a very late stage, when the helicopter was in a critically low energy state. The commander's attempt to recover the situation was unsuccessful and the helicopter struck the surface of the sea approximately 1.72 nm west of Sumburgh Airport. It rapidly filled with water and rolled inverted, but was kept afloat by the flotation bags which had deployed.

Safety Recommendation UNKG-2016-024:

It is recommended that the European Aviation Safety Agency (EASA) amends the operational requirements for commercial offshore helicopter operations to require operators to demonstrate that all passengers and crew travelling offshore on their helicopters have undertaken helicopter underwater escape training at an approved training facility, to a minimum standard defined by the EASA.

Reply No 1 sent on 07/06/2016: According to Annex III, Part-ORO (Organisation Requirements for air Operations) of Commission Regulation (EU) No 965/2012, flight crew training programmes, including the syllabi, for commercial air transport helicopter offshore operators are required to be approved by the competent authority (see ORO.FC.145 (c)). The training should include helicopter underwater escape training every 3 years, for flight crew, at an appropriate facility. This specialist training should be part of the required wet drill for all ditching procedures, which should be practised by the aircrew. The wet practice drill should always be conducted in the initial operator training

unless the crew member concerned has received similar training provided by another operator [see ORO.FC.230 (d) and AMC1 ORO.FC.230 (a)(2)(iii)(F)].

Proposed amendments to Commission Regulation (EU) No 965/2012 are currently being considered during the adoption process of European Aviation Safety Agency (EASA) opinion 04/2015 'Helicopter Offshore Operations'. This EASA opinion proposes new implementing rules for Specific Approvals (SPA) for Helicopter Offshore Operations (HOFO), which, if adopted, will include a requirement for the HOFO operator to include water entry and sea survival training in its flight crew training and checking programme which shall be adapted to the offshore environment. This is to augment the existing provisions.

The resulting Commission Regulation amending Commission Regulation (EU) No 965/2012 and the related EASA Executive Director Decision containing acceptable means of compliance and guidance material are expected to be published by September 2016.

EASA has considered the recommendation to define the minimum helicopter underwater escape training standards. The detail included in the training syllabus for flight crew will depend on the type of offshore operation being performed, the environment in which the operation takes place, the type of helicopter operated, and the type of emergency and survival equipment required. Therefore, EASA considers that operators should define their own standards which should be tailored to suit their own operations and fleet. This is in line with the Management System principles which require the operator to identify hazards, perform associated risk assessments and implement mitigation to achieve an acceptable level of safety (see ORO.GEN.200). The competent authority should oversee this as part of its assessment of the organisation to ensure continued competence to conduct safe operations in compliance with the applicable requirements (see ARO.GEN.300).

The part of the recommendation on underwater escape training for passengers travelling in commercial offshore helicopter operations will be further evaluated by the Agency. Any subsequent action by the Agency will depend on the results of the evaluation.

Reply No 2 sent on 24/11/2016: This recommendation has been partially addressed within the framework of the European Aviation Safety Agency (EASA) rulemaking tasks RMT.0409 and RMT.0410 'Helicopter Offshore Operations', which have concluded with the publication of Commission Regulation (EU) 2016/1199, amending Commission Regulation (EU) No 965/2012 on air operations, and an Executive Director (ED) Decision containing the associated Acceptable Means of Compliance (AMC) and Guidance Material (GM).

Commission Regulation (EU) 2016/1199, published in the Official Journal of the European Union on 22 July 2016, includes new implementing rules for Specific Approvals (SPA) for Helicopter Offshore Operations (HOFO) in Annex V (Part-SPA) of the air operations regulation. According to SPA.HOFO.170 (a)(3), the operator shall establish a flight crew training and checking programme that each flight crew member shall complete successfully. Such programme shall be adapted to the offshore environment and include normal, abnormal and emergency procedures, crew resource management, water entry and sea survival training.

ED Decision 2016/022/R 'Helicopter offshore operations', published on the EASA web site on 7 October 2016, provides AMC to SPA.HOFO.170. Water entry and sea survival training, including operation of all associated safety equipment, should be an element of

the recurrent training, as described in AMC1 ORO.FC.230(a)(2)(iii)(F) (see subparagraph (b) of AMC1 SPA.HOFO.170 (a)).

EASA has considered the recommendation to define the minimum helicopter underwater escape training standards. The detail included in the training syllabus for flight crew will depend on the type of offshore operation being performed, the environment in which the operation takes place, the type of helicopter operated, and the type of emergency and survival equipment required. Therefore, EASA considers that operators should define their own standards which should be tailored to suit their own operations and fleet. This is in line with the Safety Management System principles which require the operator to identify hazards, perform associated risk assessments and implement mitigation to achieve an acceptable level of safety (see Organisation Requirements for Air Operations ORO.GEN.200 of Commission Regulation (EU) No 965/2012). The competent authority should oversee this as part of its assessment of the organisation to ensure continued competence to conduct safe operations in compliance with the applicable requirements (see Authority Requirements for Air Operations ARO.GEN.300 of Commission Regulation (EU) No 965/2012).

The part of the recommendation on underwater escape training for passengers travelling in commercial offshore helicopter operations will be further evaluated by the Agency. Any subsequent action by the Agency will depend on the results of the evaluation.

Reply No 3 sent on 10/06/2021: The part of the recommendation related to Helicopter Underwater Escape Training (HUET) for the crew of Helicopter Offshore Operations (HOFO) has been addressed within the framework of the European Union Aviation Safety Agency (EASA) rulemaking tasks RMT.0409 and RMT.0410 'Helicopter Offshore Operations', which concluded with the publication of Commission Regulation (EU) 2016/1199, amending Commission Regulation (EU) No 965/2012 on air operations, and Executive Director (ED) Decision 2016/022/R containing the associated Acceptable Means of Compliance (AMC) and Guidance Material (GM) [See (a)(3) of SPA.HOFO.170 and (b) of AMC1 SPA.HOFO.170(a)].
EASA has also considered the recommendation to define the minimum HUET standards. The detail included in the training syllabus for flight crew will depend on the type of offshore operation being performed, the environment in which the operation takes place, the type of helicopter operated, and the type of emergency and survival equipment required. Therefore, EASA considers that operators should define their own standards which should be tailored to suit their own operations and fleet. This is in line with the safety management system principles which require the operator to identify hazards, perform associated risk assessments and implement mitigation to achieve an acceptable level of safety (see ORO.GEN.200 of Commission Regulation (EU) No 965/2012). The competent authority should oversee this as part of its assessment of the organisation to ensure continued competence to conduct safe operations in compliance with the applicable requirements (see ARO.GEN.300 of Commission Regulation (EU) No 965/2012).
Regarding the part of the recommendation to require operators to demonstrate that HOFO passengers have undertaken HUET, these passengers are typically employed by offshore oil and gas extraction organisations who have the obligation, for example under occupational health and safety legislation, to provide this sort of training for the safety of their employees. Such HUET is typically embedded in the specific contractual arrangements between the operator and the offshore undertaking. The standard of training facilities and course content is generally regulated by national oil and gas industry bodies. Indeed, passenger training is currently undertaken following industry standards established by organisations such as OPITO UK [Offshore Petroleum Industry

Training Organization (UK)], NOGEPA (Netherlands Oil and Gas Exploration and Production Association), and the Norwegian Oil and Gas Association.
Instead of amending Subpart K (HOFO) of Commission Regulation (EU) No 965/2012, to require operators to demonstrate that all passengers have undertaken HUET, EASA has taken other actions to facilitate passenger escape from a survivable water impact scenario, for example:
- New requirements on the provision of emergency breathing systems that are deployable underwater have been introduced in Commission Regulation (EU) No 965/2012. According to sub-paragraph (c) of SPA.HOFO.165, all persons on board shall carry, and be instructed in the use of, emergency breathing systems.
- Additional initial airworthiness requirements have been established, such as:
- Mandatory automatic activation of helicopter flotation equipment,
- Automatic deployment of the flotation equipment must not rely on any pilot action during flight for CS-27 Cat A and CS-29 types,
- Requirements for remote life raft deployment,
- Additional requirements on the number, size and operability of emergency exits to be used underwater,
- New cabin design requirements to ensure that all passengers are allocated near an exit or window which is suitable and easily accessible, and no passenger is worse than 2nd in line to escape the helicopter through a window, in order for each to be able to escape within their breathing time.

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-WNSB	AEROSPATIALE AS332	on approach to Sumburgh Airport in the Shetland Islands	23/08/2013	Accident

Synopsis of the event:

Super Puma helicopter with sixteen passengers and two crew on board crashed in the sea during the approach to land at Sumburgh Airport. Four of the passengers did not survive. The approach was flown with the autopilot in 3-axes mode, which required the commander to manually operate the collective pitch control. The co-pilot was responsible for monitoring the helicopter's vertical flightpath against the published approach vertical profile and for seeking the external visual references necessary to continue with the approach and landing. The procedures permitted the helicopter to descend to a height of 300 ft, the Minimum Descent Altitude (MDA) for the approach, at which point a level-off was required if visual references had not yet been acquired. However, the helicopter continued to descend below the MDA, even though the required visual references had not been acquired.

Although the approach vertical profile was maintained initially, insufficient collective pitch control input was applied by the commander to maintain the approach profile and the target approach airspeed of 80 kt. This resulted in insufficient engine power being provided and the helicopter's airspeed reduced continuously during the final approach. During the latter stages of the final approach the helicopter's airspeed had decreased below 35 kt and a high rate of descent had developed.

The decreasing airspeed went unnoticed by the pilots until a very late stage, when the helicopter was in a critically low energy state. The commander's attempt to recover the situation was unsuccessful and the helicopter struck the surface of the sea approximately 1.72 nm west of Sumburgh Airport. It rapidly filled with water and rolled inverted, but was kept afloat by the flotation bags which had deployed.

Safety Recommendation UNKG-2016-026:

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

Reply No 1 sent on 27/04/2016: In the frame of Rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), EASA NPA 2016-01 was published on 23/03/2016. The NPA 2016-01 proposal (dedicated to certification specifications (CS) of rotorcraft under CS-29 or CS-27) includes a provision for a requirement meeting the intent of this safety recommendation. The proposed CS 27/29.1415 requires life rafts remote controls to be located within easy reach of the flight crew, occupants of the passenger cabin and survivors in the water with the rotorcraft in the upright floating or capsized position.

The application of the requirement to existing helicopters will be considered in a second NPA.

Reply No 2 sent on 28/08/2018: In the frame of Rulemaking Task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment, NPA 2016-01, was published for public consultation on 23/03/2016, and proposed new certification specifications (CS-27 and CS-29) to address this safety recommendation.

Certification Specifications CS-27 and CS-29 have been amended on 25 June 2018 by Executive Director Decision 2018/007/R.

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

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

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

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

The retrospective application of the requirements to existing helicopters, through an amendment of Regulation (EU) No 2015/640 Additional airworthiness specifications for operations (Part-26), will be considered in a second NPA. The current target for publication is 4Q2018 (per the European Plan for Aviation Safety (EPAS) 2018-2022).

Reply No 3 sent on 03/03/2021: In the frame of rulemaking task RMT.0120 ('Helicopter ditching and water impact occupant survivability'), the first Notice of Proposed Amendment (NPA) 2016-01 was published for public consultation on 23 March 2016 and proposed new certification specifications (under CS-27 and CS-29) to address this safety recommendation.

CS-27 and CS-29 were amended on 25 June 2018 by Executive Director (ED) Decision 2018/007/R.

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

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

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

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

The retrospective application of these specifications to existing helicopters (but limited to large helicopters that are required to have an installed life raft) is proposed under NPA 2020-16 which was published on 23 December 2020.
The NPA proposes a new point 26.420(b) on 'Flight over water emergency equipment' in Annex I (Part-26) to Commission Regulation (EU) No 2015/640. A corresponding specification CS 26.420(b) is also proposed to be introduced in CS-26.

Status: Open

United States

Registration	Aircraft Type	Location	Date of event	Event Type
N390LG	AEROSPATIALE AS350	Frisco, Colorado	03/07/2015	Accident

Registration	Aircraft Type	Location	Date of event	Event Type
N356AM	EUROCOPTER EC130	St. Louis, Missouri	06/03/2015	Accident

Synopsis of the event:

N390LG

This report discusses the July 3, 2015, accident in which an Airbus Helicopters AS350 B3e, N390LG, registered to and operated by Air Methods Corporation, crashed into a parking lot shortly after lifting off from the Summit Medical Center Heliport, Frisco, Colorado. The pilot was fatally injured, and the two flight nurses onboard were seriously injured. The helicopter was destroyed by impact forces and a postcrash fire.

N356AM

On March 6, 2015, at 23:10 central standard time, an Airbus Helicopters (Eurocopter) EC-130, N356AM, operated by Air Methods (doing business as ARCH), struck the edge of a hospital building and impacted its parking lot during a visual approach to the St Louis University Hospital elevated rooftop helipad (MO55), St Louis, Missouri. During the approach, the helicopter experienced a loss of directional control and entered an uncontrolled descent. The helicopter was destroyed by impact forces and a post-crash fire. The commercial pilot, who was the sole occupant, sustained fatal injuries. The helicopter was performing an air medical positioning flight that was operating on a company flight plan. Night visual meteorological conditions prevailed at the time of the accident. The flight was returning to MO55 after it had been refueled at the operator's base located at Arch Heliport (MU05), St. Louis, Missouri.

The medical crewmembers had been dropped off with a patient on a preceding flight. During the preceding flight, the nurse thought about telling the pilot to abort the landing on the heliport because there was a lot of rolling and yawing, and he was having a hard time landing the helicopter. After the landing, the nurse and another medical crewmember stated that the pilot did not want to depart the heliport, but the medical crewmembers told the pilot that there may be potential arrivals of other EMS helicopters. The pilot chose to depart the heliport and obtained fuel at the operator's base of operations. For the return flight to pick up the two medical crewmembers, the wind had increased, and the helicopter approached the heliport in high-wind conditions and with a right, quartering tailwind. Also, the wind along with the surrounding buildings likely created a turbulent airflow/windshear environment in which the helicopter was operating as it approached for landing. The helicopter's operation in a high-power, low-airspeed condition in high-wind conditions, including a right quartering tailwind, likely resulted in a loss of control due to settling with power.
A security video showed the helicopter on a northerly flight path descending at about a 45- degree angle before impacting the ground and coming to rest on an approximate

northerly heading. The pilot sustained fatal injuries due to the subsequent fuel tank fire/explosion, which otherwise would have been a survivable accident.
A post-accident safety evaluation of the heliport showed that the final approach and take off area/safety area were obstructed by permanent and semi-permanent objects that pose a serious hazard to helicopter operations. These obstructions limited the available approach paths to the heliport, which precludes, at times, approaches and landings with a headwind.

Safety Recommendation UNST-2016-001:

Once Airbus Helicopters completes development of a retrofit kit to incorporate a crash-resistant fuel system into AS350 B3e and similarly designed variants, prioritize its approval to accelerate its availability to operators. [A-16-011]

Reply No 1 sent on 07/06/2016: EASA is already working with Airbus Helicopters to expedite the certification of a retrofittable design change to incorporate a crash-resistant fuel system into AS350 B3e. In addition, once Airbus Helicopters have completed the development and applied for the certification of retrofittable design changes for other similarly designed variants, EASA will prioritize its approval. Such aircraft configurations will be made available according to the manufacturer plans for its installation on new production and on already flying aircraft.

Reply No 2 sent on 14/03/2017: As a result of a close and priority effort with Airbus Helicopters, EASA approved Supplemental Type Certificate (STC) No. 10060852 to certify a crash resistant fuel system in the AS350B3e under certain limitations. Additional flexibility to use this configuration is granted, if needed, by EASA STC No. 10061056.

This design shall be available for operators both in new delivered aircraft and as retrofit kit for aircraft already in service.

EASA continues working together with Airbus Helicopters on the certification of design solutions which may allow the installation of a crash resistant fuel system without limitations.

Reply No 3 sent on 03/03/2021: The European Union Aviation Safety Agency (EASA) has been cooperating with Airbus Helicopters (AH) and the Federal Aviation Administration (FAA) to improve post-crash fire protection in the in-service helicopters fleet.

Within this framework, new Crash-Resistant Fuel System (CRFS) modifications have been recently developed by different applicants, approved by EASA and made available for new helicopter deliveries or, as a retrofit kit, for helicopters already in service as detailed below:
-EASA Major Change 10072097 dated 18/12/2019, developed by AH and applicable to all AS350 B3 helicopter models without any limitation.
-EASA Supplemental Type Certificate (STC) 10064703 dated 20/06/2018, developed by Standard Aero (previously known as Vector Aerospace Helicopter Service USA, Inc.) and

applicable to AS350 D, AS350 B, AS350 B1, AS350 B2, AS350 BA, AS350 B3 and EC130 B4 helicopter models without any limitation.

These modifications complemented the ones already available to operators at the time of the previous EASA answer to this SR and lately revised to extend their applicability to the EC130 B4 helicopter model as detailed below:
-EASA STC 10061056 Rev. 01 dated 24/01/2020, developed by AH and applicable to AS350 B3, if equipped with Safran Helicopter Engines Arriel 2D engine, and EC130 B4 helicopter models without any limitation.
-EASA STC 10060852 Rev. 01 dated 27/01/2020, developed by AH and applicable to AS350 B3, if equipped with Safran Helicopter Engines Arriel 2D engine, and EC130 B4 helicopter models with limitation forbidding underbelly installations.

EASA considers that the installation of any of the modifications listed above will reduce the risk of post-crash fires for the in-service helicopters fleet and contribute to increase the occupant escape time after a survivable crash.

Consequently, their installation has been recommended by EASA via the release of the EASA Safety Information Bulletin (SIB) ref. 2017-18R2 ("Installation of Crash Resistant Fuel System") dated 14/01/2021. This is being promoted by AH through retrofit campaign incentives for operators.

Therefore, EASA considers the safety recommendation as properly addressed.

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-LGNO	SAAB 2000	en-route	15/12/2014	Serious incident

Synopsis of the event:

The flight crew decided to discontinue their approach to Runaway 27 at Sumburgh Airport because of weather ahead. As it established on a southerly heading the aircraft was struck by lightning. The commander made nose-up pitch inputs but perceived that the aircraft did not respond as expected. After reaching 4000 ft AMSL, the aircraft pitched nose-down to a minimum of 19° and the applicable maximum operating speed (vmo) was exceeded by 80 KIAS with a peak descent rate of 9500 ft/min. The aircraft started to climb after reaching a minimum height of 1100 ft AMSL. Recorded data showed that the autopilot had remained engaged, and the pilots' nose-up pitch inputs were countered by the autopilot pitch trim function, which made a prolonged nose-down pitch trim input in an attempt to maintain its altitude-tracking function.

Safety Recommendation UNKG-2016-054:

It is recommended that the European Aviation Safety Agency amend the Acceptable Means of Compliance for Certification Specification 25.1329 to ensure that requirement 25.1329(l) can only be met if the autopilot automatically disengages when the flight crew applies a significant override force to the flight controls and the auto-trim system does not oppose the flight crew's inputs.

Reply No 1 sent on 24/11/2016: The Agency will contact the FAA to jointly assess the safety issue highlighted by this safety recommendation.

Reply No 2 sent on 20/05/2021: The European Union Aviation Safety Agency (EASA) has published the Certification Specifications (CS) and Acceptable Means of Compliance (AMC) for Large Aeroplanes CS-25 - Amendment 26, amending AMC 25.1329. Paragraph 8.4.1 - Autopilot, 2.a, states the following:
"The sustained application of an override force should not result in a potential hazard when the flight crew manually disengages the autopilot or abruptly releases the force on the controls. During sustained application of an override force, the automatic trim should not run to oppose the flight crew commands in any manner that would result in unacceptable aeroplane motion. Mitigation may be accomplished through provision of an appropriate alert and flight crew procedure.
NOTE: The term 'sustained application of override force' is intended to describe a force that is applied to the controls, which may be small, slow, and sustained for some period of time. This may be due to an inadvertent crew action or may be an intentional crew action meant to 'assist' the autopilot in a particular manoeuvre."

The philosophy of accepting alerts and procedures as an alternative to automatic autopilot disengagement is based on cases where the autopilot design provides no disconnection triggered by force sensors. In these cases, it has to be demonstrated that the alert is appropriate (ensuring that the mistrim is not too high when it is triggered

and can be recovered safely applying the procedure) and also that it is efficient and sufficiently alerting.

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-LGNO	SAAB 2000	Approximately 7 nm east of Sumburgh Airport, Shetland	15/12/2014	Serious incident

Synopsis of the event:

The flight crew decided to discontinue their approach to Runaway 27 at Sumburgh Airport because of weather ahead. As it established on a southerly heading the aircraft was struck by lightning. The commander made nose-up pitch inputs but perceived that the aircraft did not respond as expected. After reaching 4000 ft AMSL, the aircraft pitched nose-down to a minimum of 19° and the applicable maximum operating speed (vmo) was exceeded by 80 KIAS with a peak descent rate of 9500 ft/min. The aircraft started to climb after reaching a minimum height of 1100 ft AMSL. Recorded data showed that the autopilot had remained engaged, and the pilots' nose-up pitch inputs were countered by the autopilot pitch trim function, which made a prolonged nose-down pitch trim input in an attempt to maintain its altitude-tracking function.

Safety Recommendation UNKG-2016-051:

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

Reply No 1 sent on 24/11/2016: The Agency is currently reviewing the history of similar events on the large transport aeroplane fleet to assess the risks associated with the current autopilot system design. The need of the review will be evaluated based on the outcome of the above mentioned assessment.

Reply No 2 sent on 26/10/2021: The European Union Aviation Safety Agency (EASA) has reviewed the current autopilot EASA certified designs, and the history of similar events among the large transport aeroplanes fleet to assess the risks associated with the current designs.
The review encompassed all the large aeroplane designs certified by EASA as the primary certification authority, and it showed that apart from the SAAB 2000, there is no other European Union design that is susceptible to the same situation and which would require any change.

Regarding the SAAB 2000, the review process has led to the publication of Airworthiness Directive 2018-0240 (as recommended by Safety Recommendation UNKG-2016-050). Additionally, Acceptable Means of Compliance (AMC) 25.1329 has been amended (as recommended by Safety Recommendation UNKG-2016-054).

Since the analysis commenced before Brexit, it initially included British designs. The review of the BAe 146 is the only one for which the assessment is not yet concluded

(discussions with the CAA UK are still ongoing).

Status: Open

Sweden

Registration	Aircraft Type	Location	Date of event	Event Type
SE-MDB	ATR ATR72	during approach to Visby Airport	30/11/2014	Serious incident

Synopsis of the event:

The incident occurred during a scheduled flight from Bromma to Visby. The flight, which was conducted with an aircraft of model ATR-72-212A, had flight number DC929 and was operated by Braathens Regional AB. Four crew members and 51 passengers were on board.
The commander has stated that small vibrations were felt during descent, at around 7,000 feet. The indicated speed was 250 kts and the power levers were set to idle. The vibrations increased in intensity and the commander reduced the rate of descent to 2,500 feet per minute. The vibrations became so severe that the cabin crew had difficulties moving in the cabin and that there were difficulties reading the instruments in cockpit. Information from the flight recorders shows that the left propeller was first feathered momentarily. The right propeller was feathered thereafter, after which the right engine was shut off.

The flight continued with the left engine in operation. The information also reveals that the communication between the pilots did not include confirmation of which engine's power levers were manoeuvred. A number of warning signals were activated during the sequence of events. The signals were not reset during the acute phase of the event. When the commander moved the right propeller control to feather position, he was unable to push it all the way to fuel shut-off position. The control was therefore returned to the "auto" position and then pushed back via the feather position to fuel shut-off, whereby the vibrations subsided. The co-pilot explained the situation to the air traffic controller in the Visby tower and declared an emergency situation. The air traffic controller triggered the alert signal.
The approach and landing were executed without problems. The aircraft sustained major damages.

Safety Recommendation SWED-2016-002:

EASA is recommended to:
Consider introducing temporary limitations in the manoeuvring envelope, or limitations of the power ranges within the latter, until the problem is resolved and rectified. (RL 2016:07 R1)

Reply No 1 sent on 17/01/2017: On 19 January 2016, EASA issued Safety Information Bulletin (SIB) 2015-03R1. Since then, there were no further events on record where propeller vibration caused damage to the hardware.

Operators flying aeroplanes as defined in the Applicability of this SIB should follow as much as possible the aeroplane manufacturer recommendation for a standard descent speed at maximum 240 knots (refer to ATR Fight Crew Operating Manual – Section 3.07). If, for any reason, during descent the speed becomes close to VMO and the power levers have to be reduced to 'flight idle' position, a smooth and progressive reduction of the power levers should be accomplished.

Additionally, the UTAS company issued in August 2015 (SB568F-61-69) "Propeller - Variable Pitch Aircraft - Introduction of New Ball Separator", addressing reduction of internal friction loads which are suspected to contribute to the observed vibrations.

Testing coordinated between the Aircraft- and Propeller Type Certificate holder is still ongoing. These tests are necessary to confirm the possible causes of severe vibrations.

Reply No 2 sent on 26/04/2021: In order to analyse the cyclic load phenomenon on the forward yoke plate of the Collins Aerospace 568F propeller installed on the Avions de Transport Régional (ATR) ATR-42 and ATR-72, analyses were performed of the trunnion pin loads during events at flight idle and near VMO (maximum operating speed). The analyses focused on the high speed descent operating conditions. The load cases were evaluated based on propeller Vibratory Stress Surveys (VSS) flight test data and on results from an analytical model. Collins Aerospace report RF06090 version 00 was submitted to the European Union Aviation Safety Agency (EASA) and the Bureau d'Enquêtes et d'Analyses (BEA).

The report summarizes the work done and concludes that "the load analysis on 568F-1 propeller pitch change mechanism at or above VMO (VMO+20 KCAS) and flight idle does not reveal that any threshold has been crossed and would result in a large increase of the cyclic load phenomenon on the forward plate causing damage to the system. Analysis are therefore showing that ATR72-212A flight envelope provides sufficient margins to prevent this phenomenon from causing damage to the 568F-1 propeller pitch change mechanism."

The need for temporary limitations in the manoeuvring envelope, or limitations of the power ranges within the latter, was not confirmed.

EASA and ATR support this conclusion and concur with the conclusion of the report.

Status: Closed

Sweden

Registration	Aircraft Type	Location	Date of event	Event Type
SE-DUX	BOMBARDIER CL600 2B19	Oajevágge, Norrbotten County, Sweden (position 6743N 01654E, 2 370 feet above mean sea level)	07/01/2016	Accident

Synopsis of the event:

The accident occurred on 8 January 2016 during a commercial cargo flight from Oslo/Gardermoen Airport (ENGM) to Tromsø/Langnes Airport (ENTC) and involved an aeroplane of the model CL-600-2B19, manufactured by Bombardier Inc. The aeroplane was operated by West Atlantic Sweden AB and had the registration SE-DUX.
The flight was uneventful until the start of the event, which occurred during the approach briefing in level flight at FL 330. The event started at 00:19:20 hrs during darkness without moonlight, clouds or turbulence. The lack of external visual references meant that the pilots were totally dependent on their instruments which, inter alia consisted of three independent attitude indicators.
According to recorded data and simulations a very fast increase in pitch was displayed on the left attitude indicator. The pilot in command, who was the pilot flying and seated in the left seat exclaimed a strong expression. The displayed pitch change meant that the pilot in command was subjected to a sur-prise effect and a degradation of spatial orientation The autopilot was, most probably, disconnected automatically, a "cavalry charge" aural warning and a single chime was heard, the latter most likely as a result of miscompare between the left and right pilots' flying displays (PFD).
Both elevators moved towards nose down and nose down stabilizer trim was gradually activated from the left control wheel trim switch. The aeroplane started to descend, the angle of attack and G-loads became negative. Both pilots exclaimed strong expressions and the co-pilot said "come up".
About 13 seconds after the start of the event the crew were presented with two contradictory attitude indicators with red chevrons pointing in opposite directions. At the same time none of the instruments displayed any comparator caution due to the PFDs declutter function in unusual attitude.
Bank angle warnings were heard and the maximum operating speed and Mach number were exceeded 17 seconds after the start of the event, which activated the overspeed warning.
The speed continued to increase, a distress call was transmitted and acknowledged by the air traffic control and the engine thrust was reduced to flight idle.
The crew was active during the entire event. The dialogue between the pilots consisted mainly of different perceptions regarding turn directions. They also expressed the need to climb. At this stage, the pilots were probably subjected to spatial disorientation. The aircraft collided with the ground one minute and twenty seconds after the initial height loss.
The two pilots were fatally injured and the aeroplane was destroyed.

Safety Recommendation SWED-2016-005:

Ensure that the design criteria of PFD units are improved in such a way that pertinent cautions are not removed during unusual attitude or declutter modes. [RL 2016:11 R3]

Reply No 1 sent on 03/03/2017: Pitch miscompare flags are implemented in Primary Flight Displays (PFD) to mitigate the effect of misleading attitude indication. The intent of the certification requirements for PFD is that miscompare flags are not removed in unusual attitudes or declutter modes.
EASA is in contact with TCCA, primary certification authority for the CL600-2B19, to analyse the reasons why the pitch miscompare flag is removed in this design in unusual attitudes. In parallel, EASA is investigating if any other EASA certified design has similar design features.

Reply No 2 sent on 20/12/2018: Pitch miscompare flags are implemented in Primary Flight Displays (PFD) to mitigate the effect of misleading attitude indication. The intent of the certification requirements for PFD is that miscompare flags are not removed in unusual attitudes or declutter modes.

EASA has carried out an analysis of the design criteria for PFD units in coordination with the primary certification authority for the subject aircraft (Transport Canada Civil Aviation) and the Federal Aviation Administration. The data indicates that there is no systemic issue caused by the current system safety guidance, and in particular, the guidance concerning the display of misleading attitude information and other such primary flight information.

Nevertheless, EASA intends to provide additional guidance to indicate that the failure message, flag, or comparative monitoring alert for any fault that can contribute to, or cause, misleading presentations of primary flight information, should remain on the PFD or in the primary field of view during modes of declutter, where they may be otherwise masked or removed.

The Agency has also reviewed the other EASA certified designs, and has found that, in a few models, the current design is such that certain miscompare flags are removed in declutter modes. EASA intends to assess if, for those few models, any design or procedural improvement is feasible.

Reply No 3 sent on 30/04/2020: On 20 January 2020, the European Union Aviation Safety Agency (EASA) published the Notice of Proposed Amendment (NPA) 2020-01 from rulemaking task RMT.0673 'Regular update of CS-25' which includes proposed new provisions under Acceptable Means of Compliance (AMC) 25-11 to clarify that specified alerts should remain visible when primary flight displays declutter.

The NPA proposes a change to AMC 25-11 (Electronic Flight Deck Displays) under item 9:
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-01

The change clarifies that 'Failure messages, flags, or comparative monitoring alerts related to the information required by CS 25.1303 should not be removed by decluttering the display'.

The outcome of this NPA will be part of an amendment to CS-25 which is currently expected to be published in an Executive Director Decision in Q1 2021.

Reply No 4 sent on 03/03/2021: The European Union Aviation Safety Agency (EASA) has published the Certification Specifications (CS) and Acceptable Means of Compliance (AMC) for Large Aeroplanes CS-25 - Amendment 26, amending AMC 25-11. Chapter 5 - ELECTRONIC DISPLAY INFORMATION ELEMENTS AND FEATURES, par. 31.2.4.b - Clutter and deClutter, states as follows:

"Failure messages, flags, or comparative monitoring alerts related to the information required to be indicated by CS 25.1303 should not be removed from the main Primary Flight Display by decluttering the display, as long as the associated indication is maintained on the Primary Flight Display."

In parallel, EASA has reviewed all European large aeroplanes certified designs and have concluded that there are only a few cases with similar design to the CL-600: the Dassault Aviation Falcon 2000, 2000EX and 50EX equipped with Rockwell Collins Proline IV EFD 4077 displays.

For these cases, it has been concluded that it would be impractical to modify them considering the pending obsolescence of these displays and the associated costs related to the software change. Dassault Aviation will inform the operators affected by the issue as per the subject of this Safety Recommendation.

Status: Closed

Sweden

Registration	Aircraft Type	Location	Date of event	Event Type
YR-FZA	FOKKER F28	Gällivare Airport	06/04/2016	Serious incident

Synopsis of the event:

The serious incident occurred during a scheduled flight from Arvidsjaur to Gällivare airport and involved an aeroplane of the model Fokker F28 Mark 0100 with the registration marks YR-FZA. The aircraft was operated by the Romanian operator Carpatair on behalf of the Swedish airline Nextjet.
During the instrument approach to runway 30 at Gällivare airport, which was performed in darkness with snow and rain, the runway threshold was crossed at approximately 50 feet with a recorded speed of 134 knots. After a hard landing in the touchdown zone with unchanged speed the aeroplane bounced and was displaced in yaw. Reported friction coefficients were 0.36, 0.34 and 0.35.
After the landing, which was performed with full flaps and extended speed brake, the lift dumpers on the wing's upper surface extended. According to interviews, maximum reverse was activated and the brakes were applied immediately after the displacement in yaw. Data from the recordings indicate that reverse rpm increased from low idle only 20 seconds after touchdown at a speed of about 50 knots. Engine reverse rpm then only reached 75 % and 65 %, while the maximum speed limitation is 95.5 %.
The aeroplane overran the end of the runway and came to a full stop on the runway strip. There were no injuries and the damage to the aeroplane was limited.

Safety Recommendation SWED-2017-003:

EASA is recommended to work for the introduction of a generic Safe Landing concept including the flight phase from the runway threshold until full stop. (RL 2017:03 R2)

Reply No 1 sent on 02/06/2017: The European Plan for Aviation Safety (EPAS) is fed from the European Safety Risk Management process. At the heart of the EPAS are the domain Safety Risk Portfolios, which identify the Key Risk Areas (Accident Outcomes) to be prevented and the associated Safety Issues. The assessment of identified Safety Issues results in the identification of EPAS action proposals. A Safety Issue has been added to the CAT Aeroplanes Safety Risk Portfolio for "Approach Path Management". This will be subject to a full Safety Issue Assessment that will fully evaluate the Safe Landing Concept as part of the action proposals.

Reply No 2 sent on 10/06/2021: The European Safety Risk Management is one of the processes feeding the European Plan for Aviation Safety (EPAS). The Safety Risk Portfolios identify the Key Risk Areas and the associated Safety Issues.

The Safety Issue "Approach Path Management" (SI.0007) is part of the CAT Aeroplanes Safety Risk Portfolio and will be assessed as part of the Data 4 Safety (D4S) directed study on "Approach path management". The objective of this directed study is to better

understand the context of unstable approaches and go-arounds (including not correctly executed go-arounds) and the associated risks.

The approach path management safety issue will also be discussed during the SAFE 360 forum in June 2021.

The outcomes of the SAFE 360 panel discussions, in combination with the progress made by the directed study on approach path management currently conducted as part of Data4Safety, will orient the actions defined in the EPAS to address this safety issue.

A report on the assessment related to SI.0007 is now scheduled for Q4 2021.

Status: Open

Sweden

Registration	Aircraft Type	Location	Date of event	Event Type
SE-LLO	BAE ATP	Vilhelmina Airport, Västerbotten County	06/04/2016	Serious incident

Synopsis of the event:

The aeroplane, a BAe ATP from NextJet AB with the registration SE-LLO, took off from Hemavan Tärnaby Airport on a scheduled flight to Vilhelmina. There were 19 passengers and four crew members on board.
The plan was for the flight to continue on to Stockholm Arlanda Airport after a short stay on the ground in Vilhelmina. Due to the prevailing weather, the pilots were informed via radio from the airport in Vilhelmina that snow clearance of the runway had commenced. The pilots commenced an ILS6 approach to runway 28 in Vilhelmina. The visibility at the time was approximately 1,400 metres in snow with reported friction coefficients of 0.43, 0.45 and 0.42 and 0.5 cm (5 mm) of slush on the runway. Performance calculations were made using the lowest friction value of 0.42, but without corrections for contamination on the runway. According to the commander, the approach was normal and without deviations or problems. The approach was perceived early on to be stabilised and no major adjustments to attitude or engine power needed to be made. This is supported by recordings from the aeroplane's flight data recorder.
According to the commander, touchdown was at a normal speed on the centre line in the touchdown zone of the runway. Immediately after touchdown, the aeroplane drifted over to the right side of the runway and after a certain amount of ground roll outside the runway edge, was steered back towards the runway centre line again.
During their stay on the ground, the commander had a dialogue with one of the ramp service persons regarding the occurrence. At this time, the crew's perception of the incident changed and they did not believe they had run off the runway. This perception is however not consistent with the radio communications with the tower, the information provided by the ramp service person and the images taken directly after the incident. Later on, it was established during an inspection the day after the occurrence that the aeroplane had suffered structural damage to the right wing flap, likely caused by the runway light being thrown up towards the underside of the wing when it was run over. SHK has established that the damaged wing flap – which had to be replaced – had cracks and other damage which likely affected the structural integrity of the unit. The aeroplane was thus not airworthy for the flights which were carried out following the landing in Vilhelmina.

Safety Recommendation SWED-2017-005:

The EASA is recommended to:
Introduce generic performance corrections for aeroplane operations on surfaces contaminated with slush or water. (RL 2017:05e R1)

Reply No 1 sent on 02/06/2017: The current regulatory framework addresses the risks associated with aeroplanes landing on contaminated runways, such as:

Commission Regulation (EU) No 965/2012 on air operations:

•For wet and contaminated runways, performance data determined in accordance with applicable standards on certification of large aeroplanes or equivalent shall be used, and shall be specified in the operations manual (sub-paragraphs (b) and (c) of CAT.POL.A.200).

•If the performance data has been determined on the basis of a measured runway friction coefficient, the operator should use a procedure correlating the measured runway friction coefficient and the effective braking coefficient of friction of the aeroplane type over the required speed range for the existing runway conditions (AMC1 CAT.POL.A.200).

•Contaminated runway means a runway of which more than 25 % of the runway surface area within the required length and width being used is covered by: surface water more than 3 mm (0,125 in) deep, or by slush, or loose snow, equivalent to more than 3 mm (0,125 in) of water; snow which has been compressed into a solid mass which resists further compression and will hold together or break into lumps if picked up (compacted snow); ice, including wet ice (sub-paragraph (25) of Annex I 'Definitions).

•Before commencing an approach to land, the commander shall be satisfied that, according to the information available to him/her, the weather at the aerodrome and the condition of the runway or final approach and take-off area intended to be used should not prevent a safe approach, landing or missed approach, having regard to the performance information contained in the operations manual (see CAT.OP.MPA.300).

•Provisions under CAT.POL.A.235 and CAT.POL.A.335 for aeroplanes landing on wet and contaminated runways.

Certification Specifications (CS) and Acceptable Means of Compliance (AMC) for large aeroplanes:

•CS 25.1591 requires performance information to be contained in the Aircraft Flight Manual or a statement to prohibit operations on contaminated runways. The derivation and methodology of such performance information is described in AMC 25.1591.

The above-mentioned provisions, together with effective implementation of the air operations provisions on safety management systems (ORO.GEN.200) and oversight by the competent authority (ARO.GEN.300), are expected to provide an acceptable level of safety.

Nevertheless, rulemaking task RMT.0296 'Review of aeroplane performance requirements for CAT operations' was launched by EASA on 9 June 2015 with the publication of the terms of reference. The associated notice of proposed amendment NPA 2016-11 was published on 30 September 2016. It includes proposals on standards for runway surface condition reporting, airworthiness standards for landing performance computation at time of arrival and an in-flight assessment of landing performance at time of arrival. The NPA takes into account the following recommendations made in the 2013 European Action Plan for the Prevention of Runway Excursions (EAPPRE):

•Establish and implement one consistent method of contaminated runway surface condition assessment and reporting by the aerodrome operator for use by aircraft operators. Ensure the relation of this report to aircraft performance as published by aircraft manufacturers.

•It is recommended that aircraft operators always conduct an in-flight assessment of the landing performance prior to landing. Note: Apply an appropriate margin to these results.

The next deliverable for RMT.0296, an EASA Opinion, is planned to be published in the third quarter of 2017.

Reply No 2 sent on 20/05/2021: The International Civil Aviation Organisation (ICAO), through amendments to applicable Standards and Recommended Practices (SARPs) and ICAO Documents, has introduced a global reporting format (GRF) for assessing and reporting runway surface conditions, with the objective of ensuring a link between the reporting and aircraft performance as published by the aircraft manufacturers.

The above-mentioned ICAO amendments have been transposed into the European regulatory framework through Commission Implementing Regulation (EU) 2019/1387 (amending Commission Regulation (EU) No 965/2012 on air operations), published on 01 August 2019, and the European Union Aviation Safety Agency's (EASA) Executive Director Decision EDD 2021/005/R, published on 23 April 2021 , following EASA's rulemaking task RMT.0296 'Review of the aeroplane performance requirements for air operations'.

The newly introduced GRF aims to ensure the reporting of runway surface conditions (which may include contamination with slush or water) in a standardised manner so that flight crews can accurately determine take-off and landing performance for the prevailing runway surface conditions.

According to Commission Implementing Regulation (EU) 2019/1387 and the associated EDD, determination of take-off performance for wet and contaminated runways should be based on the reported runway surface condition in terms of contaminant and depth. Determination of landing performance should be based on information provided in the operations manual on the reported runway condition code (RWYCC). The RWYCC is determined by the aerodrome operator using the runway condition assessment matrix (RCAM) and associated procedures defined in ICAO Doc 9981 — 'PANS Aerodromes'.

To raise awareness and support the deployment of the GRF in the Member States, EASA organised workshops on 10 March 2021 with Industry (Aerodrome Operators, Air Operators, Aeroplane Manufacturers, Air Traffic Services Providers and Aeronautical Information Service Providers) and on 17 March 2021 with the National Aviation Authorities of the EASA Member States.

Status: Closed

Sweden

Registration	Aircraft Type	Location	Date of event	Event Type
SE-LLO	BAE ATP	Vilhelmina Airport, Västerbotten County	06/04/2016	Serious incident

Synopsis of the event:

The aeroplane, a BAe ATP from NextJet AB with the registration SE-LLO, took off from Hemavan Tärnaby Airport on a scheduled flight to Vilhelmina. There were 19 passengers and four crew members on board.
The plan was for the flight to continue on to Stockholm Arlanda Airport after a short stay on the ground in Vilhelmina. Due to the prevailing weather, the pilots were informed via radio from the airport in Vilhelmina that snow clearance of the runway had commenced. The pilots commenced an ILS6 approach to runway 28 in Vilhelmina. The visibility at the time was approximately 1,400 metres in snow with reported friction coefficients of 0.43, 0.45 and 0.42 and 0.5 cm (5 mm) of slush on the runway. Performance calculations were made using the lowest friction value of 0.42, but without corrections for contamination on the runway. According to the commander, the approach was normal and without deviations or problems. The approach was perceived early on to be stabilised and no major adjustments to attitude or engine power needed to be made. This is supported by recordings from the aeroplane's flight data recorder.
According to the commander, touchdown was at a normal speed on the centre line in the touchdown zone of the runway. Immediately after touchdown, the aeroplane drifted over to the right side of the runway and after a certain amount of ground roll outside the runway edge, was steered back towards the runway centre line again.
During their stay on the ground, the commander had a dialogue with one of the ramp service persons regarding the occurrence. At this time, the crew's perception of the incident changed and they did not believe they had run off the runway. This perception is however not consistent with the radio communications with the tower, the information provided by the ramp service person and the images taken directly after the incident. Later on, it was established during an inspection the day after the occurrence that the aeroplane had suffered structural damage to the right wing flap, likely caused by the runway light being thrown up towards the underside of the wing when it was run over. SHK has established that the damaged wing flap – which had to be replaced – had cracks and other damage which likely affected the structural integrity of the unit. The aeroplane was thus not airworthy for the flights which were carried out following the landing in Vilhelmina.

Safety Recommendation SWED-2017-006:

The EASA is recommended to:
Review the feasibility of changing the method of reporting from airports in terms of friction coefficients, so that measured values are reported as unreliable under certain conditions. (RL 2017:05e R1)

Reply No 1 sent on 02/06/2017: Commission Regulation (EU) No 139/2014 requires the aerodrome operator to provide data relevant to the aerodrome and available services

to the users and the relevant air traffic services and aeronautical information services [ADR.OPS.A.005 (b)].

AMC1 ADR.OPS.A.005 further specifies that the aerodrome operator should provide information concerning the condition of the movement area, whereas GM1 ADR.OPS.A.005 states that 'for contaminants such as slush, wet snow and wet ice, contaminant drag on the equipment's measuring wheel, amongst other factors, may cause readings obtained in these conditions to be unreliable'.

ICAO, with Amendment 13 to Annex 14 and Amendment 1 to PANS-Aerodromes, introduced provisions regarding the use of a global reporting format for assessing and reporting runway surface conditions, with the objective to link better assessed runway surface conditions with aircraft performance. These provisions are required to be implemented by November 2020.

The Agency has introduced rulemaking task RMT.0704 "Runway Surface Condition Assessment and Reporting" in the European Plan for Aviation Safety (EPAS) 2017-2021, and is currently preparing the Terms of reference for the RMT, which are planned to be published by second quarter of 2017. This rulemaking task is planned to finish by second quarter of 2020.
The safety recommendation will be considered within the context of this RMT.

Reply No 2 sent on 17/04/2019: Commission Regulation (EU) No 139/2014 requires the aerodrome operator to provide data relevant to the aerodrome and available services to the users and the relevant air traffic services and aeronautical information services [ADR.OPS.A.005 (b)].

AMC1 ADR.OPS.A.005 further specifies that the aerodrome operator should provide information concerning the condition of the movement area, whereas GM1 ADR.OPS.A.005 states that 'for contaminants such as slush, wet snow and wet ice, contaminant drag on the equipment's measuring wheel, amongst other factors, may cause readings obtained in these conditions to be unreliable'.

ICAO, with Amendment 13 to Annex 14 and Amendment 1 to PANS-Aerodromes, introduced provisions regarding the use of a global reporting format for assessing and reporting runway surface conditions, with the objective to link better assessed runway surface conditions with aircraft performance. These provisions are required to be implemented by November 2020.

In the context of rulemaking task RMT.0704 "Runway Surface Condition Assessment and Reporting", EASA published in December 2018 the Notice of Proposed Amendment (NPA) 2018-14 on Runway Safety which, amongst others, addresses the relevant provisions of Amendment 13 to Annex 14 and Amendment 1 to PANS-Aerodromes. An EASA Opinion is planned for Q2 of 2019, while the relevant provisions are planned to be implemented by November 2020.

Reply No 3 sent on 26/04/2021: Commission Regulation (EU) No 139/2014 requires the aerodrome operator to provide data, relevant to the aerodrome and available services, to the users and the relevant air traffic services and aeronautical information services [ADR.OPS.A.005 (b)].

The International Civil Aviation Organization (ICAO), through Amendment 13 to Annex 14 'Aerodromes', Volume I 'Aerodrome Design and Operations' and Amendment 1 to ICAO Doc 9981 'PANS-Aerodromes', has introduced a global reporting format (GRF) for assessing and reporting runway surface conditions, with the objective of ensuring a link between the reporting and aircraft performance as published by the aircraft manufacturers.

The above-mentioned ICAO amendments have been transposed into the European regulatory framework through Commission Delegated Regulation (EU) 2020/2148 (amending Commission Regulation (EU) No 139/2014), published on 18 December 2020, and the European Union Aviation Safety Agency (EASA) Executive Director Decision 2021/003/R was published on 04 March 2021, following EASA's rulemaking task RMT.0703 'Runway safety'.

The newly introduced GRF aims to ensure the reporting of runway surface conditions in a standardised manner so that flight crews can accurately determine take-off and landing performance for the prevailing runway surface conditions. Reporting of friction coefficients is no longer applicable.

To raise awareness and support the deployment of the GRF in the Member States, EASA organised workshops on 17 March 2021 with the National Aviation Authorities and on 10 March 2021 with Industry (Aerodrome Operators, Air Operators, Aeroplane Manufacturers, Air Traffic Services Providers and Aeronautical Information Service Providers).

Status: Closed

United States

Registration	Aircraft Type	Location	Date of event	Event Type
N390LG	AEROSPATIALE AS350	Frisco, Colorado	03/07/2015	Accident

Synopsis of the event:

This report discusses the July 3, 2015, accident in which an Airbus Helicopters AS350 B3e, N390LG, registered to and operated by Air Methods Corporation, crashed into a parking lot shortly after lifting off from the Summit Medical Center Heliport, Frisco, Colorado. The pilot was fatally injured, and the two flight nurses onboard were seriously injured. The helicopter was destroyed by impact forces and a postcrash fire. Safety issues discussed in this report relate to the lack of a cockpit alert to pilots to indicate the loss of hydraulic boost to the pedal controls for AS350-series helicopters with a dual hydraulic system, the need for changes to the tail rotor flight controls of AS350-series helicopters with a dual hydraulic system to ensure pedal control hydraulic assistance and mitigate the possibility of pilot error during hydraulic system checks, the lack of readily available information for helicopter operators and customers regarding safety equipment and systems that would enhance a helicopter's crashworthiness, the need for crash-resistant fuel systems for helicopters not covered by the November 1994 fuel system crashworthiness requirements, and the lack of requirements to install, on smaller aircraft, flight recorder systems that protect recorded data from crash impact damage and postcrash fire damage.

Safety Recommendation UNST-2017-011:

After the actions requested in Safety Recommendation A-17-10 are completed, require operators of Airbus Helicopters dual-hydraulic AS350-series helicopters to incorporate changes to the dual hydraulic system to both ensure pedal control hydraulic assistance and mitigate the possibility of pilot error during any check of the hydraulic system. [A-17-10 addressed to Airbus Helicopter is the following: for existing dual-hydraulic AS350-series helicopters, assess and implement changes to the dual hydraulic system that would both ensure pedal control hydraulic assistance and mitigate the possibility of pilot error during any check of the hydraulic system.]

Reply No 1 sent on 02/06/2017: EASA has required operators of Airbus Helicopters dual-hydraulic AS350-series helicopters to incorporate changes as follows:

•EASA Airworthiness Directive (AD) 2015-0178 mandated a new procedure for the functional check of the Yaw Load Compensator, introduced with Airbus Helicopters Service Bulletin (SB) AS350-67.00.66

•EASA AD 2016-0220 mandated the modification to trigger a caution when the hydraulic switch on the collective grip is set to OFF, mandated the installation of an additional indicator light, and mandated the replacement of the bistable ACCU TST push button with a monostable push button. These modifications were introduced by Airbus Service Bulletins (SB) AS350-67.00.64 and SB AS350-67.00.65.

Reply No 2 sent on 31/07/2021: The European Union Aviation Safety Agency (EASA) acknowledges the National Transportation Safety Board (NTSB) letter dated 22/04/2020 replying to the EASA response sent on 02/06/2017 to the original Safety Recommendation (SR).

The NTSB letter highlights the following: "We do not believe that the requirements in AD 2015-0178 and AD 2016-0220, which were issued prior to this recommendation, minimize the probability of take-off without yaw pedal boost to a level that eliminates the unsafe condition".

However, minimizing the probability of take-off without pedal boost is a different safety objective compared to the one originally recommended by the NTSB in this SR, i.e. to mitigate the possibility of pilot error during any check of the hydraulic system.
Different considerations and compliance demonstration methodologies are expected when minimizing a hazard probability compared to pilot error mitigation.
Minimizing the probability of take-off without pedal boost requires consideration of system failure as a factor contributing to the hazard. The scope of the original SR is however confined to focusing on mitigating the possibility of pilot error during any check of the hydraulic system.
Based on above position, EASA confirms that the purpose of the EASA Airworthiness Directives (ADs) 2015-0178 and 2016-0220 is to mitigate the possibility of pilot error during checks of the hydraulic system and, therefore, EASA considers the SR as properly addressed.

As a first safety barrier, a specific Rotorcraft Flight Manual (RFM) procedure has been put in place as mandated by the AD 2015-0178 and, if correctly applied, enables safe operation of the helicopter.
As a second safety barrier, the introduction of the modifications (MODs) 07.4622 and 07.4719, mandated by the AD 2016-220, alerts the pilot of potential human error leading to take-off without yaw pedal boost, hence assisting him/her in the correct application of the above-mentioned RFM procedure.

Alongside the implementation of the two safety barriers described above, Airbus Helicopters (AH) continually monitors the residual risk on the affected Post-MOD fleet.
To date the residual risk – of taking-off without hydraulics on tail servo controls and without compensator loaded – is estimated as commensurate with the safety objective of preventing a catastrophic failure condition.
Supporting additional data on MODs implementation are provided by AH as follows:
-in production: 171 AS350 B3 helicopters have embodied MODs 07.4622 and 07.4719. These helicopters have accumulated so far 155745 Flight Hours (FH) without any finding with regards to the take-off procedure.
-In service: AH Service Bulletin (SB) AS350-67.00.64 (ref. MOD 07.4622) has been applied by 334 AS350 operators since 2015; AH SB AS350-67.00.65 (ref. MOD 07.4719) has been applied by 301 AS350 operators since 2016.

Lastly, EASA takes note that the NTSB letter gives some consideration to a design change expected to be developed by AH.
EASA confirms that AH is working on an improved version of the Tail Rotor (TR) load compensator, but this design change does not include any pressure-measuring device that would enable real-time monitoring by the crew. The main goal of this design change is the improvement of the TR compensator maintenance program. Thanks to the improved reliability expected to be achieved by the new accumulator design, some maintenance checks may be removed. It is however important to note that this

modification will not affect the take-off procedure, in particular the pilot check of the hydraulic system.
While EASA fully supports AH continuous improvement policy and its efforts to improve product reliability as part of the Light Helicopter Safety Plan, this design change is not directly linked to the safety concern raised by the NTSB with this SR.

Status: Closed

Spain

Registration	Aircraft Type	Location	Date of event	Event Type
EC-YDQ	RANS S6	San Javier-Murcia	15/07/2016	Accident

Synopsis of the event:

The pilot made a second transit circuit of the flight field of "Los Garranchos" in the municipality of San Javier (Murcia). During the final phase of the circuit, according to the information provided by witnesses, the engine rationed and seemed to stop. The aircraft reeled and swerved to its right, impacting vertically against the ground. The pilot died as a result of the impact. The aircraft was equipped with a ballistic parachute. During the work of deactivating this device by skilled personnel the aircraft caught fire and was affected by fire.

Safety Recommendation SPAN-2017-038:

It is recommended that the European Aviation Safety Agency (EASA) lay out the measures required so that aircraft equipped with a ballistic parachute reflect this in the flight plan as part of point SERA.4005, Contents of a flight plan, "Emergency and survival equipment". [REC 38/17]
[[%_A133%]] - Se recomienda a EASA que establezca las medidas necesarias para que las aeronaves equipadas con paracaídas balístico lo reflejen en el plan de vuelo dentro del punto SERA.4005 Contenido del plan de vuelo "equipamiento de emergencia y supervivencia".

Reply No 1 sent on 15/12/2017: EASA agrees with the proposed intent of the Safety Recommendation.

With Rulemaking Task RMT 0.476, EASA intends to ensure the maintenance of Commission Implementing Regulation (EU) No 923/2012 concerning the common rules of the air (SERA), as well as of the related Acceptable Means of Compliance (AMC) and Guidance Material (GM) included in the Executive Director (ED) Decision 2013/013/R. In this context, by first quarter of 2018 EASA will issue an Opinion and a related draft Decision in accordance with Art. 15 (Direct publication) of Management Board Decision No 18-2015 on the Agency's Rulemaking Procedure, to introduce necessary amendments to the existing Implementing Regulation (IR), AMC and GM.

Reply No 2 sent on 02/12/2021: The European Union Aviation Safety Agency (EASA) Rulemaking Task (RMT) RMT.0476 aims to ensure the regular update of the standardised European rules of the air, as laid down in Commission Implementing Regulation (EU) No 923/2012 and complemented with EASA Acceptable Means of Compliance (AMC) and Guidance Material (GM). Contrary to the initial plan, the prioritisation of rulemaking updates has prevented the implementation of the recommendation of the Civil Aviation Accident and Incident Investigation Commission (CIAIAC) so far.

The European Plan for Aviation Safety (EPAS) 2021-2025 describes several subtasks for RMT.0476. As part of Subtask 1, EASA intends to revisit SERA.4005 to accommodate the inclusion of the information requested in the flight plans. Subtask 1 and the related deliverables is experiencing delay with respect to the deadlines announced in EPAS. In

particular, the Notice of Proposed Amendment (NPA) associated with Subtask 1 is expected to be published in 2021 Q4 rather than in 2021 Q1.

Status: Open

Germany

Registration	Aircraft Type	Location	Date of event	Event Type
HB-JVE	FOKKER F28	Germany	20/01/2015	Accident

Synopsis of the event:

The Auxiliary Power Unit (APU) ingested de-icing fluid during the de-icing procedure on the apron. Subsequently turbine speed increased strongly and the APU ruptured. As a result the aft pressure bulkhead of the airplane was punctured by debris.

Safety Recommendation GERF-2018-002:

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

Reply No 1 sent on 27/04/2018: The Agency in view of the adoption of the new Basic Regulation will develop a ground handling roadmap. This roadmap shall address amongst other issues, aircraft de-icing. The roadmap is expected to be delivered by Q2/2019.

Reply No 2 sent on 26/04/2021: The scope of the European Union (EU)'s regulatory framework for civil aviation has been expanded to cover groundhandling (GH) services with the publication, on 22 August 2018, of Regulation (EU) 2018/1139 of the European Parliament and of the Council (hereafter referred to as the 'new Basic Regulation'). Annex VII of this Regulation establishes the essential requirements for GH service providers. According to the new Basic Regulation, the definition of 'groundhandling service' covers, amongst others, 'aircraft services', which, in turn, includes aircraft de-icing (See Council Directive 96/67/EC).
To determine the optimal way to discharge its new responsibilities in the GH domain, the European Union Aviation Safety Agency (EASA) has established a European GH Roadmap which was developed through focussed consultation with experts and reviewed with stakeholders during a GH Conference which took place on 07 March 2019. The Roadmap consists of three phases: fact finding, definition of scope, and implementation of actions. The first two phases have been completed.
For the 'implementation of actions' phase, EASA has initiated rulemaking task RMT.0728 'Development for requirements for groundhandling', with the objective of establishing a regulatory framework, consisting of Implementing Rules (IR), Acceptable Means of Compliance (AMC) and Guidance Material (GM), for the provision of GH services (see the European Plan for Aviation Safety (EPAS) 2021-2025).
Currently, Commission Regulation (EU) No 965/2012 on air operations covers aircraft ground de-icing/anti-icing through, amongst others, the following provisions which are addressed to the air operators (IR, AMC and GM):
•ORO.GEN.200 'Management system' (The operator's risk assessment, mitigation (e.g. procedures in the Operations Manual), personnel training and compliance monitoring)

•ORO.GEN.205 'Contracted activities' (The operator shall ensure compliance with the applicable rules by their service providers)
•AMC3 ORO.MLR.100 Manuals – general 'Contents – CAT operations' (e.g. 8.2.4 under OM-A)
•CAT.OP.MPA.250 and GM1 to GM3 'Ice and other contaminants – ground procedures'
To support the implementation of the above-mentioned air operations provisions, EASA published the following Safety Information Bulletins (SIBs), in 2017 and 2018 respectively:
•SIB 2017-11 on Global aircraft de-icing standards
•SIB 2018-12 on Post de-icing/anti-icing checks
In addition, during the 2019 EASA Annual Safety Conference which took place in Helsinki on 04 and 05 Nov 2019, aircraft ground de-icing/anti-icing was highlighted through a dedicated winter operations specialist panel.
The Terms of Reference for RMT.0728 'Development for requirements for groundhandling' were published on 22 November 2019, and the subsequent planning milestones for the next deliverables are provided in the EPAS 2021-2025.

Reply No 3 sent on : The scope of the EU regulatory framework for civil aviation has been expanded to cover groundhandling (GH) services with the publication, on 22 August 2018, of Regulation (EU) 2018/1139 of the European Parliament and of the Council (hereafter referred to as the 'new Basic Regulation'). Annex VII of this Regulation establishes the essential requirements for GH service providers. According to the new Basic Regulation, the definition of 'groundhandling service' covers, amongst others, 'aircraft services', which, in turn, includes aircraft de-icing (See Council Directive 96/67/EC).

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

Currently, Commission Regulation (EU) No 965/2012 on air operations covers aircraft ground de-icing/anti-icing through, amongst others, the following provisions which are addressed to the air operators (IR, AMC and GM):
•ORO.GEN.200 'Management system' (The operator's risk assessment, mitigation (e.g. procedures in the Operations Manual), personnel training and compliance monitoring)
•ORO.GEN.205 'Contracted activities' (The operator shall ensure compliance with the applicable rules by their service providers)
•AMC3 ORO.MLR.100 Manuals – general 'Contents – CAT operations' (e.g. 8.2.4 under OM-A)
•CAT.OP.MPA.250 and GM1 to GM3 'Ice and other contaminants – ground procedures'

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

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

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

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

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

Status: Open

Norway

Registration	Aircraft Type	Location	Date of event	Event Type
LN-OJF	EUROCOPTER EC225	Turoy	29/04/2016	Accident

Synopsis of the event:

On 29 April 2016 the main rotor suddenly detached from an Airbus Helicopters EC 225 LP Super Puma, operated by CHC Helikopter Service AS. The helicopter transported oil workers for Statoil ASA and was en route from the Gullfaks B platform in the North Sea to Bergen Airport Flesland. The flight was normal and the crew received no warnings before the main rotor separated from the helicopter.
The helicopter impacted a small island east of Turøy, northwest of Bergen. Wreckage parts were spread over a large area of about 180,000 m2 both at land and in the sea. The main rotor fell down about 550 meters north of the crash site. The impact forces destroyed the helicopter, before most of the wreckage continued into the sea. Fuel from the helicopter ignited and caused a fire onshore. All 13 persons on board perished.

Safety Recommendation NORW-2018-004:

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

Reply No 1 sent on 28/09/2018: EASA has recognised the need to improve certification specifications in CS-27 (small rotorcraft) and CS-29 (large rotorcraft) relating to Main Gear Box (MGB) chip detectors.

The current CS 27/29.1305(a)(23) and CS 27/29.1337(e) require chip detectors to provide a warning to the flight crew when particles of a sufficient size (or accumulation) are detected and are intended to allow the flight crew to check the correct operation of the relevant elements of the drive system.

EASA has conducted a Preliminary Impact Assessment (PIA) on the possible actions to improve the likelihood of detecting chips or particles in gearbox oil. The outcome of the PIA was the inclusion of a dedicated Rulemaking Task (RMT) 0725 in the draft European Plan for Aviation Safety (EPAS) 2019-2023 which is currently undergoing consultation with the Agency's advisory bodies.

The planned RMT.0725 will consider an amendment of the current certification specifications and their associated acceptable means of compliance for demonstrating that the chip detectors perform their intended function.

Reply No 2 sent on 22/06/2020: The Terms of Reference (ToR) and the Group Composition (GC) for Rulemaking Task (RMT) 0725 'Rotorcraft chip detection system' were published on 7 April 2020 on the EASA Website:

https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0725

The ToR includes a reference to this safety recommendation.

The specific objective of this RMT provided in the ToR is to ensure that an acceptable minimum level of effectiveness is achieved by the chip detection systems installed in rotorcraft drive systems (CS-27 and CS-29 types of rotorcraft will be addressed).

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

Subtask 1 should therefore address this safety recommendation.

The Notice of Proposed Amendment (NPA) for subtask 1 is currently planned to be published by Q1/2021.

Reply No 3 sent on 26/04/2021: The Terms of Reference (ToR) and the Group Composition (GC) for Rulemaking Task (RMT) 0725 'Rotorcraft chip detection system' were published on 7 April 2020 on the EASA website:
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0725

The ToR include a reference to this safety recommendation.

The specific objective of the RMT is to ensure that an acceptable minimum level of effectiveness is achieved by the chip detection systems installed in rotorcraft drive systems (Certification Specification (CS)-27 and CS-29 types of rotorcraft will be addressed).

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

Two subtasks are defined in the ToR:

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

Subtask 1 therefore addresses the intent of this safety recommendation.

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

The NPA proposes to:
• Amend CS 27/29.1337 Powerplant instruments, to introduce the objective to demonstrate that the effectiveness of the chip detection is adequate.
• Amend Acceptable Means of Compliance (AMC) 29.917 Rotor drive system design, to introduce additional considerations for chip detection systems used as compensating provisions in the design assessments performed in accordance with point (b) of CS 29.917, to be taken into account in addition to those detailed in AMC 29.1337.
• Create a new AMC 27/29.1337 Powerplant instruments, to provide further acceptable means of compliance with the amended specification of CS 27/29.1337. This AMC aims to provide means to demonstrate the effective performance of a chip detection system, including objectives for an acceptable level of performance, as well as acceptable methodologies for using test and analysis means for compliance with the amended certification specifications of point (e) of CS 27/29.1337. In order to ensure a proportionate approach, the proposed AMC 27.1337 aims to allow a simplified demonstration of compliance for small rotorcraft that are not in CAT-A.
• Create a new Guidance Material (GM) 27/29.1337 Powerplant Instruments, describing design practices that may be considered when using AMC 27/29.1337 in order to demonstrate compliance with the amended certification specifications of point (e) of CS 27/29.1337.

Reply No 4 sent on 16/02/2022: The Terms of Reference (ToR) and the Group Composition (GC) for Rulemaking Task (RMT) 0725 'Rotorcraft chip detection system' were published on 7 April 2020 on the European Union Aviation Safety Agency (EASA) Website:
https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0725

The ToR include a reference to this safety recommendation.

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

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

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

Subtask 1 therefore addresses this safety recommendation.

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

On 17 December 2021, EASA published Executive Director (ED) Decision 2021/016/R amending CS-27 and CS-29 as follows:

https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2021016r

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

Status: Closed

Norway

Registration	Aircraft Type	Location	Date of event	Event Type
LN-OJF	EUROCOPTER EC225	Turoy	29/04/2016	Accident

Synopsis of the event:

On 29 April 2016 the main rotor suddenly detached from an Airbus Helicopters EC 225 LP Super Puma, operated by CHC Helikopter Service AS. The helicopter transported oil workers for Statoil ASA and was en route from the Gullfaks B platform in the North Sea to Bergen Airport Flesland. The flight was normal and the crew received no warnings before the main rotor separated from the helicopter.
The helicopter impacted a small island east of Turøy, northwest of Bergen. Wreckage parts were spread over a large area of about 180,000 m2 both at land and in the sea. The main rotor fell down about 550 meters north of the crash site. The impact forces destroyed the helicopter, before most of the wreckage continued into the sea. Fuel from the helicopter ignited and caused a fire onshore. All 13 persons on board perished.

Safety Recommendation NORW-2018-007:

The Accident Investigation Board Norway recommends that European Aviation Safety Agency (EASA) make sure that helicopter manufacturers review their Continuing Airworthiness Programme to ensure that critical components, which are found to be beyond serviceable limits, are examined so that the full nature of any damage and its effect on continued airworthiness is understood, either resulting in changes to the maintenance programme, or design as necessary, or driving a mitigation plan to prevent or minimise such damage in the future.

Reply No 1 sent on 28/09/2018: EASA will consider amending the Acceptable Means of Compliance (AMC) and Guidance Material (GM) to point 21.A.3A of Annex I (Part-21) to Commission Regulation (EU) No 748/2012, in order to clarify the obligations of Type Certificate Holders to ensure compliance with the requirement of "collecting, investigating and analysing reports of and information related to failures, malfunctions, defects or other occurrences which cause or might cause adverse effects on the continuing airworthiness of the product(…)".
This will be performed within the frame of rulemaking task RMT.0031 dealing with the regular update of AMC/GM to Part-21. The next NPA is planned to be published 02Q2019.

Reply No 2 sent on 22/06/2020: In the frame of rulemaking task RMT.0031, dealing with the regular update of the Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Annex I (Part 21) to Regulation (EU) No 748/2012, Notice of Proposed Amendment (NPA) 2020-04 was published on 5.3.2020.
This NPA addresses this safety recommendation and proposes the following changes.
A new AMC3 21.A.3A(a) is proposed to provide a methodology for the Type Certificate (TC) holder to perform 'investigation' and 'analysis' of information related to failures, malfunctions, defects or other occurrences. When during the overall inspection of a part, especially of a part that is considered critical, its condition is found to be beyond the

serviceable limit, a thorough investigation and analysis should be performed to understand the reason why the condition of the part is not consistent with the expected level of wear. In addition, the TC holder should assess whether a change to the design (e.g. to improve the durability of the part), to the instructions for continued airworthiness (e.g. to change the inspection or replacement frequency), and/or establishing a mitigation plan to prevent or minimise such occurrences in the future are necessary, in order to maintain an acceptable level of safety.
Moreover, it is proposed to also make applicable to point 21.A.3A(b)(1), the criteria for the determination of an 'unsafe condition' as defined in AMC 21.A.3B(b) and GM 21.A.3B(b), since the term 'unsafe condition' is also used in this point.
Finally, an amendment to point (10) of AMC1 21.A.243(a) is proposed to clarify that the Design Organisation handbook should include a description of the means to collect, monitor, analyse and respond to reports of problems which cause or might cause an adverse effect on the airworthiness or operational suitability of the product, part or appliance. A link with point 21.A.3A(a) is proposed, as well as a clarification of the types of reports which should be included regarding in-service issues.
The related EASA Decision is scheduled for Q3/2020.

Reply No 3 sent on 26/04/2021: In the frame of rulemaking task RMT.0031, dealing with the regular update of the Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Annex I (Part 21) to Regulation (EU) No 748/2012, the European Union Aviation Safety Agency (EASA) published Notice of Proposed Amendment (NPA) 2020-04 on 5 March 2020, which took into account this safety recommendation and proposed to amend the AMC and GM to Part 21.

Following this public consultation, EASA published Executive Director (ED) Decision 2021/001/R of 1 March 2021:
https://www.easa.europa.eu/document-library/agency-decisions/ed-decision-2021001r

A new AMC3 21.A.3A(a) is introduced to provide a methodology for the design approval holder, so that the 'collection', 'investigation' and 'analysis' functions of its continued airworthiness system include specific means to analyse the collected failures, malfunctions, defects or other occurrences, and the related available information, to identify adverse trends, to investigate the associated root cause(s), and to establish any necessary corrective action(s). It should also allow the determination of reportable occurrences as required under point 21.A.3A(b) - see GM 21.A.3A(b).

In addition, for parts whose failure could lead to an unsafe condition, the 'analysis' function of the system should ensure that reports and information sent, or available, to the design approval holder are fully investigated so that the full nature of any damage, malfunction, or defect and its effect on continuing airworthiness is understood. This may then result in changes to the design, to the instructions for continued airworthiness (ICAs), and/or in establishing a mitigation plan to prevent or minimise such occurrences in the future, as necessary, and is not limited to those requiring the involvement of EASA under point 21.A.3A(c).

Further guidance on this methodology is provided through:

•Updated GM 21.A.3A(a), including analysis of the early rejection of parts from service and related to the collection of information, and

•Updated GM1 21.A.3B(b), including the examination of worn parts, to support the determination of an unsafe condition.

Finally, an amendment to point 10 of AMC1 21.A.243(a) is introduced to clarify that the design organisation handbook should include a description of the means to collect, monitor, analyse and respond to reports of problems which cause or might cause an adverse effect on the airworthiness or operational suitability of the product, part or appliance. A link with point 21.A.3A(a) is introduced, as well as a clarification of the types of reports which should be included regarding in-service issues.

Status: Closed

Netherlands

Registration	Aircraft Type	Location	Date of event	Event Type
D-IROL	DORNIER 228		01/08/2015	Serious incident

Synopsis of the event:

On August 1st 2015 a twin-engine turboprop aircraft conducting a commercial flight and a microlight aircraft nearly collided in mid-air near Lelystad Airport. Both flights were operating under visual flight rules (VFR) and in total 20 persons were onboard these aircraft.
The investigation showed the limitation of the see-and-avoid principle for air safety and additionally, for this event, the ineffectiveness of the use of the radio.
Additional findings of the investigation revealed that in particular at uncontrolled aerodromes, safety is impaired when the executed 'straight-in approach' is non-compliant to the prescribed procedure. Non-compliance can be the result of misinterpretation of the procedure. Furthermore, for Lelystad Airport the non-standard approach procedure has officially been documented in an aeronautical publication, but the flight path is not shown on the visual approach chart. This can also contribute to non-compliance. Non-adherence to the prescribed 'straight-in approach' procedure increases the risk of (near) mid-air collisions with other aerodrome traffic.

Safety Recommendation NETH-2018-003:

It is recommended to EASA to:
Introduce, as a matter of priority, requirements for commercial air transport aircraft other than with a MCTOM in excess of 5,700 kg or a MOPSC in excess of 19 seats to be equipped with aircraft collision avoidance systems.

Reply No 1 sent on 11/12/2018: EASA intends, through rulemaking task RMT.0376 'Anti-collision systems on aircraft other than aeroplanes in excess of 5 700 kg or 19 pax', to set-up a framework for reducing the risk of mid-air collisions.

The task will include a thorough impact assessment aimed at evaluating the impact of mandating the above mentioned equipment.

As foreseen in the draft European Plan for Aviation Safety (EPAS) 2019-2023, EASA intends to launch RMT.0376 during 2019, while the issuance of the resulting Opinion is planned during Q3 2022 .

Reply No 2 sent on 02/12/2021: Based on the outcome of the Best Information Strategy (BIS) report on Airborne Collision, the European Plan for Aviation Safety (EPAS) 2021-2025 deleted rulemaking task (RMT) RMT.0376 on anti-collision and traffic awareness systems for aircraft with a maximum take-off mass less than 5700 kg or carrying less than 19 passengers. The BIS considers a different approach instead, through which the European Union Aviation Safety Agency (EASA) intends to undertake

a set of actions that are deemed to be more effective in reducing the risk of airborne collisions.

The BIS concluded that a broader use of iConspicuity solutions and improvement of their interoperability together with a better airspace utilisation and design, while ensuring compatibility with the U-space regulatory framework established under Implementing Regulation (EU) 2021/664, should be at the heart of the future actions.
iConspicuity (or in-flight electronic conspicuity plus) means in-flight capability to transmit position of aircraft and/or to receive, process and display positions of other aircraft in a real time with the objective to enhance pilots' situational awareness about surrounding traffic. It is an umbrella term for a range of technologies and solutions, regardless whether airborne or on the ground, which can help airspace users and other affected stakeholders to be more aware of other aircraft in their vicinity or in a given airspace.

Additional justifications of the new approach are provided in the BIS report, which describes a detailed review and assessment of the airborne collision risk, and whose outcome was validated through a survey and a stakeholders' consultation. The new approach results in a strategy composed of a set of EPAS tasks compounded of existing rulemaking tasks which will be implemented together with new safety promotion (SPT), research (RES) and member state tasks (MST). The best safety benefits are expected to be achieved through synergies of all actions, while utilising the U-space regulatory framework as a catalyst for safety improvements.

The following bullet points summarize the collective actions which are planned to be implemented for anti-collision and traffic awareness systems for aircraft with maximum take-off mass less than 5700 kg or carrying less than 19 passengers:
• EASA, with support of technical partners, to demonstrate and validate feasibility of achieving interoperability of different iConspicuity devices/systems through network of stations while respecting data privacy requirements.
• EASA to analyse 'Net Safety Benefit' and 'Operational Safety Assessment' concepts for the use of iConspicuity devices/systems in Flight Information Services.
• EASA to facilitate installation of iConspicuity devices in all EASA certified aircraft types and promote their use by airspace users at user affordable cost.
• EASA to actively support initiatives enhancing interoperability of iConspicuity devices/systems.
• EASA to promote good practices in airspace design that reduce 'airspace complexity' and 'traffic congestion' with the aim to reduce the risk of collisions involving uncontrolled traffic.
• Member States to consider 'airspace complexity' and 'traffic congestion' as safety relevant factors in airspace changes affecting uncontrolled traffic, including the changes along international borders.
• EASA to ensure technical and operational compatibility of U-space and iConspicuity solutions.
• EASA to conduct a Safety Issue Assessment (SIA) of airspace infringements.
• EASA to explore the use of iConspicuity data for enhanced safety monitoring of Airborne Collision Risk.

Collectively, the aforementioned EASA actions serve as a multi-pronged final strategy in response to airborne collision risks. This strategy will be reviewed at regular intervals.

Status: Closed

Norway

Registration	Aircraft Type	Location	Date of event	Event Type
LN-OSG	AEROSPATIALE AS350	Hå in Rogaland	30/04/2016	Accident

Synopsis of the event:

The commander was carrying out an annual proficiency check (PC) for the privilege to pilot helicopters of the type AS 350. He had agreed with the examiner to carry out the flight on Saturday morning. He drove to Stavanger Airport Sola (ENZV) and prepared LN-OSG (Preflight) at approx. 0800 hours. The examiner arrived at Sola by air and was met by the commander.
Together they reviewed the exercises that would be included in the proficiency check. This included a simulated loss of hydraulic pressure in hover, which would be carried out by activating the «HYD TEST» pushbutton on the centre pedestal. The point of doing this was to land the helicopter in a controlled manner before the accumulators on the three hydraulic servo actuators that move the swashplate and thereby control the main rotor blades, were emptied. A loss of hydraulic pressure entails that the pilot must use significant force to operate the controls, which is particularly challenging in hover.
LN-OSG took off from Sola at 1200 hours and set course toward an airstrip in Hå municipality. This is directly south of the control zone at Sola. When they arrived in the area at the airstrip, they switched to local radio frequency 123.50 MHz while also listening to the frequency for Sola approach (APP) at 119.60 MHz.
The commander first carried out two simulated engine cuts at low altitude and then undertook a steep approach to the airstrip. Hover was established at an altitude of approx. 1-2 metres above ground. As planned and briefed in advance, the examiner then activated the «HYD TEST» pushbutton. The commander then moved the "HYD OFF" switch on collective to off, most likely inadvertently. He then immediately switched this back on, most likely in an attempt to correct the error.
The helicopter started rotating to the left, and the examiner assisted by compensation with right pedal input. The helicopter was unstable in the horizontal plane and moved to the left over a field. The examiner said: "My controls", and attempted to gain control over the helicopter. In this phase, he observed that the "HYD OFF" switch was in the normal position, and presumed that the helicopter was experiencing an actual hydraulic failure. The uncontrollable movements were so significant that the main rotor blades impacted the ground and the helicopter's tail boom. The helicopter came to rest on the landing gear and the engine was shut down before the helicopter was evacuated. A fire broke out in the engine compartment.

Safety Recommendation NORW-2018-013:

AIBN recommends that EASA study the opportunity to mandate the solutions developed by Airbus Helicopter in cooperation with Safran Helicopter Engines.

Reply No 1 sent on 04/02/2019: The European Union Aviation Safety Agency has arranged to meet in January 2019 with Airbus Helicopters and Safran Helicopter Engines in order to review the relevant service experience and the understanding of factors/possible modifications that affect the risk of post-crash fire. The Agency is

studying the opportunity to mandate a design change aiming to reduce the risk of fire following accidents on AS 350 helicopters equipped with Arriel 2 engines.

Reply No 2 sent on 03/03/2021: The European Union Aviation Safety Agency (EASA) has been cooperating with Airbus Helicopters (AH) and Safran Helicopter Engines (SHE) to study technical solutions aiming to reduce the risk of unwanted Power Turbines (PT) blade shedding occurrences on rotorcraft equipped with ARRIEL 2 engines and, hence, reduce the potential for post-impact fire.

The result of this effort has been the implementation of an electronic over-speed protection that, if still operational after the impact, has the aim to limit occurrence of PT blade shedding by early detection of the over-speed condition and subsequent rapid fuel flow shut-off. This new function has been introduced through a Full Authority Digital Engine Control (FADEC) software modification and a wiring modification at helicopter level as detailed below:

-EASA Major Change Approval 10065664 (i.e. FADEC software DM 116271) developed by SHE, applicable to AS350 B3 and EC130 T2 helicopter models equipped with ARRIEL 2D engines and made available for new helicopter deliveries or, as a retrofit kit, for helicopters already in service via the SHE SB ref. 292-73-2210.
-EASA Major Change Approval 10066998 (i.e. wiring modification 074831) developed by AH, applicable to AS350 B3 and EC130 T2 helicopter models equipped with ARRIEL 2D engines and made available for new helicopter deliveries or, as a retrofit kit, for helicopters already in service via the AH Service Bulletins (SBs) ref. AS350-76.00.23 and EC130-76-006.

Based on the review of in-service experience and available occurrence data, EASA did not consider as necessary to mandate the modifications above to the helicopters already in service. However, via the release of the EASA Safety Information Bulletin (SIB) ref. 2019-10 (“Power Turbine Over-Speed Protection on ARRIEL 2D Engines”) dated 22/08/2019, EASA has recommended operators to implement a voluntary embodiment of the over-speed protection function, promoted by both AH and SHE with a free of charge retrofit campaign, and is actively monitoring its embodiment on the in-service helicopters fleet.

In addition to the above described modifications developed for AS350 B3 and EC130 T2 helicopter models equipped with ARRIEL 2D engines, similar design changes are currently under EASA certification to provide AS350 B3 and EC130 B4 helicopter models equipped with ARRIEL 2B1 engines with an equivalent over-speed protection function.

EASA approval of these additional modifications is currently planned for the end of 2021.

Status: Open

Portugal

Registration	Aircraft Type	Location	Date of event	Event Type
CS-ALB	OTHER (PAULISTINHA 56(NEIVA)) OTHER (PAULISTINHA 56(NEIVA))	S. Pedro de Merelim (Braga)	18/08/2012	Accident

Synopsis of the event:

An aircraft with registration marks CS-ALB, model Paulistinha took off from Braga aerodrome (LPBR) on Aug 18, 2012 by 14:10 to perform a leisure flight, taking on board the pilot and a passenger. The flight to Ponte de Lima city and return to the departure aerodrome (Braga), about one hour later, went uneventfully.
The pilot, after approaching the aerodrome, decided to perform a "touch-and-go" manoeuvre on runway 25.
Still at low altitude (about 150 feet), at the end of the runway, the aircraft made a tight left turn (with 45° bank angle), lowered the nose, and crashed south of the airfield in a house backyard.
In the accident, the pilot, 75-year-old, Portuguese male, and the 80-year-old Portuguese male passenger perished.

Safety Recommendation PORT-2018-016:

It is recommended that the European Aviation Safety Agency, EASA review and revise Regulation (EU) No 1178/2011 to include and specify the contents considered appropriate for the minimum one hour training flight with the flight instructor (FI), aiming the single-engine single-pilot class license revalidation. [Ref.FCL.740.A b) ii)]

Reply No 1 sent on 26/03/2019: The European Union Aviation Safety Agency (EASA) is considering this safety recommendation within the framework of Rulemaking Task RMT.0188 'Update of EASA FCL implementing rules' (see the European Plan for Aviation Safety 2019-2023 which is published on the EASA web site).

Opinion No 05/2017 (stemming from RMT.0188) containing proposed amendments to Commission Regulation (EU) No 1178/2011, was published by EASA on 29 June 2017. The associated amending regulation is planned to be published by the European Commission by Q3/2019. An associated Executive Director (ED) Decision will be published simultaneously by EASA, with related amendments to Acceptable Means of Compliance (AMC) and Guidance Material (GM).

In particular, it is anticipated that the ED Decision will include AMC and/or GM which specifies the contents for the practical training with a flight instructor for the single-pilot single-engine class rating revalidation [see FCL.740.A (b)(ii)].

Reply No 2 sent on 10/06/2021: Commission Regulation (EU) No 1178/2011 of 3 November 2011 as amended by Commission Implementing Regulation (EU) 2020/359 of 4 March 2020, states:

FCL.740.A Revalidation of class and type ratings — aeroplanes
(b) Revalidation of single-pilot single-engine class ratings.
(1) Single-engine piston aeroplane class ratings and [Touring Motor Glider] TMG class ratings. For the revalidation of single-pilot single-engine piston aeroplane class ratings or TMG class ratings, the applicants shall:
(i) within the 3 months preceding the expiry date of the rating, pass a proficiency check in the relevant class in accordance with Appendix 9 to this Part with an examiner; or
(ii) within the 12 months preceding the expiry date of the rating, complete 12 hours of flight time in the relevant class, including:
— 6 hours as [Pilot In Command] PIC,
— 12 take-offs and 12 landings, and
— refresher training of at least 1 hour of total flight time with a flight instructor (FI) or a class rating instructor (CRI). Applicants shall be exempted from this refresher training if they have passed a class or type rating proficiency check, skill test or assessment of competence in any other class or type of aeroplane.

As a result of the Rulemaking Task RMT.0188 'Update of EASA FCL implementing rules', Annex I to ED Decision 2020/005/R Acceptable Means of Compliance (AMC) and Guidance (GM) to Part-FCL — Issue 1, Amendment 9, has introduced the following provisions:

AMC1 FCL.740.A(b)(1)(ii) Revalidation of class and type ratings
Content of the Refresher Training
Training flight items should be based on the exercise items of the proficiency check, as deemed relevant by the instructor, and depending on the experience of the candidate. The briefing should include a discussion on [Threat and Error Management] TEM with special emphasis on decision-making when encountering adverse meteorological conditions or unintentional [instrument meteorological conditions] IMC, as well as on navigation flight capabilities.

The European Union Aviation Safety Agency (EASA) therefore believes that the current regulatory framework appropriately addresses this topic.

Status: Closed

Ethiopia

Registration	Aircraft Type	Location	Date of event	Event Type
ET-AVJ	BOEING 737 (8 MAX)	near Bishoftu	10/03/2019	Accident

Synopsis of the event:

On March 10, 2019, at about 05:44 UTC2, Ethiopian Airlines flight ET-302, a Boeing 737-MAX 8, Ethiopian registration ET-AVJ, crashed shortly after takeoff from Addis Ababa Bole International Airport (HAAB), South East of Addis Ababa near Ejere Town. The flight was a regular scheduled international passenger flight from Addis Ababa to Jomo Kenyatta International Airport (HKJK), Nairobi, Kenya. There were 157 passengers and crew on board. All were fatally injured, and the aircraft was destroyed.

Safety Recommendation ETHP-2019-002:

Aviation Authorities shall verify that the review of the aircraft flight control system related to flight controllability has been adequately addressed by the manufacturer before the release of the aircraft to operations.

Reply No 1 sent on 01/07/2019: The European Union Aviation Safety Agency (EASA) has issued Emergency Airworthiness Directive AD No. 2019-0051-E (then revised and issued as AD No. 2019-0051R1) mandating the suspension of flight operations for the Boeing models 737-8 and 737-9 (commercially known as MAX) which have so far received an EASA type design approval.

The manufacturer has applied to EASA for the validation of design changes to these aircraft models, which are due to be certified first by the airworthiness authority of the State of Design (the primary certifying authority), namely the Federal Aviation Administration, prior to the return to service of the aircraft. These design changes affect the flight control system [more specifically, the manoeuvring characteristics augmentation system function (MCAS)] and associated systems [in particular, the display of information related to the angle of attack (AOA)].

Before lifting the suspension for the affected models, EASA will perform an in-depth review of the design changes proposed by the manufacturer, in the frame of its validation.

In addition, also before lifting the suspension for the affected models, EASA will perform a design review beyond the validation of the design changes proposed by the manufacturer. The activities below will be carried out by EASA on the design of the flight control system, as modified on the MAX models compared to the previous models (known as "NG"), and all associated functions/systems including, but not limited to, the displays, alerting system, autopilot and air data system.

1.Check of the completeness and correctness of the functional hazard assessments for failure conditions where pilot action or interaction has been considered for mitigation.

2.Review of the development assurance methodology and related activities performed for type certification.

3.Review of the flight controls and autopilot design with respect to systems response to high AOA conditions, automatic trim orders and conditions leading to autopilot disconnect or automatic nose down.

4.Assessment of the differences between the flight crew training for the B737 NG and the B737-8 and -9 MAX models.

Reply No 2 sent on 31/07/2021: The European Union Aviation Safety Agency (EASA) has performed an extended design review of the Boeing 737 MAX aircraft, as well as the conditions under which the Boeing 737 MAX may return to service in the European Union.
EASA has defined a Return to Service (RTS) strategy based on the following two aspects:

(i) a fully independent review of all certification activities associated with the design changes required to address the direct causes of the accidents;
(ii) an extended independent design review of the 737 MAX flight control system and associated functions.

EASA has additionally defined and agreed a set of post-RTS actions that Boeing has to complete for certain technical issues not representing an unsafe condition (i.e. not impacting the immediate safety of passengers).
The operation of the 737 MAX is indeed already considered safe with the approved changes and actions mandated in the EASA Airworthiness Directive 2021-0039 (and Safety Directive 2021-01).

The Agency published a closing report to explain its approach and the reasoning for its decisions. The report is available at the following link:

https://www.easa.europa.eu/sites/default/files/dfu/B737_Max_Return_to_Service_Report.pdf

Status: Closed

Portugal

Registration	Aircraft Type	Location	Date of event	Event Type
CS-DGU	CESSNA 152	Farm field to 1.2NM West of runway 03 threshold	10/07/2018	Accident

Synopsis of the event:

On July 10th, 2018, the Cessna 152 aircraft with a student pilot on-board performed three circuits on runway 21 with "stop and go", as planned and without reported problems, and took off to performed the fourth circuit. The student pilot reported the right downwind to runway 21 and according to witnesses in the ATZ control room, a few seconds later the aircraft began to lose altitude with a steep attitude, disappearing behind the trees on the horizon. At 21:39 the emergency services were activated, and an intense search began west side of the airfield. As per air traffic service report, the aircraft was found completely destroyed south of Monte de Marvila at 00:02. The student pilot immediately perished due to the injuries extent. The student pilot encountered IMC conditions, lost the visual references due to the weather (mist) in the area. This resulted in spatial disorientation, with the aircraft loss of control performing a spiral dive. The aircraft impacted with the ground in a steep angle, and due to the high impact forces, the accident was not survivable.

Safety Recommendation PORT-2019-001:

It is recommended that the European Aviation Safety Agency, EASA, evaluate and change the ATP integrated training schedule, where the nightly solo training flight, currently in phase 3, will be completed only in phase 4 after the basic instrument flight lessons.

Reply No 1 sent on 29/05/2019: The European Union Aviation Safety Agency (EASA) is taking this safety recommendation into account within the framework of ongoing rulemaking task RMT.0188 'Update of EASA FCL implementing rules', through changes to the Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Annex I (Part-FCL) to Commission Regulation (EU) No 1178/2011.

The current proposal already contains a syllabus for night rating training including solo training for fixed-wing aircraft, also considering the Instrument Meteorological Conditions (IMC) training element at night.

In addition, the intention is to amend AMC1 to Appendix 3 to Part-FCL 'Training courses for the issue of a CPL (Commercial Pilot Licence) and an ATPL (Airline Transport Pilot Licence)' with regard to the sequence of basic instrument/night training during the integrated ATPL course.

The resultant Executive Director Decision is planned to be published in quarter 3 of 2019 (See the European Plan for Aviation Safety ((EPAS) 2019-2023).

Reply No 2 sent on 10/06/2021: As a result of the Rulemaking Task RMT.0188 'Update of EASA FCL implementing rules', Annex I to ED Decision 2020/005/R on Acceptable Means of Compliance (AMC) and Guidance (GM) to Part-FCL — Issue 1, Amendment 9, has introduced the following provisions:

AMC1 to Appendix 3 Training courses for the issue of a [Commercial Pilot License] CPL and an [Airline Transport Pilot License] ATPL
GENERAL
(d) The flight instruction syllabus should take into account the principles of [Threat and Error Management] TEM.

A. [Airline Transport Pilot] ATP integrated course: aeroplanes
FLYING TRAINING
(3) Phase 3:
(iii) dual night flight instruction time.
(4) Phase 4:
(vii) after completion of instrument training that is equivalent to the basic instrument flight module set out in AMC2 to Appendix 6, take-offs and landings as [Pilot In Command] PIC at night.

C. CPL/ [instrument rated] IR integrated course: aeroplanes
FLYING TRAINING
(d) […]
(3) Phase 3:
(iii) dual night flight instruction
(4) Phase 4:
(vii) after completion of instrument training that is equivalent to the basic instrument flight module set out in AMC2 to Appendix 6, take-offs and landings as PIC at night.

D. CPL integrated course: aeroplanes
FLYING TRAINING
(d) […]
(3) Phase 3:
(iii) night flight time including, after completion of instrument training that is equivalent to the basic instrument flight module set out in AMC2 to Appendix 6, take-offs and landings as PIC.

The European Union Aviation Safety Agency (EASA) therefore believes that the current regulatory framework appropriately addresses this topic.

Status: Closed

Finland

Registration	Aircraft Type	Location	Date of event	Event Type
OK-PET	AIRBUS A319	EFHK	03/08/2018	Serious incident

Synopsis of the event:

On Friday afternoon, 3 August 2018, Czech Airlines flight OK481 was about to depart for a scheduled flight from Helsinki to Prague. The aircraft was an Airbus A319-112. There were 135 passengers and five crewmembers on board. The aircraft was taxiing along taxiway D towards runway 22R. During taxiing passengers and the cabin attendants detected grey smoke in mid-cabin. The smoke got thicker and one of the attendants sitting in the aft cabin used the interphone and reported this to the purser, who was positioned in the forward cabin. The purser reported this to the captain by interphone, who then stopped the aircraft on the taxiway.

Some passengers stood up and shouted to the cabin crew that there was smoke inside the aircraft. Evacuation was initiated by the crew. Emergency slides were used during the evacuation. During the evacuation some passengers rushed past slower-moving passengers. Among others, children were trampled over. Furthermore, passengers stumbled over carryon luggage in the aisle. During the evacuation 26 passengers sustained minor injuries.

Safety Recommendation FINL-2019-002:

When the cabin crew initiates an evacuation the engines are not immediately shut off because engine shutdown is only the fifth item on the aircraft manufacturer's emergency evacuation checklist. If the evacuation has already begun, there is the immediate danger of deplaning passengers being ingested into an engine.

The Safety Investigation Authority recommends that:

The European Aviation Safety Agency (EASA) ensure that Airbus S.A.S, in their emergency evacuation procedures, re-evaluate the situation where it becomes necessary to immediately shut down the engines. [2019-S33]

Reply No 1 sent on 19/08/2019: The European Union Aviation Safety Agency (EASA) has contacted Airbus to discuss the emergency evacuation checklist and specifically the situation where it becomes necessary to immediately shut down the engines.

Reply No 2 sent on 31/07/2021: The European Union Aviation Safety Agency (EASA) has reviewed the Emergency Evacuation Procedures and evaluated the need to reconsider the item order considering the experienced event.

EASA considers that the risk to which the occupants were exposed is mainly resulting from the fact that the Crew (cabin and flight deck) did not properly engage and follow

the existing emergency evacuation procedures. This resulted in communication break-down between the cabin and the cockpit.

As explained in the Flight Crew Training Manual PR-ABN-MSC-EMER EVAC:
-Once the Cabin Crew contact the Flight Deck, the Capt gives the instructions and performs the first part of the procedure (including shutting down the engines), until "If evacuation required".
-The decision to evacuate (or not) is taken by the Captain after having assessed the situation with the Cabin Crew.
-Once this decision ('Captain decision') is taken, the Flight Crew announce the instructions ('remain seated' or 'evacuate').
-The Cabin Crew only starts the evacuation following this step.

During the event, for any reason, the EMER EVAC QRH (Quick Reference Handbook) Checklist was not performed completely following the initial Cabin Crew call, leaving the engines running before deciding the evacuation.

Based on that synopsis, EASA considers that the current Flight Crew Operating Manual and Cabin Crew Operation Manual (as well as QRH) are accurate documents for which no specific updates are motivated by the experienced situation.

Status: Closed

France

Registration	Aircraft Type	Location	Date of event	Event Type
F-GLZU	AIRBUS A340	Bogota	11/03/2017	Serious incident

Synopsis of the event:

On 11 March 2017, the Airbus A340 registered F-GLZU and operated by Air France-KLM carried out flight AF423 (a commercial passenger flight) from Bogota Eldorado airport (Colombia) to Paris Charles de Gaulle airport (France). There were 268 passengers and 13 crewmembers on board. The captain was the pilot flying for this leg.
The take-off was performed at night from runway 13R which is 3,800 m long with a clearway (CWY) of 300 m. At 23:54 UTC, the crew applied 50% thrust on brakes and then took off with full thrust (TOGA).

The captain initiated the rotation when the calibrated airspeed had reached VR. The aeroplane was at 2,760 m from the 13R threshold. The rotation rate of the aeroplane was low. The three crewmembers said that they heard the audio warning "PITCH PITCH". The main landing gears left the ground when the aeroplane was at 140 metres from the opposite runway threshold.

The aeroplane flew over the opposite runway threshold at 6 ft RA. The end of the CWY was crossed at a height of 20 ft RA. The speed was V2 + 9 kt. The aeroplane flew over the ILS antennas (1st obstacle) at a vertical distance of 12 ft.
The climb then continued without any other particularity and the regulatory margins for obstacle clearance were complied with.

Safety Recommendation FRAN-2019-021:

The BEA recommends that EASA, in coordination with Airbus, take the necessary measures to re-establish consistency between the take-off performance in operations and that established during certification on the Airbus A340-300.

Reply No 1 sent on 07/10/2019: The European Union Aviation Safety Agency (EASA) published Safety Information Bulletin - SIB 2017-20 ("Slow Rotation Take-off") in November 2017. In the SIB, EASA recommends that operators of 4-engine wide-body aeroplanes, and approved training organisations providing relevant flight training, assess whether their operating procedures may be affected by the safety issue of slow rotation during take-off. If so, they should apply their hazard identification and risk management processes. In the SIB, EASA also recommends that the relevant competent authorities consider the SIB in their continuous oversight of applicable operators and approved training organisations.

Moreover, Airbus has modified the A340 Flight Crew Training Manual (FCTM) to better describe the take-off rotation technique, and to clarify the consequences of incorrect application of the technique. Although the FCTM is not required to be approved by EASA, EASA has, nevertheless, reviewed the updated version and found it to be adequate.

In addition, EASA has approved an A340 Training Area of Special Emphasis on the take-off rotation technique, to emphasise the knowledge of the use of the sidestick controller to perform the correct rotation technique including: how to initiate the rotation, how to achieve and maintain the rotation rate, how to achieve the pitch attitude after lift-off.

EASA considers that the above actions taken provide all the elements necessary to ensure that the A340-300 certified take-off performance is achieved in operations.

Reply No 2 sent on 09/08/2021: EASA disagrees that the A340 TASE based on the revised FCTM is impossible for the operator to apply, and the ex-post analysis shows that a rotation rate enhancement has been actually achieved. The rotation is a closed loop manoeuvre. The stick input values to initiate and maintain the rotation rate are those needed to achieve the target rotation rate value. The rotation rate target value is enough to set proper training.
It is acknowledged that in average the stick inputs needed to achieve that take-off performance in the A340 are higher than in the rest of the Airbus models; this does not mean that those inputs are unusual, but specific to the A340, this specificity having being considered by the approval of a TASE for the A340 on the take-off rotation technique.
About the SIB EASA considers that it is clear, and that no lack of clarity can be assumed from the absence of formal feedback on the SIB.

Status: Closed

France

Registration	Aircraft Type	Location	Date of event	Event Type
F-GLZU	AIRBUS A340	Bogota	11/03/2017	Serious incident

Synopsis of the event:

On 11 March 2017, the Airbus A340 registered F-GLZU and operated by Air France-KLM carried out flight AF423 (a commercial passenger flight) from Bogota Eldorado airport (Colombia) to Paris Charles de Gaulle airport (France). There were 268 passengers and 13 crewmembers on board. The captain was the pilot flying for this leg.
The take-off was performed at night from runway 13R which is 3,800 m long with a clearway (CWY) of 300 m. At 23:54 UTC, the crew applied 50% thrust on brakes and then took off with full thrust (TOGA).

The captain initiated the rotation when the calibrated airspeed had reached VR. The aeroplane was at 2,760 m from the 13R threshold. The rotation rate of the aeroplane was low. The three crewmembers said that they heard the audio warning "PITCH PITCH". The main landing gears left the ground when the aeroplane was at 140 metres from the opposite runway threshold.

The aeroplane flew over the opposite runway threshold at 6 ft RA. The end of the CWY was crossed at a height of 20 ft RA. The speed was V2 + 9 kt. The aeroplane flew over the ILS antennas (1st obstacle) at a vertical distance of 12 ft.
The climb then continued without any other particularity and the regulatory margins for obstacle clearance were complied with.

Safety Recommendation FRAN-2019-020:

The BEA recommends that EASA, in coordination with Airbus, re-examine the validity of the initial certification hypotheses of the A340-300 take-off performance.

Reply No 1 sent on 07/10/2019: The European Union Aviation Safety Agency (EASA) has reviewed the relevant hypothesis and justification documents of the A340-300 type certification and has found them to adequately justify the A340-300 certified take-off performance.

The methodology used for the generation of the A340 performance data, as for any other aircraft and consolidated certification procedures, was to conduct a series of take-offs (both All Engines Operative (AEO) and One Engine Inoperative (OEI)) using a range of stick inputs and rotation rates. Data from these test points was used to generate a mean rotation profile that would be assumed by the generic performance model in the generation of take-off data. The aim of the certification exercise for the performance part is, inter alia, to make sure that the take-off technique can be executed without requiring exceptional piloting skill and the Aircraft Flight Manual (AFM) performance can be adequately achieved.

In addition, EASA has participated in a simulator session organized by Airbus in June 2018 in which EASA confirmed that the A340-300 certified take-off performance can be achieved by properly trained crews of average skills, applying the Airbus recommended techniques, without the use of exceptional piloting skills or vigilance.

Reply No 2 sent on 09/08/2021: The A340 take-off performance were certified through flight tests. EASA has re-assessed the results of that A340 certification flight test campaign and the methodology used to define the take-off performance from those flight tests results, and found the process and the results satisfactory. It is acknowledged that those results show in average higher stick inputs to achieve the take-off performance than for in the rest of the Airbus models; this does not mean that those inputs are unusual, but specific to the A340, this specificity having being considered by the approval of a TASE for the A340 on the take-off rotation technique.
EASA pilots participated in simulator session too. The aim of the simulator session was not to re-evaluate the take-off performance, but to ensure that the revised rotation technique can be executed by properly trained crews of average skill.

About the representativeness of that simulator session, the simulator was calibrated to reproduce the behaviour of the airplane during the rotation phase, i.e. to reproduce similar rotation rates when similar stick inputs are commanded. Despite the fact that some elements like the vestibular cues cannot be reproduced in the simulator, it is considered that the simulator was accurate enough for its purpose. The conclusion of the simulator session was then that the revised rotation technique can be achieved by properly trained pilots, and so reasonably expected to be achieved in operational service. Being the rotation a closed loop manoeuvre, EASA agrees with Airbus that the way the operation is described now in the updated operational documentation is more accurate than in the old documentation: the pilot is given a target rotation rate to achieve and is told to adjust the stick inputs to achieve that target.

EASA has checked with Airbus the BEA concern that the tail strike protections could be activated when applying standard operational procedures (when achieving the target rotation rate). The conclusion of this review is that the tail strike protections activate in a timely manner, i.e. only when there is a risk of tail strike and not systematically when pilots achieving the target rotation rate).

Lastly, ex-post analysis of operational data shows that a rotation rate enhancement has been actually achieved after the introduction of the TASE.

Status: Closed

France

Registration	Aircraft Type	Location	Date of event	Event Type
F-GLZU	AIRBUS A340	Bogota	11/03/2017	Serious incident

Synopsis of the event:

On 11 March 2017, the Airbus A340 registered F-GLZU and operated by Air France-KLM carried out flight AF423 (a commercial passenger flight) from Bogota Eldorado airport (Colombia) to Paris Charles de Gaulle airport (France). There were 268 passengers and 13 crewmembers on board. The captain was the pilot flying for this leg.
The take-off was performed at night from runway 13R which is 3,800 m long with a clearway (CWY) of 300 m. At 23:54 UTC, the crew applied 50% thrust on brakes and then took off with full thrust (TOGA).

The captain initiated the rotation when the calibrated airspeed had reached VR. The aeroplane was at 2,760 m from the 13R threshold. The rotation rate of the aeroplane was low. The three crewmembers said that they heard the audio warning "PITCH PITCH". The main landing gears left the ground when the aeroplane was at 140 metres from the opposite runway threshold.

The aeroplane flew over the opposite runway threshold at 6 ft RA. The end of the CWY was crossed at a height of 20 ft RA. The speed was V2 + 9 kt. The aeroplane flew over the ILS antennas (1st obstacle) at a vertical distance of 12 ft.
The climb then continued without any other particularity and the regulatory margins for obstacle clearance were complied with.

Safety Recommendation FRAN-2019-023:

The BEA recommends that pending measures taken to re-establish consistency between the performance reached in operation and that established by the certification, EASA, in coordination with the national oversight authorities, require operators operating the A340-300 to set up safety measures to reduce the observed variability in the pilots' rotation technique.

Reply No 1 sent on 07/10/2019: The European Union Aviation Safety Agency (EASA) published Safety Information Bulletin - SIB 2017-20 ("Slow Rotation Take-off") in November 2017. In the SIB, EASA recommends that operators of 4-engine wide-body aeroplanes, and approved training organisations providing relevant flight training, assess whether their operating procedures may be affected by the safety issue of slow rotation during take-off. If so, they should apply their hazard identification and risk management processes. In the SIB, EASA also recommends that the relevant competent authorities consider the SIB in their continuous oversight of applicable operators and approved training organisations.

Moreover, Airbus has modified the A340 Flight Crew Training Manual (FCTM) to better describe the take-off rotation technique, and to clarify the consequences of incorrect

application of the technique. Although the FCTM is not required to be approved by EASA, EASA has, nevertheless, reviewed the updated version and found it to be adequate.

In addition, EASA has approved an A340 Training Area of Special Emphasis on the take-off rotation technique, to emphasise the knowledge of the use of the sidestick controller to perform the correct rotation technique including: how to initiate the rotation, how to achieve and maintain the rotation rate, how to achieve the pitch attitude after lift-off.

EASA considers that the above actions taken provide all the elements necessary to ensure consistency in the pilots' rotation technique.

Reply No 2 sent on 09/08/2021: EASA disagrees that the A340 TASE based on the revised FCTM is impossible for the operator to apply, and the ex-post analysis shows that a rotation rate enhancement has been actually achieved. The rotation is a closed loop manoeuvre. The stick input values to initiate and maintain the rotation rate are those needed to achieve the target rotation rate value. The rotation rate target value is enough to set proper training.
It is acknowledged that in average the stick inputs needed to achieve that take-off performance in the A340 are higher than in the rest of the Airbus models; this does not mean that those inputs are unusual, but specific to the A340, this specificity having being considered by the approval of a TASE for the A340 on the take-off rotation technique. About the SIB EASA considers that it is clear, and that no lack of clarity can be assumed from the absence of formal feedback on the SIB.
Anyway, in accordance with the safety promotion material "Guidance for the implementation of Flight Data Monitoring precursors" prepared by the EOFDM WGB Revision 3 published on September 2020 (https://www.easa.europa.eu/sites/default/files/dfu/study_wgb_precursors_rev3_20200930_4.pdf), EASA recommends the operators to monitor some precursors (e.g. RE05 "Slow Acceleration", RE07 "Late Rotation", RE08 "Slow Rotation", RE15 "Runway Remaining at Lift-off" and others) to proactively intervene and correct observed operational discrepancies.

Status: Closed

France

Registration	Aircraft Type	Location	Date of event	Event Type
F-GLZU	AIRBUS A340	Bogota	11/03/2017	Serious incident

Synopsis of the event:

On 11 March 2017, the Airbus A340 registered F-GLZU and operated by Air France-KLM carried out flight AF423 (a commercial passenger flight) from Bogota Eldorado airport (Colombia) to Paris Charles de Gaulle airport (France). There were 268 passengers and 13 crewmembers on board. The captain was the pilot flying for this leg.
The take-off was performed at night from runway 13R which is 3,800 m long with a clearway (CWY) of 300 m. At 23:54 UTC, the crew applied 50% thrust on brakes and then took off with full thrust (TOGA).

The captain initiated the rotation when the calibrated airspeed had reached VR. The aeroplane was at 2,760 m from the 13R threshold. The rotation rate of the aeroplane was low. The three crewmembers said that they heard the audio warning "PITCH PITCH". The main landing gears left the ground when the aeroplane was at 140 metres from the opposite runway threshold.

The aeroplane flew over the opposite runway threshold at 6 ft RA. The end of the CWY was crossed at a height of 20 ft RA. The speed was V2 + 9 kt. The aeroplane flew over the ILS antennas (1st obstacle) at a vertical distance of 12 ft.
The climb then continued without any other particularity and the regulatory margins for obstacle clearance were complied with.

Safety Recommendation FRAN-2019-024:

The BEA recommends that pending measures taken to re-establish consistency between the performance reached in operation and that established by the certification, EASA, in coordination with the national oversight authorities, require operators operating the A340-300 to set up safety measures to restore sufficient take-off distance margins by comparing the possible difference between the take-off performance reached in operations and that established during certification.

Reply No 1 sent on 07/10/2019: The European Union Aviation Safety Agency (EASA) published Safety Information Bulletin - SIB 2017-20 ("Slow Rotation Take-off") in November 2017. In the SIB, EASA recommends that operators of 4-engine wide-body aeroplanes, and approved training organisations providing relevant flight training, assess whether their operating procedures may be affected by the safety issue of slow rotation during take-off. If so, they should apply their hazard identification and risk management processes. In the SIB, EASA also recommends that the relevant competent authorities consider the SIB in their continuous oversight of applicable operators and approved training organisations.

Moreover, Airbus has modified the A340 Flight Crew Training Manual (FCTM) to better describe the take-off rotation technique, and to clarify the consequences of incorrect

application of the technique. Although the FCTM is not required to be approved by EASA, EASA has, nevertheless, reviewed the updated version and found it to be adequate.

In addition, EASA has approved an A340 Training Area of Special Emphasis on the take-off rotation technique, to emphasise the knowledge of the use of the sidestick controller to perform the correct rotation technique including: how to initiate the rotation, how to achieve and maintain the rotation rate, how to achieve the pitch attitude after lift-off.

EASA considers that the above actions taken provide all the elements necessary to ensure that the A340-300 certified take-off performance is achieved in operations.

Reply No 2 sent on 09/08/2021: EASA disagrees that the A340 TASE based on the revised FCTM is impossible for the operator to apply, and the ex-post analysis shows that a rotation rate enhancement has been actually achieved. The rotation is a closed loop manoeuvre. The stick input values to initiate and maintain the rotation rate are those needed to achieve the target rotation rate value. The rotation rate target value is enough to set proper training.
It is acknowledged that in average the stick inputs needed to achieve that take-off performance in the A340 are higher than in the rest of the Airbus models; this does not mean that those inputs are unusual, but specific to the A340, this specificity having being considered by the approval of a TASE for the A340 on the take-off rotation technique. About the SIB EASA considers that it is clear, and that no lack of clarity can be assumed from the absence of formal feedback on the SIB.
Anyway, in accordance with the safety promotion material "Guidance for the implementation of Flight Data Monitoring precursors" prepared by the EOFDM WGB Revision 3 published on September 2020 (https://www.easa.europa.eu/sites/default/files/dfu/study_wgb_precursors_rev3_20200930_4.pdf), EASA recommends the operators to monitor some precursors (e.g. RE05 "Slow Acceleration", RE07 "Late Rotation", RE08 "Slow Rotation", RE15 "Runway Remaining at Lift-off" and others) to proactively intervene and correct observed operational discrepancies.

Status: Closed

France

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

Synopsis of the event:

While descending, the crew reduced the power of the engines to the minimum possible in flight by positioning the levers on Flight Idle (FI). The speed of the aircraft was 246 kt, close to the maximum operating speed (VMO) of 250 kt. The crew then felt strong vibrations followed by an alarm associated with the propeller electronic controller (PEC) that controls the right propeller.
After the flight, the drive shaft of the AC generator of the right engine was found broken and it was replaced. A maintenance team performed tests on both engines / propellers. No vibration or abnormal operation was noticed.
The next day flight was normally carried out. While taxiing, the crew reported a loud vibration noise as they moved the power levers from idle flight to ground idle.
Following this, various maintenance operations were undertaken. Three ground tests of the engines / propellers were carried out and did not show any abnormal operation. An element of the right propeller control system (the propeller valve module) was replaced.
A fourth ground test began, during which the power levers were positioned in reverse thrust.
Vibrations appeared and the engines were immediately cut off. After stopping the engines, the blades no 1, 2, 5 and 6 of the right propeller were in feathering position while the blades no 3 and 4 seemed to remain in position of reverse thrust. The disassembly of the blades of the right propeller highlighted, among others, the breaking of the crankpin of blade # 4 as well as damage to the propeller blade angle change cylinder plate.
The circumstances and damage observed are similar to those observed in the investigation of a serious incident that occurred on 18 September 2013 in Indonesia at an ATR 72-212A registered PK-WFV. The Indonesian investigating authority, NTSC, had initiated an investigation and issued an immediate safety recommendation to the aircraft operator concerning the verification of the condition of the propeller of the propeller blades and the search for indications of cracks on part of the fleet.

Safety Recommendation FRAN-2019-018:

Most aircraft equipped with jet engines are equipped with vibration detectors placed on each engine. The data regarding the levels of certain vibrations are sent to an indicator in the cockpit. This system warns the pilots when the vibration level exceeds the design limits and
allows them to identify the engine concerned.
The regulations do not require aircraft equipped with turboprop engines to be equipped with these detectors. ATR proposes the optional installation of accelerometers on the two engines for maintenance purposes but the information provided by these sensors cannot be used by crews. In general, the vibrations generated at a turboprop engine/propeller assembly can sometimes be very different to those which propagate in the cockpit. Relying on what crews feel is not an effective way of identifying the engine or propeller concerned.

Consequently, the BEA recommends that:
EASA assess the benefit of imposing the installation of vibration level indicators for each propeller-engine assembly in the cockpits of commercial air transport aeroplanes equipped with turboprop engines. [Recommendation 2019-018]
[[%_A133%]] - Les avions équipés de turboréacteurs sont pour la plupart équipés de détecteurs de vibrations placés sur chaque moteur. Les informations sur les niveaux de certaines vibrations sont envoyées à un indicateur placé dans le poste de pilotage. Ce système alerte les pilotes lorsque le niveau des vibrations dépasse les limites de conception et leur permet de discriminer le moteur concerné.
La réglementation n'exige pas que les aéronefs équipés de turbopropulseurs en soient équipés. ATR propose en option l'installation d'accéléromètres au niveau des deux moteurs pour les besoins de maintenance mais l'information fournie par ces capteurs n'est pas utilisable par les équipages. De manière générale, les vibrations générées au niveau d'un ensemble turbopropulseur / hélice peuvent parfois être très différentes de celles qui se propagent dans le poste de pilotage. Le ressenti des équipages ne permet pas la discrimination efficace du moteur ou de l'hélice concernés.

En conséquence le BEA recommande que :
?? L'AESA évalue l'intérêt d'imposer que des indicateurs de niveau vibratoire pour chaque ensemble hélice-moteur soient installés dans les postes de pilotage des aéronefs de transport commercial équipés de turbopropulseurs. [Recommandation FRAN-2019-018]

Reply No 1 sent on 01/10/2019: EASA is reviewing the final investigation report and this safety recommendation.
More information will be provided once EASA decides a way forward on how to react to this safety recommendation.

Reply No 2 sent on 03/03/2021: In the frame of rulemaking task RMT.0673 ('Regular update of CS-25') the European Union Aviation Safety Agency (EASA) published notice of proposed amendment (NPA) 2020-11 on 26 November 2020 that takes into account this safety recommendation:
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-11
The NPA summarises the background of the current certification specification CS-25 provisions related to vibration indication systems which are only applicable to aeroplanes equipped with turbojet engines. It also provides an assessment of the benefits brought by such systems to aeroplanes equipped with turbopropellers.
The assessment concludes to propose an amendment of CS 25.1305 to require a system providing cockpit indications of the vibrations from engine rotors and propellers (when applicable) to be installed on all new turbine engine-powered aeroplane designs.
Further information will be provided once EASA will have reviewed the comments received from stakeholders and prepared an ED Decision amending CS-25.

Status: Closed

France

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

Synopsis of the event:

While descending, the crew reduced the power of the engines to the minimum possible in flight by positioning the levers on Flight Idle (FI). The speed of the aircraft was 246 kt, close to the maximum operating speed (VMO) of 250 kt. The crew then felt strong vibrations followed by an alarm associated with the propeller electronic controller (PEC) that controls the right propeller.
After the flight, the drive shaft of the AC generator of the right engine was found broken and it was replaced. A maintenance team performed tests on both engines / propellers. No vibration or abnormal operation was noticed.
The next day flight was normally carried out. While taxiing, the crew reported a loud vibration noise as they moved the power levers from idle flight to ground idle.
Following this, various maintenance operations were undertaken. Three ground tests of the engines / propellers were carried out and did not show any abnormal operation. An element of the right propeller control system (the propeller valve module) was replaced.
A fourth ground test began, during which the power levers were positioned in reverse thrust.
Vibrations appeared and the engines were immediately cut off. After stopping the engines, the blades no 1, 2, 5 and 6 of the right propeller were in feathering position while the blades no 3 and 4 seemed to remain in position of reverse thrust. The disassembly of the blades of the right propeller highlighted, among others, the breaking of the crankpin of blade # 4 as well as damage to the propeller blade angle change cylinder plate.
The circumstances and damage observed are similar to those observed in the investigation of a serious incident that occurred on 18 September 2013 in Indonesia at an ATR 72-212A registered PK-WFV. The Indonesian investigating authority, NTSC, had initiated an investigation and issued an immediate safety recommendation to the aircraft operator concerning the verification of the condition of the propeller of the propeller blades and the search for indications of cracks on part of the fleet.

Safety Recommendation FRAN-2019-019:

Certain choices and hypotheses meant that the tests carried out during the propeller certification campaign in 1994-1995 did not show certain phenomena observed during the flight tests in 2014 and 2016, in particular the friction at the blade root bearings (ballbunching)
and the cyclic loads on the forward yoke plate of the propeller pitch change mechanism when the aeroplane is in descent at a speed close to VMO with the power levers in the flight idle position.
The FAA circular currently in force and proposing an assessment method of the vibration stresses borne by a propeller during its certification, recommends incorporating descents with flight idle at various speeds being included in the flight test programme. Its systematic
implementation at various speeds around VMO would allow the existence of vibration phenomena, such as that observed during tests in 2014 and 2016, to be checked for.

Consequently, the BEA recommends that:
EASA and the FAA impose that the initial certification of propellers includes the carrying out of an in-depth study of the actual vibration behaviour of each propeller in flight idle with speeds around VMO.
[EASA: Recommendation 2019-019]
[[%_A133%]] - Certains choix et hypothèses ont conduit à ce que les essais effectués lors de la campagne de certification de l'hélice en 1994-1995 n'ont pas permis de mettre en évidence certains phénomènes observés lors des essais en vol de 2014 et 2016, en particulier la friction au niveau des roulements de pied de pale et les efforts cycliques sur le plateau avant du système de régulation d'hélice lorsque l'avion est en descente à une vitesse proche de la VMO avec les manettes de puissance en position ralenti vol.
La circulaire de la FAA actuellement en vigueur et proposant une méthode d'évaluation des efforts vibratoires subis par une hélice dans le cadre de sa certification, recommande d'intégrer au programme des essais en vol des descentes au ralenti vol à différentes vitesses. Sa mise en oeuvre systématique à différentes vitesses autour de la VMO permettrait de vérifier l'existence de phénomènes vibratoires du type de ceux observés lors des essais en 2014 et 2016.

En conséquence le BEA recommande que :
L'AESA et la FAA imposent que la certification initiale des hélices comprenne la réalisation d'une étude approfondie du comportement vibratoire réel de chaque hélice au ralenti vol à des vitesses autour de la VMO.
[AESA : Recommandation FRAN-2019-019]
[FAA : Recommandation FRAN-2019-034]

Reply No 1 sent on 01/10/2019: EASA is reviewing the final investigation report and this safety recommendation.
More information will be provided once EASA decides a way forward on how to react to this safety recommendation.

Reply No 2 sent on 03/03/2021: In the frame of rulemaking task RMT.0673 ('Regular update of CS-25') the European Union Aviation Safety Agency (EASA) published notice of proposed amendment (NPA) 2020-11 on 26 November 2020 that takes into account this safety recommendation.
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-11
The NPA proposes to create a new acceptable means of compliance AMC 25.907 on Propeller vibration. This proposed AMC recognises the Federal Aviation Administration (FAA) Advisory Circular (AC) 20-66B, 'Propeller Vibration and Fatigue' as providing acceptable means of compliance with CS 25.907 for the evaluation of vibratory stresses on propellers.
In addition, the proposed AMC includes that the investigation of the actual vibration behaviour of each propeller should include the operating conditions corresponding to descent with the power levers in the flight idle position, and with speeds around VMO (maximum operating speed). It underlines the experience gathered in such conditions, i.e. that cyclic loads and vibrations may develop that may lead to excessive stress being generated on some parts of the propeller. This investigation should be conducted for all engine-propeller positions.
Further information will be provided once EASA will have reviewed the comments received from stakeholders and prepared an ED Decision amending CS-25.

Status: Closed

France

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

Synopsis of the event:

While descending, the crew reduced the power of the engines to the minimum possible in flight by positioning the levers on Flight Idle (FI). The speed of the aircraft was 246 kt, close to the maximum operating speed (VMO) of 250 kt. The crew then felt strong vibrations followed by an alarm associated with the propeller electronic controller (PEC) that controls the right propeller.
After the flight, the drive shaft of the AC generator of the right engine was found broken and it was replaced. A maintenance team performed tests on both engines / propellers. No vibration or abnormal operation was noticed.
The next day flight was normally carried out. While taxiing, the crew reported a loud vibration noise as they moved the power levers from idle flight to ground idle.
Following this, various maintenance operations were undertaken. Three ground tests of the engines / propellers were carried out and did not show any abnormal operation. An element of the right propeller control system (the propeller valve module) was replaced.
A fourth ground test began, during which the power levers were positioned in reverse thrust.
Vibrations appeared and the engines were immediately cut off. After stopping the engines, the blades no 1, 2, 5 and 6 of the right propeller were in feathering position while the blades no 3 and 4 seemed to remain in position of reverse thrust. The disassembly of the blades of the right propeller highlighted, among others, the breaking of the crankpin of blade # 4 as well as damage to the propeller blade angle change cylinder plate.
The circumstances and damage observed are similar to those observed in the investigation of a serious incident that occurred on 18 September 2013 in Indonesia at an ATR 72-212A registered PK-WFV. The Indonesian investigating authority, NTSC, had initiated an investigation and issued an immediate safety recommendation to the aircraft operator concerning the verification of the condition of the propeller of the propeller blades and the search for indications of cracks on part of the fleet.

Safety Recommendation FRAN-2019-016:

The flight tests carried out in 2014 and 2015 allowed the behaviour of the propeller at 230 kt and 250 kt to be studied. A cyclic load vibration phenomenon on the forward yoke plate was observed at 250 kt, creating loads of a small amplitude of around 450 daN, i.e. 18% of the static loads required to irreversibly deform a trunnion pin. During the incidents studied, in the same speed range (246 to 258 kt), loads leading to permanent deformations or failure were reached. These phenomena were never observed below 230 kt. The revealing of this cyclic load phenomenon on the forward yoke plate raises questions as to the behaviour of the propeller at speeds close to 250 kt, the maximum speed in operation (VMO). The evolution of this phenomenon at speeds slightly greater

than 250 kt has never been studied. Additional efforts to improve modelling capabilities at speeds of around 250 kt would allow the sensitivity of this phenomenon to be better estimated, notably with respect to speed. It would then be possible to evaluate the margins available in operational use given a probable dispersion of the sensitivity to this phenomenon.

Consequently, the BEA recommends that:
EASA ensure that ATR and UTAS continue to analyse the cyclic load phenomenon on the forward yoke plate revealed at flight idle and at a speed slightly above VMO in order to confirm that the ATR72-212A flight envelope provides sufficient margins to prevent this phenomenon from causing damage to the propeller pitch change mechanism [Recommendation 2019-016]
[[%_A133%]] - Les essais en vol effectués en 2014 et 2015 ont permis d'étudier le comportement de l'hélice à 230 et 250 kt. Un phénomène vibratoire d'efforts cycliques sur le plateau avant a pu être observé à 250 kt, créant des charges de faible amplitude de l'ordre de 450 daN, soit 18 % de la charge statique nécessaire pour déformer un maneton de manière irréversible. Lors des incidents étudiés, dans la même plage de vitesses (246 à 258 kt), des efforts conduisant à des déformations permanentes ou des ruptures ont été atteints. Ces phénomènes n'ont jamais été observés en-dessous de 230 kt.
La mise en évidence de ce phénomène d'efforts cycliques sur le plateau avant soulève des interrogations quant au comportement de l'hélice à des vitesses proches de 250 kt, vitesse maximale en opérations (VMO). L'évolution de ce phénomène à des vitesses légèrement supérieures à 250 kt n'a jamais été étudiée. Des efforts supplémentaires pour améliorer les capacités de modélisation à des vitesses autour de 250 kt permettraient de mieux apprécier la sensibilité du phénomène, notamment par rapport à la vitesse. Il serait alors possible d'estimer les marges disponibles en service opérationnel compte tenu d'une dispersion probable quant à la sensibilité à ce phénomène.

En conséquence le BEA recommande que :
L'AESA s'assure qu'ATR et UTAS poursuivent l'analyse du phénomène d'efforts cycliques sur le plateau avant mis en évidence au ralenti vol et à une vitesse légèrement supérieure à la VMO dans le but de confirmer que le domaine de vol de l'ATR72-212A fournit des marges suffisantes pour éviter que ce phénomène ne provoque l'endommagement du système de régulation de pas d'hélice [Recommandation FRAN-2019-016]

Reply No 1 sent on 01/10/2019: The European Union Aviation Safety Agency (EASA) agrees with the recommendation.
In order to further develop the technical considerations on the case, the Agency has already contacted the ATR, the aircraft TC holder, and the Federal Aviation Administration (FAA), the primary certification authority of the propeller, in order to obtain the necessary information.

Reply No 2 sent on 26/04/2021: In order to analyse the cyclic load phenomenon on the forward yoke plate of the Collins Aerospace 568F propeller installed on the Avions de Transport Régional (ATR) ATR-42 and ATR-72, analyses were performed of the trunnion pin loads during events at flight idle and near VMO (maximum operating speed). The analyses focused on the high speed descent operating conditions. The load cases were evaluated based on propeller Vibratory Stress Surveys (VSS) flight test data and on results from an analytical model. Collins Aerospace report RF06090 version 00 was

submitted to the European Union Aviation Safety Agency (EASA) and the Bureau d'Enquêtes et d'Analyses (BEA).

The report summarizes the work done and concludes that "the load analysis on 568F-1 propeller pitch change mechanism at or above VMO (VMO+20 KCAS) and flight idle does not reveal that any threshold has been crossed and would result in a large increase of the cyclic load phenomenon on the forward plate causing damage to the system. Analysis are therefore showing that ATR72-212A flight envelope provides sufficient margins to prevent this phenomenon from causing damage to the 568F-1 propeller pitch change mechanism."

EASA obtained a confirmation from ATR that they support this conclusion and concurs with the conclusion of this report.

Status: Closed

France

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

Synopsis of the event:

While descending, the crew reduced the power of the engines to the minimum possible in flight by positioning the levers on Flight Idle (FI). The speed of the aircraft was 246 kt, close to the maximum operating speed (VMO) of 250 kt. The crew then felt strong vibrations followed by an alarm associated with the propeller electronic controller (PEC) that controls the right propeller.
After the flight, the drive shaft of the AC generator of the right engine was found broken and it was replaced. A maintenance team performed tests on both engines / propellers. No vibration or abnormal operation was noticed.
The next day flight was normally carried out. While taxiing, the crew reported a loud vibration noise as they moved the power levers from idle flight to ground idle.
Following this, various maintenance operations were undertaken. Three ground tests of the engines / propellers were carried out and did not show any abnormal operation. An element of the right propeller control system (the propeller valve module) was replaced.
A fourth ground test began, during which the power levers were positioned in reverse thrust.
Vibrations appeared and the engines were immediately cut off. After stopping the engines, the blades no 1, 2, 5 and 6 of the right propeller were in feathering position while the blades no 3 and 4 seemed to remain in position of reverse thrust. The disassembly of the blades of the right propeller highlighted, among others, the breaking of the crankpin of blade # 4 as well as damage to the propeller blade angle change cylinder plate.
The circumstances and damage observed are similar to those observed in the investigation of a serious incident that occurred on 18 September 2013 in Indonesia at an ATR 72-212A registered PK-WFV. The Indonesian investigating authority, NTSC, had initiated an investigation and issued an immediate safety recommendation to the aircraft operator concerning the verification of the condition of the propeller of the propeller blades and the search for indications of cracks on part of the fleet.

Safety Recommendation FRAN-2019-017:

The investigation was not able to identify the most probable damage scenario leading to the overload of the mechanical elements of the propeller pitch change mechanism. However, this vibration stress on the forward yoke plate in flight idle and at a speed close to VMO indicates unexpected mechanical operation which does not correspond to the conditions for which the parts were designed. When the moment generated by the aerodynamic load of a blade becomes greater than that generated by the counterweight and the inertia of the blade, the trunnion pin cyclically moves away from the aft yoke plate and sometimes comes into contact with the forward yoke plate. Sometimes the direction of the sum of the moments may change during a cycle. This phenomenon depends on the speed of the aircraft. The elements collected in the safety investigations show that this phenomenon can appear above a speed of 240 kt. During flight tests, this phenomenon was not observed at a speed of 230 kt.

Consequently, the BEA recommends that:
☐ EASA ensure that research is pursued with a view to understanding the sequence of damage to the propeller and the cause(s) of the overloads and that pending the outcome of this research, the operational procedures recommended by the ATR72-212A manufacturer for the descent are reviewed to prevent any flight between 240 and 250 kt at flight idle. [Recommendation 2019-017
[[%_A133%]] - L'enquête n'a pas permis d'identifier le scénario d'endommagement le plus probable menant à la surcharge des éléments mécaniques du système de régulation d'hélice. Cependant, la sollicitation vibratoire du plateau avant au ralenti vol et à une vitesse proche de la VMO dénote un fonctionnement mécanique inattendu, qui ne correspond pas aux conditions pour lesquelles les pièces ont été dimensionnées. Lorsque le moment généré par la charge aérodynamique d'une pale devient supérieur à celui généré par le contrepoids et l'inertie de la pale, le maneton de pale quitte le plateau arrière de manière cyclique et vient parfois en contact avec le plateau avant. L'apparition de l'inversion cyclique du sens de la somme des moments dépend de la vitesse de l'aéronef. Les éléments recueillis dans le cadre des enquêtes de sécurité montrent que ce phénomène peut apparaitre au-dessus d'une vitesse de 240 kt. Lors des essais en vol, ce phénomène n'a pas été observé à une vitesse de 230 kt.

En conséquence le BEA recommande que:
☐L'AESA s'assure que des recherches soient poursuivies dans l'objectif de comprendre l'enchaînement des endommagements de l'hélice et la ou les origine(s) des surcharges et, qu'en attendant le résultat de ces recherches, les procédures d'exploitation préconisées par le constructeur des ATR 72-212A pour la descente soient revues pour prévenir toute évolution entre 240 et 250 kt au ralenti vol. [Recommandation FRAN-2019-017]

Reply No 1 sent on 01/10/2019: The European Union Aviation Safety Agency (EASA) agrees with the recommendation.
In order to further develop the technical considerations on the case, the Agency has already contacted the ATR, the aircraft TC holder, and the Federal Aviation Administration (FAA), the primary certification authority of the propeller, in order to obtain the necessary information.

Reply No 2 sent on 26/04/2021: To investigate the sequence of damage to the mechanical elements of the propeller pitch change mechanism, and the cause(s) of the overloads, testing of the 568F propeller blade retention was performed by Collins Aerospace and is presented in report HSER39345 revision A.

The H21 test rig used was designed to apply static and dynamic loads to a simulated 568F propeller blade retention concurrent with the exercise of large blade pitch changes associated with operation over the flight envelope, and cyclic blade pitch oscillations associated with propeller control and the application of once per revolution dynamic loading.

The first test objective was to investigate whether a phenomenon known as retention bearing "ball bunching" could have been the source of the overloads that caused trunnion pin rupture or cracking. A second objective was to identify the operational factors that could contribute to ball bunching. The third objective was to evaluate the benefit of the new ball separator design in preventing the build-up of retention friction due to ball bunching.

The H21 test program has increased the understanding of the behaviour of double row ball bearing blade retention when exposed to high cyclic loading. However, the inability of the tests to cause pitch change torque loads approaching a level that would damage the hardware suggests that there may be other contributing factors for the trunnion pin failures that were not simulated by the H21 test rig and have not been identified. The reduced friction provided by the new ball separator design was confirmed and a statistical analysis indicates that the probability of reaching the pin failure threshold is orders of magnitude lower with the re-designed ball separator than the old separator.

UTC Aerospace Systems, now Collins Aerospace, released Service Bulletin (SB) 568F-61-67 in October 2014 (revised April 2015) in order to better identify damage to the mechanical elements of the propeller pitch change mechanism following propeller vibrations. SB 568F-61-69 was published in August 2015 and introduces the re-designed ball separator. Collins Aerospace recommends that this service bulletin is performed at the next maintenance opportunity. UTC Aerospace Systems Service Information Letter (SIL) 793 (April 2019) emphasizes the benefit of this new design for lowering the build-up of high levels of friction in the blade retention. In this SIL, Collins Aerospace recommends that operators incorporate SB 568F-61-69 at their earliest convenience. In January 2015, EASA issued a Safety Information Bulletin (SIB) No 2015-03 (revised January 2016) to inform owners and operators about events featuring damages on propeller pitch change mechanism. The SIB indicates preventive and corrective measures applicable to this phenomenon which is not considered to be an unsafe condition that would warrant Airworthiness Directive action.

In light of the actions summarized in this answer, EASA considers that the intent of this safety recommendation has been met.

Status: Closed

United States

Registration	Aircraft Type	Location	Date of event	Event Type
N350LH	AEROSPATIALE AS350	New York, Manhattan, Upper East Side, East River near Roosevelt Island	11/03/2018	Accident

Synopsis of the event:

On March 11, 2018, about 1908 eastern daylight time, an Airbus Helicopters AS350 B2, N350LH, lost engine power during cruise flight, and the pilot performed an autorotative descent and ditching on the East River in New York, New York. The pilot sustained minor injuries, the five passengers drowned, and the helicopter was substantially damaged. The FlyNYON-branded flight was operated by Liberty Helicopters Inc. (Liberty), per a contractual agreement with NYONair; both companies considered the flight to be an aerial photography flight operated under the provisions of Title 14 Code of Federal Regulations (CFR) Part 91. Visual flight rules (VFR) weather conditions prevailed, and no flight plan was filed for the intended 30-minute local flight, which departed from Helo Kearny Heliport, Kearny, New Jersey, about 1850.

Liberty operated the accident flight as a FlyNYON-branded, doors-off helicopter flight that allowed the five passengers (one in the front seat, four in the rear seats) to take photographs of various landmarks while extending their legs outside the helicopter during portions of the flight. For the accident flight (and other FlyNYON flights that Liberty operated), Liberty configured its Airbus AS350 B2 helicopter with the two right and the front left doors removed and the left sliding door locked open. Before departure, each passenger was fitted with a NYONair-provided harness/tether system that NYONair developed with the intent to prevent passengers from falling out of the helicopter. The harness/tether system used on the accident flight consisted of a full-body, workplace fall-protection harness that was secured (with a locking carabiner) to a tether, the other end of which was secured (with another locking carabiner) to an anchor point in the cabin. Each passenger also wore the helicopter's installed, Federal Aviation Administration (FAA)-approved restraints. The pilot (who was seated in the front right seat) wore only an installed, FAA-approved restraint.

After the flight departed, it traveled past various scenic landmarks. Consistent with the standard operating procedures (SOPs) used for FlyNYON flights, the passengers were allowed (when instructed by the pilot) to position themselves to extend their legs outside the helicopter. The two passengers who had been seated in the rear inboard seats removed their installed, FAA-approved restraints and sat on the cabin floor, wearing their harness/tether systems. The passengers seated in the outboard seats were allowed to rotate outboard in their seats. To enable such freedom of movement, the SOPs allowed the passengers to wear their installed, FAA-approved restraint with the lap belt adjusted loosely and the shoulder harness routed under the arm.

A review of radar data and onboard video showed that, when the flight was proceeding northwest over Manhattan toward Central Park at an altitude of 1,900 ft mean sea level, the front passenger, who was facing outboard in his seat with his legs outside the helicopter, leaned back several times to take photographs using a smartphone. The onboard video showed that, each time he leaned back, the tail of the tether attached to the back of his harness hung down loosely near the helicopter's floor-mounted controls. At one point, when he pulled himself up to adjust his seating position, the tail of his

tether remained taut but appeared to pop upward. Two seconds later, the helicopter's engine sounds decreased, and the helicopter began to descend.
As the pilot performed the emergency procedures to perform an autorotation and address the apparent loss of engine power, he noticed that the fuel shutoff lever (FSOL) was in the shutoff position and that it had been inadvertently moved to that position by the tail of the front passenger's tether, which had become caught on it.
Although the pilot pushed the FSOL down to restore fuel flow to the engine and attempted to relight the engine, the helicopter was too low to allow engine power to be restored in time to prevent the emergency landing. The pilot pulled the activation handle to deploy the helicopter's emergency flotation system, and he ditched the helicopter on the East River. However, the helicopter's floats did not fully inflate, and the helicopter rolled right in the water and became fully inverted and submerged about 11 seconds after it touched down.
The pilot was able to release his installed, FAA-approved restraint after he was under water and successfully egress from the helicopter; however, none of the passengers were able to egress, and they all drowned.

Safety Recommendation UNST-2020-035:

After the actions requested in Safety Recommendation A-19-32 are completed, require owners and operators of existing AS350-series helicopters to incorporate the changes.

(SR A-19-32 To Airbus:
Modify the floor-mounted FSOL in AS350-series helicopters to include protection from inadvertent activation due to external influences.)

Reply No 1 sent on 22/06/2020: Once actions requested by the National Transportation Safety Board (NTSB) to Airbus Helicopters (AH) in the framework of the Safety Recommendation UNST-2020-032 are completed, i.e. to modify the floor-mounted Fuel Shut-Off Lever (FSOL) to protect it from inadvertent activation due to external influences, the European Union Aviation Safety Agency (EASA) will consider the improved FSOL design and will determine how to address the in-service retrofit for the affected AS350 helicopter models as necessary.

Reply No 2 sent on 10/06/2021: Prompted by this Safety Recommendation (SR), the European Union Aviation Safety Agency (EASA) cooperated with Airbus Helicopters (AH) to improve the AS350/EC130 helicopter series floor-mounted Fuel Shut-Off Lever (FSOL) design in order to protect it from inadvertent activation due to external influences.

In this framework, AH has developed and approved under its Design Organisation Approval (DOA) privileges a modification (MOD 075101) for the metallic top plate of the FSOL, applicable to AS350 B2 and AS350 B3 helicopter models, and made it available for retrofit to owners and operators through the AH Service Bulletin (SB) AS350-76.00.24.

Even though, at this time, the original FSOL design is not considered to represent an unsafe condition by EASA and, as such, there is no need to issue an Airworthiness Directive (AD) under point 21.A.3B of Annex I (Part-21) to Commission Regulation (EU) No 748/2012, EASA welcomes the FSOL design improvement developed by AH and deems that it will increase the level of protection from inadvertent activation due to external influences.

Consequently, the installation of MOD 075101 has been recommended by EASA via the release of the EASA Safety Information Bulletin (SIB) ref. 2021-05 ("Fuel Shut-Off Lever Modification") dated 19/03/2021.

It has to be noticed that a similar modification is under development for the other models of the AS350/EC130 legacy fleet having a floor-mounted FSOL and EASA is closely monitoring the progress of this additional certification activity, expected to be performed by AH under its DOA privileges.

Status: Open

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-WLTS	BELL 429	Melksham Heliport	02/01/2019	Serious incident

Synopsis of the event:

The report considers two events which occurred while the pilot was conducting a Power Assurance Check. In one, an un-commanded yaw pedal movement caused a rapid rotation of the helicopter through two and a half complete rotations; in the other, a trim runaway was contained by the pilot. The trim runaway was found to be an unknown feature of the Automatic Flight Control System logic.

Safety Recommendation UNKG-2020-011:

The STC holder that carried out the Minor Change made no reference in the work package to the fact that the audio controller interfaced directly with the CVR system. There was, perhaps, an indirect reference to the CVR system in the audio controller installation manual that said that the factory-set audio levels may need to be adjusted to 'best suit the local operating environment'. There was, however, no evidence to suggest this had been done because the output levels of the audio controller had not been altered.

If the newly installed equipment interfaces with other existing equipment on an aircraft, then tests must be conducted to ensure the installation has not had a detrimental effect on the existing equipment. EASA specifically reminds Minor Change applicants of this in guidance contained in their 'Minor Change Certificate Document'. The document is aimed at applicants making changes to GA aircraft, and especially those who are not DOA holders and who may have limited experience in the change process. There is, however, no equivalent guidance, or even reminder, to organisations qualified and practised in carrying out changes to CAT aircraft, leaving the potential for these tests to be overlooked and the continued airworthiness of the aircraft to be compromised.

Therefore, the following safety recommendation is made:
It is recommended that the European Union Aviation Safety Agency remind Minor Change applicants of the importance of verifying that new equipment does not have a detrimental effect on existing equipment with which it has a direct interface.

Reply No 1 sent on 27/07/2020: The European Union Aviation Safety Agency (EASA) will undertake both corrective and preventive actions.

First, a dedicated inspection will be performed on the relevant Design Organisation Approval (DOA) holder, with particular attention given to the aspects pertinent to this serious incident.

Second, a safety-promotion article will be published in EASA's Certification & Design Newsletter, to highlight that the installation of certain equipment needs an electromagnetic and audio interference test, as part of the compliance demonstration, before the approval change.

An update will be sent to the Air Accidents Investigation Branch once these actions have been performed.

Reply No 2 sent on 31/07/2021: The European Union Aviation Safety Agency (EASA) undertook a corrective action through a dedicated inspection on the relevant Design Organisation Approval (DOA) holder, with particular attention given to the aspects pertinent to this serious incident. The inspection was carried out remotely in October 2020 . The audit result did not identify any non-compliance with Annex I (Part 21) to Commission Regulation (EU) No 748/2012 related to Avionics changes performed by the DOA holder.

EASA surveillance of the subject DOA holder has ended and the company is now working under a UK-CAA approval.

In terms of preventive actions, a safety promotion article is planned to be published in EASA's Certification & Design Newsletter to highlight this safety issue. This action is scheduled for Q4 2021.

An update will be sent to the Air Accidents Investigation Branch once the article has been published.

Status: Open

China

Registration	Aircraft Type	Location	Date of event	Event Type
B-6419	AIRBUS A319	over Chengdu	13/05/2018	Serious incident

Synopsis of the event:

On May 14th, 2018, an A319-133 Airbus aircraft registered B-6419 operated by Sichuan Airlines Co., Ltd (hereinafter referred to as SCAL) carried out 3U8633 flight from Chongqing to Lhasa. There were three flight crew members, including one PIC, one second captain and a F/O; five cabin crew members, one security officer and 119 passengers aboard. At 06:27:18 (Beijing time, the same hereinafter), the aircraft took off from Chongqing Jiangbei International Airport, with Liu ×× as PF in the left seat, F/O Xu ×× as PM in the right seat and Liang ×× as second captain in the jump seat. After entering the cruise phase, the second captain took a seat in the passenger cabin 1F as the third member. At 06:56:46, the aircraft reached the cruising altitude of 9,800 meters (32,100ft) and maintained the altitude. At 07:06:47, the aircraft flew over the MIKOS on route B213, the cabin altitude was 6272ft. At 07:07:05, when the aircraft was about 2.2 NM west of MIKOS on route B213, the cabin altitude was 6272ft ,there was a muffled sound of "bang" in the CVR, then the crew found a radial net crack in the right windshield, during the interviews after the event, the crew described the windshield crack pattern as "very broken, very cracky, all ruptured". At 07:07:06, the F/O said "the windshield is ruptured". At 07:07:06, the message "ANTI ICE R WINDSHIELD" appeared in ECAM. At 07:07:07, RH windshield heating function was recorded faulty (RH WINDSHIELD Boolean triggered in the DAR). At 07:07:10, there was a second "bang" in CVR. At 07:07:11, the PIC said "I have control" according to the CVR. At 07:07:19, in the CVR the flight crew reported to Chengdu ACC that there was a fault, asked for a lower altitude and maintained 8,400 meters as per the ACC's authorization. The flight crew then asked for return, reported that the windshield ruptured, and decided to divert to Chengdu. At 07:07:42, cabin differential pressure 7.688psi. At 07:07:45, there was a muffled sound of "bang" in the CVR, and then there was continuous noise in the CVR. DC BUS 1 and DC BUS 2 were powered off, the load of No. 2 engine generator changed to 0 (recovered at 07:30:38), the left windshield, fixing side windows and sliding windows heating became faulty, the auto-brake system became faulty, the flight guidance 2 disconnected, SEC2 and SEC3 became faulty, and spoilers 1, 2 and 5 became inoperative. Cabin altitude was 6256ft [2]. At 07:07:46, cabin differential pressure 7.688psi [3]. The auto-pilot (AP) was off. The captain manually operated the aircraft and started to descend. The aircraft turned right first and then left. At 07:07:48, auto-thrust disconnected. At 07:07:50, the flight altitude of the aircraft was 31,864ft on standard air pressure, cabin altitude was 24,320ft as recorded, and the ECAM displayed a cabin altitude warning (it continued until 07:29:39). Cabin differential pressure 0.922psi. The ECAM electrical system page popped up and ELAC1 roll became faulty (it lasted to the end of flight). At 07:08:09, the flight altitude of the aircraft was 31,664ft on standard air pressure, and cabin altitude was 24,362ft, and the maximum roll angle (left) reached 51.7°. At 07:08:14, the flight altitude of the aircraft was 31,512ft on standard air pressure, and cabin altitude was 26,368 ft. At the same time, the cabin altitude reached the highest value in the whole process, and then it started to decrease gradually. Cabin differential pressure was 0.578psi. All of the ELAC2 pitch and roll control channels were faulty, and the flight control system reverted in alternate law.

Safety Recommendation CHIN-2020-001:

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

Reply No 1 sent on 11/08/2020: The European Union Aviation Safety Agency (EASA) has initiated a review of this incident and the related Certification Specification CS-25 provisions. Several options are being evaluated to address this safety recommendation.

An update will be provided once this action has progressed.

Reply No 2 sent on 03/03/2021: In the frame of rulemaking task RMT.0673 ('Regular update of CS-25') the European Union Aviation Safety Agency (EASA) published notice of proposed amendment (NPA) 2020-11 on 26 November 2020 that takes into account this safety recommendation.
https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-11

The NPA proposes to amend acceptable means of compliance AMC 25.775(d) to ensure that applicants better address failure conditions that may have structural effects. Although differently worded, the proposal is understood to meet the intent of the safety recommendation. A new section 8 is proposed that reads as follows:
"AMC 25.1309, Chapter 10, paragraph (c) on 'Considerations When Assessing Failure Condition Effects', states that the severity of failure conditions should be evaluated taking into account the effects on the aeroplane from potential or consequential effects on structural integrity.
The applicant should therefore carefully take into account the potential effects on the windshield structural integrity when assessing any failure condition related to systems associated with the windshield (such as windshield heating systems).
Unless otherwise demonstrated by the applicant, a failure condition that leads to a structural failure of a windshield should be classified as at least hazardous.
In addition, certification specification CS 25.365(e)(3) requires the consideration of the maximum opening caused by aeroplane or equipment failures (such as windshield failures) that is not shown to be extremely improbable.
Service experience has shown that the failure or the deterioration of some windshield installation components (such as a degraded seal), combined with environmental conditions (such as the accumulation of water or moisture ingress) or with manufacturing/installation issues, may lead to the failures of other components of a system associated with the windshield (such as degradation of, or damage to, the insulation of a heating system wire). The combination of these failures may then lead to a malfunction or failure of the associated system that may then lead to a structural failure of the windshield.

The applicant should therefore pay particular attention to common cause and cascading failures, and identify appropriate design, manufacturing, installation and maintenance precautions for the installation of windshields and the associated systems that mitigate the risk of any failure condition adversely affecting other adjacent systems or components that may lead to a structural failure of the windshield. Such considerations are generally expected to be addressed through zonal safety analysis (refer to AMC 25.1309, Appendix 1).”
Further information will be provided once EASA will have reviewed the comments received from stakeholders and prepared an ED Decision amending CS-25.

Status: Closed

United Arab Emirates

Registration	Aircraft Type	Location	Date of event	Event Type
G-MDME HS-THK	DIAMOND (DA62)&AIRBUS A350	about 3 miles south of OMDB (DXB) : Dubai	16/05/2019	Accident

Synopsis of the event:

On 16 May 2019, at 1533 local time of the United Arab Emirates, a Diamond DA62 Aircraft, registered as G-MDME, departed Sharjah International Airport (OMSJ) for a positioning flight to Dubai International Airport (OMDB), from where it was intended to operate an aerodrome lighting calibration flight. The crew comprised two pilots and a company Flight Inspector. Prior to departure from OMDB the crew attended a meeting with Dubai air traffic control and airport representatives to discuss the calibration flight. During the meeting, the different flight profiles to be flown during the calibration mission were explained. The meeting included discussion on traffic information and how spacing from other aircraft on Final approach was to be assured.

The DA62 departed OMDB from runway 30R for the calibration flight at 1808 with the three crewmembers and an additional occupant, who was an observer employed by the aerodrome lighting provider, onboard. The observer had no defined duties related to the calibration flight. The mission required the DA62 to fly several approaches to, and low passes over, runway 30L. At 1929, after uneventfully completing nine approaches, the DA62 commenced its tenth approach and joined the Final leg for runway 30L following a Thai Airways Airbus A350-900 aircraft which was on approach to the parallel runway 30R. The A350 was 3.7 nautical miles (nm) and 90 seconds ahead of the DA62 which was offset by 380 meters and approximately 200 feet below the altitude of the A350.

When the DA62 turned onto the Final leg, it levelled off at an altitude of 1,300 feet (ft) above mean sea level (AMSL) and an airspeed of 120 knots (kt). Shortly after, it rolled dynamically to the left, lost approximately 100 ft in altitude, and was recovered after nine seconds. Seven seconds later, the DA62 abruptly rolled to the left until it became inverted and entered a steep dive. The DA62 impacted the ground approximately 3.5 nm inbound from the threshold of runway 30L. All four occupants sustained fatal injuries.

Safety Recommendation UNAR-2020-001:

Review the requirements to register commercial operations under EASA Part-SPO Specialised Operations, to ensure that national civil aviation authorities, adopting these requirements, are provided with essential applicant information to enable an effective initial assessment of potential operational risks.

Reply No 1 sent on 24/08/2020: Commission Regulation (EU) No 965/2012 laying down technical requirements and administrative procedures related to air operations was amended by Commission Regulation (EU) No 379/2014 in order to introduce, among others, requirements applicable to specialised operations (Annex VIII - Part-SPO) and to the oversight by competent authorities of operators conducting such operations. Regulation (EU) No 379/2014 stipulated that these new requirements become applicable

on 1 July 2014, with the possibility for Member States not to apply them until 21 April 2017 by way of derogation. Almost all Member States (including the UK) used this possibility and deferred the applicability date until 21 April 2017.

In 2018 and 2019, the European Union Aviation Safety Agency (EASA) monitored the application by competent authorities of the requirements related to the oversight of high-risk SPO operators in several Member States. This was done through desktop reviews and inspections using a risk-based approach, as laid down in Commission Regulation (EU) No 628/2013 on working methods of the European Aviation Safety Agency for conducting standardisation inspections and for monitoring the application of the rules of the Basic Regulation.

EASA intended to present the results of this monitoring during the biannual Air Operations meeting gathering representatives of all EASA Member States to be held in May 2020. Amongst others, the aim of the presentation was to identify if further actions should be conducted with regard to the oversight of SPO operators, either by means of regulatory amendments or safety promotion, in order to ensure a safe and harmonised implementation of Part-SPO in Member States.

However, due to the COVID-19 pandemic, the meeting was cancelled. The results of the review, together with the main conclusions of the investigation into the DA62 registered G-MDME and safety recommendation UNAR-2020-001, will be presented for further actions at the next biannual Air Operations meeting to be held in autumn 2020.

Reply No 2 sent on 10/06/2021: According to Commission Regulation (EU) No 965/2012 on air operations, commercial Specialised Operations (SPO) operators and non-commercial SPO operators of complex motor-powered aircraft are required to provide the Competent Authority (CA) with relevant information about their operation prior to commencing operations, using the Declaration form under Appendix I of Annex III (Part-ORO) to Commission Regulation (EU) No 965/2012 (see ORO.DEC.100).
The Declaration is a written statement made by a SPO operator, under the operator's sole responsibility and based on the operator's self-assessment, declaring that they are compliant with the applicable requirements. The Declaration does not constitute an approval or authorisation etc. The intent of the Declaration is to ensure that the operator has acknowledged its responsibilities under the applicable safety regulations and that it holds all necessary specific approvals. It is also to inform the CA of the existence of all operators which are required to comply with Annex VIII (Part-SPO) to Commission Regulation (EU) No 965/2012, to enable the CA to fulfil its oversight responsibilities.
Upon receipt of a Declaration, the CA shall verify whether it contains the required information (see ARO.GEN.345). The verification does not imply an inspection. The aim is to check whether what is declared complies with the applicable regulations (see GM1 ARO.GEN.345). If the Declaration is deemed not to contain the required information or indicates non-compliances, the CA shall notify the operator and request additional information. The CA may also inspect the operator and undertake actions, where deemed necessary.
In addition, according to ORO.SPO.110, a commercial SPO operator shall apply for and obtain an authorisation issued by the CA prior to commencing a high risk commercial SPO:
•that is carried out over an area where the safety of third parties on the ground is likely to be endangered in the event of an emergency, or
•that, as determined by the CA, due to its specific nature and the local environment in which it is conducted, poses a high risk, in particular to third parties on the ground.

According to ARO.OPS.150, upon receipt an application for the issue of a high risk commercial SPO authorisation, the CA shall review the operator's risk assessment documentation and standard operating procedures (SOP), related to one or more planned operations and developed in accordance with the relevant requirements of Annex VIII (Part-SPO). For the purpose of verifying the operator's SOPs, the CA may conduct an audit at the operator's facilities or require the conduct of one or more demonstration flights operated as if they were high risk commercial SPO [see sub-paragraph (a) of AMC1 ARO.OPS.150(a);(b)]. When satisfied with the risk assessment and SOP, the CA shall issue the authorisation, as established in Appendix VI of Annex II (Part-ARO) to Commission Regulation (EU) No 965/2012.
At the time of adoption of the rules applicable to SPO (in 2014), aerial work was not (and is still not) harmonised globally under the International Civil Aviation Organisation Standards and Recommended Practises. Indeed, the States participating in the work of the European Union Aviation Safety Agency (EASA) in accordance with Article 129 of Regulation (EU) 2018/1139 ('EASA MS') have indicated a preference for a risk-based approach to account for the specificities of SPO and particular local conditions; therefore, the regulatory effort and oversight varies according to the risks to third parties, nature of the activity, etc. Furthermore, MSs have expressed a preference to be able to exert discretion in addressing high risk operations rather than having a common EU-wide list of high risk operations. See list of 'high risk commercial specialised operations' of Member States, published on the EASA web site at:
https://www.easa.europa.eu/sites/default/files/dfu/High-risk%20commercial%20SPO%20-%20EASA%20Member%20States%20%2825.01.2021%29.pdf
According to ARO.GEN.305, the CA shall establish an oversight programme which covers the oversight activities required by ARO.GEN.300 and ARO.RAMP.
For organisations declaring their activity to the CA, the oversight programme shall be based on the specific nature of the organisation, the complexity of its activities and the data of past oversight activities and the assessment of risks associated with the type of activity carried out. It shall include audits and inspections, including ramp and unannounced inspections, as appropriate [see ARO.GEN.305(d)].
For organisations holding a high risk SPO authorisation, the oversight programme shall be established in accordance with ARO.GEN.305(d), and shall also take into account the past and current authorisation process and the validity period of the authorisation [see ARO.GEN.305(d1)]. The oversight programme should be developed on a yearly basis. All operators should be considered for inclusion into the programme not later than 12 months after the date of the first declaration received. At least one inspection should be performed within each 48-month cycle starting with the date of the first declaration received [see sub-paragraph (e) of AMC1 ARO.GEN.305(d)]
It should also be noted that ARO.GEN.300 addresses oversight in general, whereas ARO.GEN.305 deals specifically with the oversight programme i.e. the principles on which a CA should plan its oversight activities. Both ARO.GEN.305 sub-paragraphs (d) and (d)(1) are aiming at risk-based and performance-based oversight. The expression 'inspected/audited' in relation to SPO operators means inspected and audited according to the data available to the CA and its planning policy. Every CA should include in its oversight programme a certain number of audits, investigations, assessments, inspections, including ramp inspections and unannounced inspections. The planning is based on CA policy and priorities stemming from assessment of the risks pertaining to specific activities and the past performance of the organisations engaged in those activities.
On 12 January 2017, EASA hosted a SPO workshop with stakeholders to explain and discuss the above-mentioned rules.

Furthermore, EASA routinely discusses implementation/performance issues with the EASA MSs during the established routine Air Operations meetings organised by EASA. Indeed, at such a meeting on 24 and 25 November 2020, EASA presented:
•the main results of the monitoring by EASA of the application by CAs of the requirements related to the oversight of high risk SPO operators
•the main conclusions of the air accident investigation leading to this safety recommendation
With the above-mentioned explanations, EASA has concluded that the applicable rules for SPO, in particular the Declaration process, are fit for purpose, considering the complete picture.

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-DDGX	SCHEMPP HIRTH CIRRUS (Standard Cirrus 75)	South Wales Gliding Club airfield	27/07/2019	Accident

Synopsis of the event:

The glider was undertaking an aerotow launch to the west at Gwernesney Airfield which was operated by the resident gliding club. During the early stages of the ground roll the horizontal tailplane (tailplane) detached from G-DDGX and fell to the ground. Club members assisting with the launch signalled for the takeoff to be aborted but the message did not reach the aerotow tug pilot; the accident pilot did not appear to hear or see the stop signals either. The glider became airborne and climbed rapidly, before the tow cable released and
the aircraft's nose dropped. The glider descended steeply and struck the ground nose first. It came to rest inverted pointing in an easterly direction. First responders extricated the pilot from the aircraft before he was airlifted to hospital. He died five days later from complications related to injuries sustained in the accident.

Safety Recommendation UNKG-2020-013:

It is recommended that the European Union Aviation Safety Agency require a means to detect incorrect alignment of the tailplane locking lever on gliders with locking features similar to the Standard Cirrus 75.

Reply No 1 sent on 07/09/2020: The European Union Aviation Safety Agency (EASA) is investigating this issue in cooperation with the sailplane Type Certificate Holder (TCH) Schempp-Hirth and will revert back to the Air Accidents Investigation Branch once its assessment of this safety recommendation is complete.

Reply No 2 sent on 26/04/2021: Following the European Union Aviation Safety Agency (EASA)'s investigation of this issue in cooperation with the sailplane Type Certificate Holder, Schempp-Hirth, an Airworthiness Directive (AD) AD-2020-0260 has been issued in order to address this issue linked to elevator attachment. Furthermore, Safety Information Bulletin (SIB) SIB-2019-07 addressing sailplane rigging is being revised to add more examples. A further update will follow.

Status: Open

Switzerland

Registration	Aircraft Type	Location	Date of event	Event Type
9H-AMZ	BOMBARDIER BD700 1A10	Geneva Airport (LSGG)	06/04/2016	Accident

Synopsis of the event:

Following an uneventful flight from Bodensee-Airport Friedrichshafen (EDNY), the crew of the Bombardier BD-700-1A10 Global 6000 long-haul business aircraft, registered as 9H-AMZ, made an approach using the instrument landing system to runway 051 at Geneva Airport (LSGG), where there were light winds at the time. Approximately two minutes before 9H-AMZ landed, with the aircraft flying a stabilised final approach about 4 NM from the runway threshold, a commercial aircraft Airbus A319 commenced its take-off run from the start of runway 05 and took off around 40 seconds later. The crew of 9H-AMZ flew over the displaced threshold of runway 05 with the correct approach profile and at the correct reference speed, and commenced the flare at a radio altitude of 10 ft. Moments later, the aircraft was caught by a positive wind shear of around 13 kt and rolled into a slight right bank, which the crew countered with an aileron deflection to the left. Immediately afterwards, the aircraft suddenly and severely rolled on its longitudinal axis to a left bank angle of 12.1°. The crew immediately countered this with a vigorous aileron deflection to the right. Nevertheless, 9H-AMZ struck the runway with its left wingtip and subsequently touched down with the main landing gear whilst at an almost horizontal bank attitude. The process of slowing down and taxiing from the runway was uneventful.

Safety Recommendation SWTZ-2020-560:

The European Union Aviation Safety Agency (EASA) should reconsider and adapt the insufficiently differentiated minimum separation requirements regarding wake turbulence, especially in the case of displaced runway thresholds.

Reply No 1 sent on 25/01/2021: The applicable European Union (EU) regulatory framework on the establishment of minimum separation requirements regarding wake turbulence is established in Commission Implementing Regulation (EU) 2017/373 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight. Point ATS.TR.100 of Annex IV 'Part-ATS' to this Regulation stipulates that Air Traffic Services (ATS) have to be provided, inter alia, in accordance with the standards of International Civil Aviation Organization (ICAO) Annex 11 Amendment 49. Standard 3.4.1 of this ICAO Annex prescribes:

Separation minima
The selection of separation minima for application within a given portion of airspace shall be as follows:
a) the separation minima shall be selected from those prescribed by the provisions of the Procedures for Air Navigation Services - Air Traffic Management (PANS-ATM) and the Regional Supplementary Procedures as applicable under the prevailing circumstances except that, where types of aids are used or circumstances prevail which are not covered

by current ICAO provisions, other separation minima shall be established as necessary by:
1) the appropriate ATS authority, following consultation with operators, for routes or portions of routes contained within the sovereign airspace of a State;
2) regional air navigation agreements for routes or portions of routes contained within airspace over the high seas or over areas of undetermined sovereignty.
b) the selection of separation minima shall be made in consultation between the appropriate ATS authorities responsible for the provision of air traffic services in neighbouring airspace when:
1) traffic will pass from one into the other of the neighbouring airspaces;
2) routes are closer to the common boundary of the neighbouring airspaces than the separation minima applicable in the circumstances.

A Note to such Standard invites to consider the details of current separation minima prescribed by ICAO in the PANS-ATM (Doc 4444) and Part 1 of the Regional Supplementary Procedures (Doc 7030).

This Standard clearly defines the responsibilities of the 'appropriate ATS authority' for the definition of wake turbulence separation minima and method for the local cases. It should be noted that the same provisions were applicable at the time of the occurrence at stake, through Commission Regulation (EU) 1035/2011.

With its applicability as from 27 January 2022, Commission Implementing Regulation (EU) 2020/469 amends Commission Implementing Regulation (EU) 2017/373 and transposes the standards and recommended practices of Annex 11 and the procedures of PANS-ATM into the EU regulatory framework, including those related to wake turbulence. ICAO Standard 3.4.1 is transposed into point ATS.TR.215, of Part-ATS, while points ATS.TR.210 and ATS.TR.220 are also relevant. Furthermore, Executive Director (ED) Decision 2020/008/R defines a set of Acceptable Means of Compliance (AMC) and Guidance Material (GM) to support the implementation of the aforementioned Regulation . This approach was selected in order to provide Member States with common principles, and at the same time an adequate flexibility to address local cases, like a displaced runway threshold. Such specific local case could be managed by the implementation of alternative means of compliance according to the applicable procedure.

This ED Decision also provides a wide set of AMC/GM related to the wake turbulence separation minima, including one on displaced runway threshold derived from PANS ATM Section 5.8.4 (transposed in AMC4 ATS.TR.220). Therefore, the European Union Aviation Safety Agency considers that suitable, proportionate measures are already in place to address adequately the needs for Competent Authorities and Air Navigation Service Providers (ANSPs) to establish separation minima regarding wake turbulence, which adequately reflect the specificities of the local conditions and operations, in view of the Safety Recommendations addressed in the Final Report to the Federal Office of Civil Aviation (FOCA).

Status: Closed

Sweden

Registration	Aircraft Type	Location	Date of event	Event Type
SE-LUX	BEECH 95	Malmo Airport	17/11/2019	Accident

Synopsis of the event:

The intention was to carry out flight training southeast of Malmo airport and then return to practice instrument approaches. After about 16 minutes of flying, radar vectors ws initiated for approach to runway 17. At the same time, the aircraft lost all electrical power.
The pilots used external references and a tablet with a navigation program. In the absence of electrical power in a noisy environment, the crew had to perform manual landing gear extension, a procedure that neither the student nor the instructor had previously performed.
The crew then tried to check, with the help of their light sources via mirrors on the engine cowlings, whether the nose landing gear was extended. None of the pilots could see anything and the crew decided to continue the approach.
At touchdown the landing gear collapsed. The aircraft skidded over 300 meters before stopping.

Safety Recommendation SWED-2020-003:

Evaluate and decide whether a warning system that clearly indicates that the battery is not being charged by the alternators can be introduced as an operational requirement for aircraft operated under instrument flight rules or in darkness. (RL 2020:11 R1)

Reply No 1 sent on 25/01/2021: The subject aircraft design was certified by the Federal Aviation Administration (FAA) under Civil Aviation Regulations CAR 3, dated 15 May 1956, and validated under the applicable EU airworthiness certification regulations. According to the FAA Advisory Circular AC 23.1309E, referred to as acceptable means of compliance to the applicable EU Certification Specification CS-23 used for aircraft certification in accordance with Commission Regulation (EU) No 748/2012, a total loss of the aircraft function to provide electrical power would be classified as 'catastrophic' if all the primary flight instruments require electrical power. If some flight instruments (such as stand-by instruments) do not require electrical power, the pilot should still be able to see them, because Commission Regulation (EU) No 965/2012 on air operations requires an independent portable light to be available for each required crew member for aeroplanes operated for Commercial Air Transport (CAT) either by day or at night [see CAT.IDE.A.115 (a)(4)], and for aeroplanes operated for non-commercial operations by night [NCC.IDE.A.115 (f) and NCO.IDE.A.115 (f)]. With this consideration the classification of the failure condition would be 'hazardous' or lower, depending on the design architecture and flight phase.
Providing a warning when the battery is not being charged by the alternators may not be appropriate in all cases. CS 23.2605 (c) in amendment 5 of CS-23 requires timely and clear information to be given to the pilot concerning unsafe conditions when he is responsible for taking corrective action. CS 23.1353 (h) of CS-23 amendment 4 requires that the battery has enough capacity, if the primary source fails, to supply the essential

electrical loads for 30 minutes to complete a safe flight and landing including the time needed for the pilot to recognise the loss of generated power and to take appropriate load shedding action. CS 23.1353 (h) constitutes an Acceptable Means of Compliance with CS.23 2525 (c) of CS-23 amendment 5 where the prescriptive 30 minute limit has been amended to require enough time for safe flight and landing after failure of the primary electrical power source.
In summary, under the current CS-23 (amendment 5) a warning must be provided to the pilot in accordance with CS 23.2605 (c) if and when the primary electrical power source fails and pilot action is expected while the essential electrical loads are ensured by CS.23.2525 (c).
With the above-mentioned considerations, the European Union Aviation Safety Agency has concluded that the safety issue is already suitably mitigated through the EU certification and air operations regulations, as described above. Requiring a warning system that clearly indicates that the battery is not being charged by the alternators for aircraft operated under instrument flight rules or in darkness would not provide proportionate and justified safety benefits.

Status: Closed

Egypt

Registration	Aircraft Type	Location	Date of event	Event Type
SU-GCI	AIRBUS A330	Cairo	14/05/2017	Serious incident

Synopsis of the event:

On 14th May 2017 an Airbus A330-243 was departing from Cairo (HECA) to Beijing (ZBAA). Shortly after takeoff roll, the levels of Eng #1 virations started to increase and the engine spool speeds sudenly dropped with accompanying increase of EGT. As a counter action both thrust levers were retarded to iddle and the takeoff was aborted (maximum speed recorded was 56 Knots CAS). Subsequently, Eng #1 was shutdown and the aircrfat returned to the gate with one engine inoperative. All passengers and crewmembers disembarked the aircraft safely using the stairway. Inspection of the Eng #1 following the event revealed that the air inlet cowl had been broken up with sections of inner and outer skin missing. The engine fan blades also suffered impact damage with sections of blade material being released from a number of blade leading edges.

Safety Recommendation EGYP-2020-001:

The investigation Committee recommends the following to the aircraft manufacturer and its Certification Authority

- Should take all the necessary actions to work on preventing future failures and mitigate nose cowl failure risks through considering the development / Monitor of another inspection technique (other than the manual tap test), an inspection that is capable of delivering sufficiently accurate results in detecting disbond in engine air inlet cowl (Note: Repeated inspections is required by EASA Airworthiness Directive AD No. 2011-0173 on 13/09/2011 - later superseded by AD 2019-0042, was not effective in detecting the disbonding which most probably led to the unsafe condition(s) in 2017)

- Since the implementation of AD 2011-0173 was not effective in preventing the unsafe condition(s) in 2017, it is recommended by the investigation committee in case of failure to find a suitable alternate to manual tap test, to reconsider the classification of the modification as per Service Bulletin No. RB.211-71-H205 (covered by Airbus SB A330-71-3030) and re-assess its impact on improving the safety level that was compromised by the poor effectiveness of AD 2011-0173

Reply No 1 sent on 23/02/2021: The European Union Aviation Safety Agency (EASA), together with Airbus, has assessed and reviewed the fly-on limit, cumulative repair and allowable damages on nose cowls. In the light of this event, Airworthiness Directive (AD) 2011-0173 was reviewed, and superseded by AD 2019-0042. The service bulletin (71-3024) to inspect the panel was revised by Airbus, including further enhanced instructions. Furthermore, the threshold and grace periods at which this inspection has to be performed were reduced.

A thorough review of the known methods and tools to inspect the nose cowls has been performed. It was concluded that the tap test technique is an adequate method if

performed properly. Consequently a training video was produced and distributed to all customers to highlight the environment within which this inspection has to be performed and illustrate the relative instructions.

In addition, a modification to the panels was introduced in production in March 2014 (and retrofit is also available).

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
N680KH	CESSNA 525 (C)	after take-off from EGHH (BOH) : Bournemouth/Hurn	13/04/2019	Serious incident

Synopsis of the event:

The aircraft had been modified with a system intended to enhance its performance, which included supplementary control surfaces designed to deflect symmetrically and automatically to alleviate gust loads. Shortly after takeoff, an electrical failure in this system caused one of these control surfaces to deploy separately, causing an uncommanded roll.
The resulting aircraft upset caused the pilot significant surprise and difficulty in controlling the aircraft.

Safety Recommendation UNKG-2020-029:

It is recommended that the European Union Aviation Safety Agency determine the additional training it requires pilots to undertake in order to operate aircraft fitted with supplementary systems that influence flight path, where training on the original aircraft would not adequately prepare pilots for operating the modified aircraft in normal, abnormal or emergency situations.

Reply No 1 sent on 02/03/2021: The following provisions of Commission Regulation (EU) No 965/2012 on air operations ensure that flight crew are suitably trained for the aircraft type operated (including those with supplementary systems installed), and cover the availability and use of relevant checklists:

-NCC.GEN.106(a)(4)(viii) which requires the flight crew to be properly rated and meet competency and recency requirements;
-ORO.FC.100(c) on ratings, i.e. type-specific training;
-ORO.FC.125 on differences and familiarisation training;
-ORO.GEN.110(h) on checklists per aircraft type in normal, abnormal and emergency procedures in accordance with the latest relevant documentation from the design approval holder.

Furthermore, in accordance with Article 11 of Regulation (EU) 2018/1139, operational suitability data (OSD) associated with a type design must be approved, when the applicant has demonstrated that the design of the product meets the applicable certification basis, and this approval must be include in the type certificate (TC) (or supplemental type certificate - STC).

This provision is further detailed in Commission Regulation (EU) No 748/2012, which in its Article 7a requires aircraft that are newly certified or delivered as new to an EU operator after February 2014 to have OSD, including for flight crew (FC) approved as part of the TC, covering type specific training associated with the aircraft design.

Further to that, point 21.A.93 of Annex I (Part-21) to Commission Regulation (EU) No 748/2012, as amended by Commission Regulation (EU) No 69/2014 and applicable from 19 December 2016, requires an applicant for a change to a TC or for an STC to consider the effects of the change to the OSD certification basis, and include the necessary changes to the OSD FC, when applicable, in their application for approval. Guidance to assess the impact of design changes on the OSD are provided in GM No 1 to 21.A.93(b)(1)(iii). Part of the resulting approval covers the pilot training elements associated with a specific design, when such elements are identified in the certification process and captured in the OSD FC associated with the TC or STC.

In turn, approved training organisations (ATOs) and operators have an obligation to use the mandatory elements of the OSD FC in developing initial, differences and recurrent training programmes and courses (cf. points FCL.710(a) and FCL.725(a) of Annex I (Part-FCL) to Regulation (EU) 1178/2011; point ORO.FC.145(b) of Annex III (Part-ORO) to Commission Regulation (EU) No 965/2012.).

The process embedded in the relevant regulations as described above provides a high level of confidence that, when training elements are necessary to support a specific aircraft design, these are properly identified, approved as part of the TC, change to a TC or STC, and delivered to pilot, reinforcing the principle of them receiving the appropriate training to ensure safe operation of the aircraft and its modifications.

Status: Closed

Hungary

Registration	Aircraft Type	Location	Date of event	Event Type
HA-5087	SCHLEICHER K7	LHDK : Dunakeszi	29/09/2018	Serious incident

Synopsis of the event:

The glider - registration HA-5087 – took off from Dunakeszi airfield with a pilot-instructor and a student pilot on board. Their goal was to conduct a skill maintenance flight. At the moment the winch started, the glider tipped over onto its tailskid as it is normal for the given glider type. The ground crew noticed that the RH elevator detached from the horizontal stabilizer and was hanging on the trim linkage. The glider took off without problems and released the cable. The trim finally broke and the elevator fell to the ground. It was later found behind the fence of the horse racing track neighbouring the airfield. The ground crew called the pilot-instructor on his mobile phone. The student pilot completed the first (right) turn, then the pilot-instructor took the controls, finished the right traffic pattern, and landed uneventfully.
The RH elevator, the attached trim and the trim linkage was damaged. There was no injury.

Safety Recommendation HUNG-2020-003:

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

Reply No 1 sent on 03/03/2021: The European Union Aviation Safety Agency (EASA) is working with the type certificate holder to decide if a modification of Airworthiness Directive 72-007/3, which is currently in force for Schleicher K-7 gliders, is needed. A further update will be provided.

Reply No 2 sent on 03/02/2022: The European Union Aviation Safety Agency has issued Airworthiness Directive (AD) 2021-0230 on 14 October 2021, superseding Luftfahrt Bundesamt Germany (LBA) AD 72-7/3 and providing inspections instructions and corrective actions for all wooden Schleicher sailplanes having an elevator of a similar design, and making the inspections dependent on elapsed time and on the number of launches.

Status: Closed

France

Registration	Aircraft Type	Location	Date of event	Event Type
F-HLBT	AEROSPATIALE AS350	Guérande, France, 44 Loire-Atlantique	26/08/2017	Accident

Synopsis of the event:

Five people, two men, a woman and two children, arrived at around 13:30 at the Héliberté counter at La Baule – Escoublac aerodrome for a sightseeing flight over the Guérande region. They were met by a Héliberté agent who took charge of them and guided them to the helicopter. Take-off was planned for 14:00 and the estimated flight time was 45 minutes.
The agent explained the safety instructions to the passengers. He indicated how they could communicate without disturbing the pilot and asked them to carefully read the safety card available. He did not give instructions about the use of the doors and belts. The two men and the children were seated in the rear and the female passenger in the front left seat. At around 14:00, after repeating the communication instructions, the pilot took off with the five passengers. The helicopter flew in cruise at an average altitude of around 1,500 ft and an average speed of 120 kt.
At the end of the flight and returning to La Baule aerodrome, the pilot was suddenly hit by vertigo after lowering and then raising his head to observe the ground. He then limited his inputs on the controls to avoid making the situation worse. The path was unstable and random and the helicopter collided flat with the ground, with a high vertical speed, a slow forward speed and a shallow bank angle to the right.

Safety Recommendation FRAN-2020-014:

Consequently, the BEA recommends that: to encourage pilots to declare in the most exhaustive way possible, the health events that they have experienced, and the knowledge of which might be useful in the assessment of their fitness, EASA modify the Application Form for a Medical Certificate AMC 1 ARA.MED.135 (a):
- so that a pilot is invited to declare health events in an explicit manner in the form of free text, and the existence or absence of a new health event since the last visit;
- so that the AME can certify that he has taken into consideration the pilot's declarations made in his presence.

Reply No 1 sent on 25/01/2021: For the purpose of medical certification in accordance with MED.A.035 Application for a medical certificate the competent authority shall use the application form in accordance with ARA.MED.135 to Part-ARA in Commission Regulation (EU) 1178/2011. The application form is laid down in acceptable means of compliance AMC1 ARA.MED.135(a) and shall be completed and signed personally by the applicant and be verified by the Aeromedical Examiner (AME) in accordance with their obligations as stipulated in MED.A.025 Obligations of the AeMC, AME, GMP and OHMP and corresponding AMC/GM. The AME subsequently performs the medical examination considering the medical history facts declared by the applicant. In accordance with the said application form and the requirements of MED.A.035(b), the applicant shall provide his/her complete and correct medical history and not withhold any relevant information or make any misleading statements. In accordance with

MED.A.025 and corresponding AMC/GM, the role of the AME is to assist the applicant in this process and provide a correct aeromedical interpretation of the medical history facts. In addition, the application process for a medical certificate required by MED.A.035 is supported by a corresponding instruction for completion of the application form for a medical certificate which is also laid down in AMC1 ARA.MED.135(a).
All questions of the general and medical history part of the application form to be answered by the applicant are numbered and written in a manner which covers all human body systems and some diseases significant for flight safety. In addition, there is a "Remarks" field and AMEs, before each medical examination, should encourage applicants to provide any additional medical information in a free form there. All AMEs are trained to correctly complete all aero-medical forms including the application form.
The process described above not only invites but requires applicants (with the assistance of the AME) to declare any health event, new or old, in the most explicit way.
Furthermore, in accordance with the requirements of MED.A.025(a)(2) the AME shall make the applicant aware of the consequences of providing incomplete, inaccurate or false statements on their medical history.
Moreover, MED.A.040 Issuance, revalidation and renewal of medical certificates requires AMEs to consider medical history facts when they perform medical examination and assessment on the medical fitness of each applicant.
Based on the arguments detailed above, the European Union Aviation Safety Agency concludes that the safety recommendation is addressed by the applicable medical requirements and that therefore there is no need for further amendments.

Status: Closed

Austria

Registration	Aircraft Type	Location	Date of event	Event Type
D-KIWC	SCHEIBE SF25	Mittersill	16/07/2019	Accident

Synopsis of the event:

The touring motor glider type SCHEIBE SF 25 C - FALKE with a ROTAX 912 A engine and controllable pitch propeller, manned by a pilot and a passenger, got caught by the pilot over the Thurn Pass estimated flight height above the ground of approx. 80 M GND in downdrafts and crashed into a forest after colliding with obstacles. The passenger suffered serious injuries and the motor glider was severely damaged.

Safety Recommendation AUST-2020-001:

Issued to EASA, in conjunction with the designing state and the holder of the type certificate of the touring motor glider Type SCHEIBE SF 25 C - FALKE:

The information given in the SCHEIBE AIRCRAFT "Flight manual for the motor glider SF 25 C - FALKE", edition March 1997, amendment 9 of 07.04.2013 and according to EASA data sheet TCDS No. EASA.A.098, Issue 11, Date 14 Jan 2016, certified for the motor glider Type SF 25 C.
Maximum continuous output of 46 KW at 4800 RPM speed and 22 INHG boost pressure for motor gliders with ROTAX 912 A engine and controllable pitch propeller contradicts the performance table for the ROTAX 912 A engine with controllable pitch propeller in the BRP-ROTAX
Operating manual "Operators Manual for ROTAX Engine Type 912 Series", Edition 4 / Rev. 0, November 01/2016 ("Performance data for variable pitch propeller - Engine 912 A / F / UL"), which at 4800 RPM speed and 26.5 INHG Boost pressure indicates a power of 37.7 KW in ISA conditions.

Motor gliders type SF 25 C - FALKE with a ROTAX 912 A engine are optionally available with or without switchable carburetor preheating. The extraction of the intake air influences the intake air temperature and intake boost pressure, which also determine the engine performance.

If the maximum continuous power specified in the flight manual of the motor glider requires a higher engine speed and / or a higher intake pressure than the parameters for the power setting specified in the flight manual of the motor glider, the actually available engine power in ISA conditions would be lower than the certified maximum continuous power of the motor glider. This would have a negative impact on flight safety as a result of the poorer flight performance when climbing.

Incorrect performance specifications in the operating instructions for motor gliders could lead to an incorrect assessment of the available engine performance.

The maximum continuous output of 46 KW at 4800 RPM speed and 22 INHG boost pressure for motor gliders with ROTAX 912 A engine and variable pitch propeller specified in the flight manual for the touring motor glider type SCHEIBE SF 25 C - FALKE should be checked with regard to the correctness of the values for engine power, engine

speed and intake boost pressure and if discrepancies are identified, they are also checked for compliance with the airworthiness requirements for gliders and motor gliders JAR22. A possible influence of the extraction of the intake air on the engine performance should be taken into account.
[[%_A133%]] - Ergeht an die EASA, in Verbindung mit dem Entwurfsstaat und dem Inhaber der Musterzulassung des Reisemotorseglers Type SCHEIBE SF 25 C – FALKE:
Die im SCHEIBE AIRCRAFT „Flughandbuch für den Motorsegler SF 25 C – FALKE", Ausgabe März 1997, Änderung 9 vom 07.04.2013, angegebene und gemäß EASA-Kennblatt TCDS No. EASA.A.098, Issue 11, Date 14 Jan 2016, für den Motorsegler Type SF 25 C zertifizierte
maximale Dauerleistung von 46 KW bei 4800 RPM Drehzahl und 22 INHG Ladedruck für Motorsegler mit Motor ROTAX 912 A und Verstellpropeller steht im Widerspruch zur Leistungstabelle für den Motor ROTAX 912 A mit Verstellpropeller im BRP-ROTAX Betriebshandbuch „Operators Manual for ROTAX Engine Type 912 Series", Edition 4 / Rev. 0, November 01/2016 („Performance data for variable pitch propeller – Engine 912 A/F/UL"), welche bei 4800 RPM Drehzahl und 26.5 INHG Ladedruck eine Leistung von 37.7 KW in ISA-Bedingungen angibt.
Motorsegler Type SF 25 C – FALKE mit Motor ROTAX 912 A werden wahlweise mit oder ohne zuschaltbare Vergaservorwärmung ausgeführt. Die Entnahme der Ansaugluft hat Einfluss auf Ansauglufttemperatur und Ansaugladedruck, welche die Motorleistung mitbestimmen.
Wenn die im Flughandbuch des Motorseglers angegebene maximale Dauerleistung eine höhere Motordrehzahl und/oder einen höheren Ansaugladedruck bedingt als die im Flughandbuch des Motorseglers vorgegebenen Parameter für die Leistungseinstellung, wäre die tatsächlich verfügbare Motorleistung in ISA-Bedingungen niedriger als die zertifizierte maximale Dauerleistung des Motorseglers. Dies hätte infolge der schlechteren Flugleistungen im Steigflug nachteiligen Einfluss auf die Flugsicherheit. Fehlerhafte Leistungsangaben in den Betriebsanweisungen von Motorseglern könnten eine Fehleinschätzung hinsichtlich der verfügbaren Motorleistung begünstigen.
Die im Flughandbuch für den Reisemotorsegler Type SCHEIBE SF 25 C – FALKE angegebene maximale Dauerleistung von 46 KW bei 4800 RPM Drehzahl und 22 INHG Ladedruck für Motorsegler mit Motor ROTAX 912 A und Verstellpropeller sollte hinsichtlich de Richtigkeit der Werte für Motorleistung, Motordrehzahl und Ansaugladedruck überprüft werden und bei festgestellten Abweichungen zusätzlich auf ihre Übereinstimmung mit den angewendeten Lufttüchtigkeitsforderungen für Segelflugzeuge und Motorsegler JAR22 überprüft werden. Dabei sollte ein allfälliger Einfluss der Entnahme der Ansaugluft auf die Motorleistung berücksichtigt werden.

Reply No 1 sent on 03/03/2021: The European Union Aviation Safety Agency (EASA) is currently checking, together with the type certificate holder, the engine data in the sailplane and engine manuals. A further update will be provided.

Status: Open

Germany

Registration	Aircraft Type	Location	Date of event	Event Type
D-EESU	DIAMOND DA40	Stuttgart Airport EDDS (STR)	02/03/2018	Accident

Synopsis of the event:

On 2nd March 2018, during go-around the DA 40 NG registered as D-EESU had deviated from take-off direction, collided with an airport fence and crashed on a field.

Safety Recommendation GERF-2020-004:

The European Aviation Safety Agency (EASA) should include Single Pilot Operation CRM and the concept of Safety Gates within Safety Promotion for General Aviation

Reply No 1 sent on 03/03/2021: The European Union Aviation Safety Agency's (EASA) Safety Promotion Plan for General Aviation (GA) has already identified the need to focus on pilot decision making in single pilot operations. A new Safety Promotion activity is being developed for launch in Q3 2021 to cover the key decision making factors for GA pilots from take-off to landing. This intends to highlight the key decision making points, and particular attention will also be paid to landing preparation, approach and touch-down. This material is planned to consist of videos, blog articles, guides and also a "serious game" to use the scientifically-proven approach of game-based learning to assist pilots in learning and improving their CRM and decision making skills in a safe environment at no cost in order to help achieve maximum reach in the pilot community.

Status: Open

Sri Lanka

Registration	Aircraft Type	Location	Date of event	Event Type
4R-ADA	AIRBUS A340	Bandaranaike International Airport, Colombo	02/07/2013	Serious incident

Synopsis of the event:

SriLankan Airlines flight UL 266 departed King Khalid International Airport, Riyadh, Saudi Arabia at 20:45 UTC on 02nd July 2013 for its destination Bandaranaike International Airport (BIA), Colombo, Sri Lanka. On approach to BIA the flight crew decided to conduct a practice auto landing on runway 22 and conducted the required briefing for an auto land which included task sharing, call outs and go-around strategy. The visibility conditions were good.
UL266, on the said auto land manoeuvre, experienced a high sink rate during the flare, followed by a hard landing and a tail strike. The aft fuselage belly of the aircraft to be damaged. In addition, the right main landing gear exceeded the design load limits requiring replacement. The incident caused no injuries to passengers and crew.

Safety Recommendation SRIL-2021-001:

It is recommended that EASA study the need to require new specifications for an Auto land function, in order to provide additional cues to crew members when its performance is degraded, for example when a speed decrease is detected and will not be compensated by the auto-thrust / throttle system.

Reply No 1 sent on 26/04/2021: The current version of the applicable Certification Specifications CS25.1329 mandates that low speed protection functions should be put in place to prevent the aircraft from achieving critical under speed conditions. This function should work in every situation including autoland, therefore the European Union Aviation Safety Agency (EASA) believes that the current CS 25.1329 fulfils the safety intent of this safety recommendation.

Status: Closed

Austria

Registration	Aircraft Type	Location	Date of event	Event Type
D-EPRB	CIRRUS SR22	Salzburg	21/12/2019	Accident

Synopsis of the event:

On December 21, 2019, at 11:46 a.m., the pilot/owner took off in his Cirrus SR22T from his home airfield in Bonn/Hangelar (EDKB), FRG. On board were his two minor daughters as pas-sengers. The destination was the airfield Zell am See (LOWZ), Salzburg, Austria. The flight started as a VFR flight and continued shortly after takeoff as an IFR flight. To approach Zell am See the published cloud breaking procedure was flown. After the missed approach point the approach was continued according to VFR. The pilot flew passed south of Zell am See airfield in an easterly direction and collided with his aircraft with rising, forested terrain at 13:47.

Safety Recommendation AUST-2021-001:

SE/UUB/LF/1/2021, issued to: EASA - European Union Aviation Safety Agency
Additional theoretical and practical training for pilots of Technical Advanced Aircraft
The European Union Aviation Safety Agency should ensure that all pilots with CR SEP(land) and CR MEP(land) receive additional theoretical training for the "Requirements for the issue of class and type ratings" described in AMC1 FCL.725(a), in particular concerning "navigation equipment, autoflight", "(g) Special requirements for 'glass cockpit' aeroplanes with EFIS - Additional learning objectives" and "(h) Flight management systems" when operating Technical Advanced Aircraft (TAA) with EFIS, FMS and/or AFCS systems. Here, in connection with the "EFIS" differences training, no sufficient criteria are currently formulated. It is also intended to ensure that all pilots with SEP(land) IR and MEP(land) IR ratings receive additional practical training to competently and safely handle the EFIS, FMS and AFCS systems increasingly used in modern aircraft under IFR. This training can be carried out, for example, with the aid of software-based procedure trainers, FNPTs, simulators, e-learning and theoretical and practical training provided by the aircraft / avionics manufacturers by experienced flight instructors.
[[%_A133%]] - 4 Sicherheitsempfehlungen
Nr. SE/UUB/LF/1/2021, ergeht an: EASA - European Union Aviation Safety Agency
Zusätzliches theoretisches und praktisches Training für Piloten von Technical Advanced Aircraft
Die European Union Aviation Safety Agency soll sicherstellen, dass sämtliche Piloten mit CR SEP(land) und CR MEP(land) zusätzliches theoretisches Training erhalten für die in AMC1 FCL.725(a) beschriebenen "Requirements for the issue of class and type ratings" , insbesondere betreffend "navigation equipment, autoflight", "(g) Special requirements for 'glass cockpit' aeroplanes with EFIS - Additional learning objectives" und "(h) Flight management systems", wenn sie TAA-Flugzeuge (Technical Advanced Aircraft) mit EFIS, FMS und/oder AFCS Systemen betreiben. Hier sind im Zusammenhang mit der Differenzschulung „EFIS" derzeit keine ausreichenden Kriterien formuliert. Sie soll ferner sicherstellen, dass sämtliche Piloten mit Berechtigungen für SEP(land) IR und MEP(land) IR zusätzliches praktisches Training erhalten, um mit den zunehmend in modernen Flugzeugen eingesetzten EFIS, FMS und AFCS Systemen unter IFR kompetent und sicher umzugehen. Dieses Training kann z.B. mithilfe der von den Luftfahrzeug- /

Avionikherstellern zur Verfügung gestellten softwarebasierten Procedure Trainern, FNPTs, Simulatoren, eLearning sowie in Theorie- und Praxis-Trainings durch entsprechend erfahrene Fluglehrer erfolgen.

Reply No 1 sent on 20/04/2021: Currently the following is applicable regarding training for glass cockpit aircraft under Annex I (Part-FCL) of Commission Regulation (EU) 1178//2011, and particularly in accordance with the acceptable means of compliance (AMC) associated with points FCL.725 and FCL.825:

AMC1 FCL.725(a) Requirements for the issue of class and type ratings
- SYLLABUS OF THEORETICAL KNOWLEDGE FOR CLASS OR TYPE RATINGS SE (single engine) AND ME (multi engine) AEROPLANES
• (g) Special requirements for 'glass cockpit' aeroplanes with EFIS (electronic flight instrument system) Additional learning objectives:
(1) general rules of aeroplanes computer hardware and software design;
(2) logic of all crew information and alerting systems and their limitations;
(3) interaction of the different aeroplane computer systems, their limitations, the possibilities of computer fault recognition and the actions to be performed on computer failures;
(4) normal procedures including all crew coordination duties;
(5) aeroplane operation with different computer degradations (basic flying).

AMC1 FCL.825(c) En route instrument rating (EIR)
- FLYING TRAINING
(i) use of advanced equipment such as autopilot, flight director, stormscope, deicing equipment, EFIS or radar, as available;

The European Union Aviation Safety Agency (EASA) has decided to carry out a review of the level of detail contained in AMC1 FCL.725(a). This will be done within the framework of Rulemaking Task (RMT) RMT.0587, "Regular update of regulations regarding pilot training, testing and checking and the related oversight". It is planned to be a subject to a focused consultation and the EASA opinion is expected in Q3/2022.

Status: Open

Germany

Registration	Aircraft Type	Location	Date of event	Event Type
PH-RCI	BAE JETSTREAM3100	Münster/Osnabrück Airport	08/10/2019	Serious incident

Synopsis of the event:

The aircraft aborted take-off at a speed of approximately 130 kt and veered off runway 25 with a maximum distance of about 23 m to the runway edge. After about 530 m the airplane was steered back onto the runway and taxied back to the apron.

Safety Recommendation GERF-2021-001:

The European Aviation Safety Agency (EASA) should convert the Highly Recommended Service Bulletin (SB) 27JM-5350 „Modified Push Rod Assembly at Gust Lock / Power Lever Baulk Mechanism" into a mandatory Airworthiness Directive in order to safe-guard the function and prevent take-offs with engaged Gust Lock for all aircraft of the type Jetstream 3100 / 3200, to discuss about the Highly Recommended Service Bulletin (SB) 27JM-5350.

Reply No 1 sent on 26/04/2021: The European Union Aviation Safety Agency (EASA) is discussing this safety recommendation with the UK Civil Aviation Authority (UK CAA) which, after the withdrawal of the United Kingdom from the European Union and the European Atomic Energy Community at the end of 31 January 2020 ("Brexit"), is now the primary Certification Authority for the type Jetstream 3100 / 3200.

Reply No 2 sent on 26/10/2021: The United Kingdom Civil Aviation Authority (UK CAA), after the withdrawal of the United Kingdom from the European Union and the European Atomic Energy Community at the end of 31 January 2020 ("Brexit"), is now the primary Certification Authority for the type Jetstream 3100 / 3200.

The UK CAA has issued the UK Airworthiness Directive (AD) G-2021-0005 which requests the introduction of "Modified Push Rod Assembly at Gustlock/Power Lever Baulk Mechanism (Modification JM 5350)".

The European Union Aviation Safety Agency (EASA) has adopted the UK AD G-2021-0005 and published it on the EASA Safety Publications Tool, as follows:

https://ad.easa.europa.eu/ad/G-2021-0005

Status: Closed

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
#Missing#	OTHER (UAS/RPAS) OTHER (UAS/RPAS)	Field next to Goodwood Aerodrome	04/07/2019	Accident

Synopsis of the event:

Whilst performing a demonstration flight, the remote pilot lost control of the 95 kg Alauda Airspeeder Mk II scale demonstrator. After the loss of control had been confirmed by the remote pilot, the safety 'kill switch' was operated but had no effect. The Unmanned Aircraft then climbed to approximately 8,000 ft, entering controlled airspace at a holding point for flights arriving at Gatwick Airport, before its battery depleted and it fell to the ground. It crashed in a field of crops approximately 40 m from occupied houses and 700 m outside of its designated operating area. There were no injuries.

Safety Recommendation UNKG-2021-015:

It is recommended that the European Union Aviation Safety Agency adopt appropriate design, production, maintenance and reliability standards for all Unmanned Aircraft Systems with aircraft capable of imparting over 80 joules of energy.

Reply No 1 sent on 26/04/2021: Following European Union Aviation Safety Agency (EASA) Opinion 2018-01, the European Commission adopted Regulations (EU) 2019/945 and 2019/947 (from now on the 'UAS Regulations') on 1 July 2019 that establish the technical and operational requirements for Unmanned Aircraft Systems (UAS), respectively. The UAS Regulations became applicable on 31 December 2020, after the occurrence of this event.

The UAS Regulation defines the process for assessing the risk of UAS operations and contains instructions on how to define the technical (e.g. design, production and maintenance), operations and pilot competence requirements, proportionate to the level of risk of the operation. Notably, different sets of technical requirements are defined directly in the UAS Regulation (for UAS operated in the lower level of risk, the 'open' category) or derived by the definition of a certification basis for operations with higher risk (the 'specific' category). The operation causing the accident would be classified in the 'specific' category.

EASA also published a set of technical requirements in the form of a 'Special Condition - Light UAS' (published on the EASA website in December 2020). These technical requirements cover all UAS, including those transferring an energy lower than 80 joules to a human body. The UAS regulations identify this energy threshold as the one posing risk to people and it requires, for UAS exceeding this threshold, to meet appropriate design, production and maintenance requirements.

Lastly, EASA is supporting standards bodies in developing appropriate industry standards to meet the technical requirements defined in the UAS Regulation. The preliminary version of these industry standards is planned to be available by mid-2021, and the final version in early 2022.

Status: Open

Iran

Registration	Aircraft Type	Location	Date of event	Event Type
EP-ATS	ATR ATR72	Dena Mountains	18/02/2018	Accident

Synopsis of the event:

On 18.02.2018, at 06:01 UTC (09:31 local time), the aircraft ATR72-212 , EP-ATS operated by Iran Aseman Airline during flight from the Mehrabad (Tehran) to Yasouj Airport crashed while performing the scheduled passenger flight IRC3704.
According to the load sheet the A/C takeoff weight was 29630 kg and was within the aircraft operation limits. There were 6 crew members Onboard (PIC, F/O, two flight attendants and two security men) and 60 passengers. All onboard persons were Iranian citizens.
The aircraft cleared to start descending FL170, then was delivered from Iranian Area Control Center (ACC) to Yasouj tower, the aircraft started descending and prepared for landing in Yasouj Airport finally the aircraft lost altitude and impacted with mountain with a significant left bank. The collision first led to the complete destruction of aircraft. All 66 persons onboard were fatally injured.

Safety Recommendation IRAN-2021-001:

'To make related communication with European Commission to ensure aviation authorities of EU countries as state of design and manufacture to support operating airlines for flight safety requirements and separate the civil aviation activities from embodied sanctions.'

Reply No 1 sent on 10/06/2021: The European Union Aviation Safety Agency (EASA) is established as an agency of the European Union (EU) and is governed by European public law, namely Regulation (EU) 2018/1139 setting out the roles and responsibilities of EASA in relation to aviation safety. In the context of the subject safety investigation, it is relevant to highlight that EASA is entrusted, where applicable and as specified in the Chicago Convention or the Annexes thereto, to carry out on behalf of EU Member States the functions and tasks of the state of design, manufacture or registry, when those functions and tasks are related to design certification and mandatory continuing airworthiness information.

The applicable regulatory framework ensures that EASA acts independently in relation to technical matters, thus its safety-related actions are solely based on independent expertise and driven by the paramount consideration of aviation safety.

However, EASA, as a technical agency of the EU, shall refrain from any involvement or taking a position on political matters that concern the interest of sovereign states. In light of the above, the safety recommendation falls outside the mandate of EASA that already acts in accordance with the competence set by the European legislator to ensure aviation safety.

EASA has anyway made related communication with the European Commission as per the Safety Recommendation.

Status: Closed

Iran

Registration	Aircraft Type	Location	Date of event	Event Type
EP-ATS	ATR ATR72	Dena Mountains	18/02/2018	Accident

Synopsis of the event:

On 18.02.2018, at 06:01 UTC (09:31 local time), the aircraft ATR72-212 , EP-ATS operated by Iran Aseman Airline during flight from the Mehrabad (Tehran) to Yasouj Airport crashed while performing the scheduled passenger flight IRC3704.
According to the load sheet the A/C takeoff weight was 29630 kg and was within the aircraft operation limits. There were 6 crew members Onboard (PIC, F/O, two flight attendants and two security men) and 60 passengers. All onboard persons were Iranian citizens.
The aircraft cleared to start descending FL170, then was delivered from Iranian Area Control Center (ACC) to Yasouj tower, the aircraft started descending and prepared for landing in Yasouj Airport finally the aircraft lost altitude and impacted with mountain with a significant left bank. The collision first led to the complete destruction of aircraft. All 66 persons onboard were fatally injured.

Safety Recommendation IRAN-2021-002:

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

Reply No 1 sent on 10/06/2021: The European Union Aviation Safety Agency is currently reviewing the safety recommendation and assessing the need to take action.

Status: Open

Iran

Registration	Aircraft Type	Location	Date of event	Event Type
EP-ATS	ATR ATR72	Dena Mountains	18/02/2018	Accident

Synopsis of the event:

On 18.02.2018, at 06:01 UTC (09:31 local time), the aircraft ATR72-212 , EP-ATS operated by Iran Aseman Airline during flight from the Mehrabad (Tehran) to Yasouj Airport crashed while performing the scheduled passenger flight IRC3704.
According to the load sheet the A/C takeoff weight was 29630 kg and was within the aircraft operation limits. There were 6 crew members Onboard (PIC, F/O, two flight attendants and two security men) and 60 passengers. All onboard persons were Iranian citizens.
The aircraft cleared to start descending FL170, then was delivered from Iranian Area Control Center (ACC) to Yasouj tower, the aircraft started descending and prepared for landing in Yasouj Airport finally the aircraft lost altitude and impacted with mountain with a significant left bank. The collision first led to the complete destruction of aircraft. All 66 persons onboard were fatally injured.

Safety Recommendation IRAN-2021-003:

To clear definition of qualified copilot and fully qualified pilot in subject of OML in the Aircrew Regulation as the" safety study.

Reply No 1 sent on 10/06/2021: Currently, the definition of qualified and fully qualified pilot does not represent an issue among the Member States participating in the European Union Aviation Safety Agency (EASA).

As referenced in the accident investigation report, the applicable provision of the relevant EU regulation is point MED.B.001 'Limitations to medical certificates' of Annex IV (Part-MED) to Commission Regulation (EU) No 1178/2011 ('Aircrew Regulation') which reads as follows:

(d)(1) Operational multi-pilot limitation (OML — Class 1 only)
(i) When the holder of a CPL, ATPL or MPL does not fully meet the requirements for a Class 1 medical certificate and has been referred to the licensing authority, it shall be assessed whether the medical certificate may be issued with an OML "valid only as or with qualified co-pilot". This assessment shall be performed by the licensing authority.
(ii) The holder of a medical certificate with an OML shall only operate an aircraft in multi-pilot operations when the other pilot is fully qualified on the relevant type of aircraft, is not subject to an OML and has not attained the age of 60 years.
(iii) The OML for Class 1 medical certificates may only be imposed and removed by the licensing authority.

In light of the above, EASA considers that the Aircrew Regulation is sufficiently clear and no further action is needed on its side.

Status: Closed

Iran

Registration	Aircraft Type	Location	Date of event	Event Type
EP-ATS	ATR ATR72	Dena Mountains	18/02/2018	Accident

Synopsis of the event:

On 18.02.2018, at 06:01 UTC (09:31 local time), the aircraft ATR72-212 , EP-ATS operated by Iran Aseman Airline during flight from the Mehrabad (Tehran) to Yasouj Airport crashed while performing the scheduled passenger flight IRC3704.
According to the load sheet the A/C takeoff weight was 29630 kg and was within the aircraft operation limits. There were 6 crew members Onboard (PIC, F/O, two flight attendants and two security men) and 60 passengers. All onboard persons were Iranian citizens.
The aircraft cleared to start descending FL170, then was delivered from Iranian Area Control Center (ACC) to Yasouj tower, the aircraft started descending and prepared for landing in Yasouj Airport finally the aircraft lost altitude and impacted with mountain with a significant left bank. The collision first led to the complete destruction of aircraft. All 66 persons onboard were fatally injured.

Safety Recommendation IRAN-2021-004:

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

Reply No 1 sent on 10/06/2021: The European Union Aviation Safety Agency is currently reviewing the safety recommendation and assessing the need to take action.

Status: Open

Iran

Registration	Aircraft Type	Location	Date of event	Event Type
EP-ATS	ATR ATR72	Dena Mountains	18/02/2018	Accident

Synopsis of the event:

On 18.02.2018, at 06:01 UTC (09:31 local time), the aircraft ATR72-212 , EP-ATS operated by Iran Aseman Airline during flight from the Mehrabad (Tehran) to Yasouj Airport crashed while performing the scheduled passenger flight IRC3704.
According to the load sheet the A/C takeoff weight was 29630 kg and was within the aircraft operation limits. There were 6 crew members Onboard (PIC, F/O, two flight attendants and two security men) and 60 passengers. All onboard persons were Iranian citizens.
The aircraft cleared to start descending FL170, then was delivered from Iranian Area Control Center (ACC) to Yasouj tower, the aircraft started descending and prepared for landing in Yasouj Airport finally the aircraft lost altitude and impacted with mountain with a significant left bank. The collision first led to the complete destruction of aircraft. All 66 persons onboard were fatally injured.

Safety Recommendation IRAN-2021-005:

To ensure all aircraft manuals have full description about mountain wave hazards and preventative requirements and guidance.

Reply No 1 sent on 10/06/2021: The European Union Aviation Safety Agency is currently reviewing the safety recommendation and assessing the need to take action.

Status: Open

Sweden

Registration	Aircraft Type	Location	Date of event	Event Type
SE-MKV	SOCATA TB9		06/04/2020	Accident

Synopsis of the event:

During the take-off phase and up to an altitude of 500 feet, everything was normal. Just after this, the engine began to lose power before finally failing. The instructor took control of the aeroplane, called 'returning' on the tower frequency and attempted to return to the runway in the opposite direction. During the turn at low speed, the left wing made contact with the ground. The aeroplane then hit the ground with its belly and right wing. The aeroplane then rotated in the roll axis before coming to a halt with the left wing folded in under the fuselage and with the empennage broken off. The engine was torn off and ended up separate from the fuselage.

Safety Recommendation SWED-2021-002:

Evaluate and decide whether and which high-risk manoeuvres shall be included in training and be described in a guidance document. One such high-risk manoeuvre could be the operation that involves how to assess when a turn back to the field is safe.

Reply No 1 sent on 28/06/2021: The European Union Aviation Safety Agency (EASA) believes that current provisions contained in Annex VI (Part-ARA) and Annex VII (Part-ORA) to Regulation 1178/2011 cover the issue sufficiently as demonstrated by the following references:

•ORA.GEN.115 (b) requires the applicants for an initial certificate to provide the competent authority with documentation demonstrating how they will comply with the requirements established in Regulation (EU) 2018/1139 and its Implementing Rules.
•ORA.GEN.120 Means of Compliance, requires the organisation that wishes to use an alternative means of compliance, prior to implementing it, to provide the competent authority with a full description of the alternative means of compliance. The description shall include any revisions to manuals or procedures that may be relevant, as well as an assessment demonstrating that Regulation (EU) 2018/1139 and its Implementing Rules are met. The organisation may implement these alternative means of compliance subject to prior approval by the competent authority and upon receipt of the notification as prescribed in ARA.GEN.120(d).
•ORA.GEN.155 Immediate reaction to a safety problem, requires the organisation to implement any safety measures mandated by the competent authority in accordance with ARA.GEN.135(c).
•ORA.GEN.200(a)(3) Management system requires the organisation to identify the aviation safety hazards entailed by the activities of the organisation, their evaluation and the management of associated risks, including taking actions to mitigate the risk and verify their effectiveness, and , depending on the complexity of the organisation it mandates the level of safety policy and safety risk management to be implemented, and where such provision shall be documented.

•ORA.ATO.105 (a)(1)(vii) and (a)(2) requires the organisation to provide to the competent authority the type of training that the training organisation wishes to provide and the corresponding training programme as well as the operations and training manuals.
•ORA.ATO.130 (a) and (b) Training manual and operations manual, requires the approved training organisation (ATO) to establish and maintain a training manual and operations manual containing information and instructions to enable personnel to perform their duties and to give guidance to students on how to comply with course requirements, and to make them available to staff and, where appropriate, to students.
•ORA.ATO.135 requires the ATO to use an adequate fleet of the training aircraft.
•ORA.ATO.140 Aerodromes and operating sites, requires the ATO to use aerodromes or operating sites that have the appropriate facilities and characteristics to allow training of the manoeuvres relevant, taking into account the training provided and the category and type of aircraft used.
•ORA.ATO.210 (b) requires the ATO to nominate a Chief Flight Instructor (CFI) who shall be responsible for the supervision of flight and flight simulation training instructors and for the standardisation of all flight instruction and flight simulation instruction.
•AMC1 ORA.ATO.230(b) Training manual and operations manual, in its points (b)(1) to (3), foresees that the ATO includes aircraft descriptive notes, aircraft handling (including checklists, limitations, maintenance and technical logs, in accordance with relevant requirements), and emergency procedures in its operations manual.
• AMC1 ORA.GEN.200(a)(1);(2);(3);(5) Management system for non-complex organisations, provides acceptable means of compliance to ATOs on how their Safety Management System should be set up including the need for "hazard identification and risk management schemes" that logically include the selection and availability of appropriately certified aircraft for the courses provided.
•AMC1 ORA.GEN.200(a)(1) Management system for complex organisations provides, in addition, acceptable means of compliance to ATOs on the appointment of the role of Safety Manager and of the Safety Review Board with the tasks, among others, to facilitate hazard identification, risk analysis and management, monitor the implementation of actions taken to mitigate risks, as listed in the safety action plan, ensure initiation and follow-up of internal occurrence / accident investigations, monitor safety performance against the safety policy and objectives, ensure any safety action is taken in a timely manner, and monitor the effectiveness of the organisation's safety management processes.
•In regard to competent authority tasks, ARA.GEN.300 Oversight (with reference to ORA.ATO.135), clearly states that "the competent authority shall verify (1) compliance with the requirements applicable to organisations prior to the issue of an organisation certificate, and (2) continued compliance with the requirements applicable to the organisations it has certified."
For some aeroplanes, the manoeuvre to turn back toward the runway to attempt landing per opposite runway after an engine failure right after take off at low altitude (e.g. 500 feet AGL), is a possible option to be considered in case of engine failure during take-off. However, for a number of aeroplanes this constitutes a dangerous manoeuvre with very low rate of success. In addition variables like weather, terrain, aerodrome characteristics, as well as other factors have an impact on the decision if "a turn back to the field" would be safe. Therefore, it is considered impossible to provide, at regulatory level, an exhaustive guidance. The ATOs and the competent authorities are responsible for standardisation and oversight to assess if the proposed training course and relevant manoeuvres meet the safety requirements. SOPs and methods to deliver training are part of the ATO' prerogatives and should be based on a sound evaluation of the ATOs peculiar operational risks.
EASA deems the actual provisions sufficient to address this issue. However, as a safety promotion activity, EASA will remind the Member States' Competent Authorities during one of the upcoming Aircrew Technical Body (TeB) meetings of their responsibility in

verifying and accepting ATOs training and operational manuals prior to course approval. EASA will also place greater emphasis on this issue during its on-going standardisation activities.

Status: Closed

Sweden

Registration	Aircraft Type	Location	Date of event	Event Type
SE-MKV	SOCATA TB9		06/04/2020	Accident

Synopsis of the event:

During the take-off phase and up to an altitude of 500 feet, everything was normal. Just after this, the engine began to lose power before finally failing. The instructor took control of the aeroplane, called 'returning' on the tower frequency and attempted to return to the runway in the opposite direction. During the turn at low speed, the left wing made contact with the ground. The aeroplane then hit the ground with its belly and right wing. The aeroplane then rotated in the roll axis before coming to a halt with the left wing folded in under the fuselage and with the empennage broken off. The engine was torn off and ended up separate from the fuselage.

Safety Recommendation SWED-2021-003:

Draw up and distribute through the competent authorities a safety bulletin in order to increase knowledge of the impossible turn.

Reply No 1 sent on 28/06/2021: The European Union Aviation Safety Agency (EASA) believes that current provisions contained in Annex VI (Part-ARA) and Annex VII (Part-ORA) to Regulation 1178/2011 cover the issue sufficiently as demonstrated by the following references:

•ORA.GEN.115 (b) requires the applicants for an initial certificate to provide the competent authority with documentation demonstrating how they will comply with the requirements established in Regulation (EU) 2018/1139 and its Implementing Rules.
•ORA.GEN.120 Means of Compliance, requires the organisation that wishes to use an alternative means of compliance, prior to implementing it, to provide the competent authority with a full description of the alternative means of compliance. The description shall include any revisions to manuals or procedures that may be relevant, as well as an assessment demonstrating that Regulation (EU) 2018/1139 and its Implementing Rules are met. The organisation may implement these alternative means of compliance subject to prior approval by the competent authority and upon receipt of the notification as prescribed in ARA.GEN.120(d).
•ORA.GEN.155 Immediate reaction to a safety problem, requires the organisation to implement any safety measures mandated by the competent authority in accordance with ARA.GEN.135(c).
•ORA.GEN.200(a)(3) Management system requires the organisation to identify the aviation safety hazards entailed by the activities of the organisation, their evaluation and the management of associated risks, including taking actions to mitigate the risk and verify their effectiveness, and , depending on the complexity of the organisation it mandates the level of safety policy and safety risk management to be implemented, and where such provision shall be documented.
•ORA.ATO.105 (a)(1)(vii) and (a)(2) requires the organisation to provide to the competent authority the type of training that the training organisation wishes to provide

and the corresponding training programme as well as the operations and training manuals.
•ORA.ATO.130 (a) and (b) Training manual and operations manual, requires the approved training organisation (ATO) to establish and maintain a training manual and operations manual containing information and instructions to enable personnel to perform their duties and to give guidance to students on how to comply with course requirements, and to make them available to staff and, where appropriate, to students.
•ORA.ATO.135 requires the ATO to use an adequate fleet of the training aircraft.
•ORA.ATO.140 Aerodromes and operating sites, requires the ATO to use aerodromes or operating sites that have the appropriate facilities and characteristics to allow training of the manoeuvres relevant, taking into account the training provided and the category and type of aircraft used.
•ORA.ATO.210 (b) requires the ATO to nominate a Chief Flight Instructor (CFI) who shall be responsible for the supervision of flight and flight simulation training instructors and for the standardisation of all flight instruction and flight simulation instruction.
•AMC1 ORA.ATO.230(b) Training manual and operations manual, in its points (b)(1) to (3), foresees that the ATO includes aircraft descriptive notes, aircraft handling (including checklists, limitations, maintenance and technical logs, in accordance with relevant requirements), and emergency procedures in its operations manual.
• AMC1 ORA.GEN.200(a)(1);(2);(3);(5) Management system for non-complex organisations, provides acceptable means of compliance to ATOs on how their Safety Management System should be set up including the need for "hazard identification and risk management schemes" that logically include the selection and availability of appropriately certified aircraft for the courses provided;
•AMC1 ORA.GEN.200(a)(1) Management system for complex organisations provides, in addition, acceptable means of compliance to ATOs on the appointment of the role of Safety Manager and of the Safety Review Board with the tasks, among others, to facilitate hazard identification, risk analysis and management, monitor the implementation of actions taken to mitigate risks, as listed in the safety action plan, ensure initiation and follow-up of internal occurrence / accident investigations, monitor safety performance against the safety policy and objectives, ensure any safety action is taken in a timely manner, and monitor the effectiveness of the organisation's safety management processes.

•In regard to competent authority tasks, ARA.GEN.300 Oversight (with reference to ORA.ATO.135), clearly states that "the competent authority shall verify (1) compliance with the requirements applicable to organisations prior to the issue of an organisation certificate, and (2) continued compliance with the requirements applicable to the organisations it has certified."
For some aeroplanes, the manoeuvre to turn back toward the runway to attempt landing per opposite runway after an engine failure right after take off at low altitude (e.g. 500 feet AGL), manoeuvre is a possible option to be considered in case of engine failure during take-off. However, for a number of aeroplanes this constitutes a dangerous manoeuvre with very low rate of success. In addition variables like weather, terrain, aerodrome characteristics, as well as other factors have an impact on the decision if "a turn back to the field" would be safe. Therefore, it is considered impossible to provide, at regulatory level, an exhaustive guidance. The ATOs and the competent authorities are responsible for standardisation and oversight to assess if the proposed training course and relevant manoeuvres meet the safety requirements. SOPs and methods to deliver training are part of the ATO' prerogatives and should be based on a sound evaluation of the ATOs peculiar operational risks.
EASA deems the actual provisions sufficient to address this issue. However, as a safety promotion activity, EASA will remind the Member States' Competent Authorities during one of the upcoming Aircrew Technical Body (TeB) meetings of their responsibility in

verifying and accepting ATOs training and operational manuals prior to course approval. EASA will also place greater emphasis on this issue during its on-going standardisation activities.

Status: Closed

Sweden

Registration	Aircraft Type	Location	Date of event	Event Type
SE-UYA	SCHEMPP HIRTH (ARCUS M) SCHEMPP HIRTH (ARCUS M)	ESOE (ORB) : Örebro	22/08/2020	Accident

Synopsis of the event:

The purpose of the flight was to conduct an introductory flight. Following a short flight that passed normally, the instructor began the approach.
At an altitude of 70 metres, when the aircraft was on the final approach, with flaps in the landing position, the instructor felt turbulence; at which point the air-craft banked to the left. When he attempted to correct this with right rudder and aileron, the aircraft began turning to the left, which he was not able to prevent. After the aircraft had turned 90 degrees, the instructor increased the rate of turn in order to avoid a patch of woodland that was in the direction of travel. After turning 270 degrees, the aircraft hit the ground nose first, then yawed an additional 90 degrees before sliding backwards into the woods. The instructor was able to climb out of the aircraft without assistance. The student broke his left foot.

Safety Recommendation SWED-2021-001:

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

Reply No 1 sent on 13/07/2021: The European Union Aviation Safety Agency (EASA) is currently checking, together with the type certificate holder, the checklists for daily inspection and inspection following a hard landing to allow detection of any play or too small clearance between the rudder cable bolts and the fairings. A further update will be provided.

Status: Open

Romania

Registration	Aircraft Type	Location	Date of event	Event Type
YR-SCF	DIAMOND DA42		22/06/2017	Accident

Synopsis of the event:

On the 29th Feb 2019 one student pilot requested for one additional flight after completing his training program. The flight activity was started at the briefing room, where the schedule to be performed was established, namely the asymmetric traction flight (OEI-one engine inoperative), the stall and return of the aircraft to a normal attitude in the case of asymmetric traction, the stall and return of the aircraft at a normal attitude in the case of normal flight (AEO-all engines operative), go-around exercise and touch-and-go exercise. Several runway laps exercises were performed. The first three were touch and go landing at the fourth a missed approach maneuver was performed, and for the fifth the instructor announced that he intended to perform a touch-and-go exercise. The aircraft landed, rolled on the runway and began to take-off further. After being airborne, at a height of about 15 m, the aircraft began to roll to the left, the roll angle increasing progressively with the height loss. Continuing this evolution, the aircraft hit the ground at a distance of 120-125 m on the left side of the runway.

Safety Recommendation ROMN-2021-002:

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

Reply No 1 sent on 10/06/2021: The European Union Aviation Safety Agency (EASA) is currently checking, together with the type certificate holder, the engine data in the aircraft flight manual. A further update will be provided.

Status: Open

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-POWN	AIRBUS A321	take-off from EGKK (LGW) : Londond / Gatwick	26/02/2020	Serious incident

Synopsis of the event:

As part of scheduled maintenance overseas, G-POWN underwent a biocide shock 3 treatment on its fuel system, using Kathon biocide, to treat microbial contamination. The aircraft returned to the UK on 24 February 2020, once the maintenance was complete. In the 24 hours preceding this serious incident, there were abnormalities with the operation of both engines across four flights. On the flight before the fourth (event) flight, the crew reported momentary indications of a No 2 (right) engine stall. After the aircraft landed, this was investigated using an inappropriate procedure obtained from an aircraft troubleshooting manual not applicable to G-POWN, but no fault was found. The aircraft took off from London Gatwick Airport Runway 26L at 0009 hrs on 26 February 2020 but, at around 500 ft agl, the No 1 (left) engine began to surge. The commander declared a MAYDAY and turned right downwind for an immediate return to the airport but, shortly afterwards, the crew received indications that the No 2 engine had stalled. The crew established that the engines were more stable at low thrust settings and the thrust available at those settings was sufficient to maintain a safe flightpath. They continued the approach and the aircraft landed at 0020 hrs.

Safety Recommendation UNKG-2021-018:

It is recommended that the European Union Aviation Safety Agency amend the Acceptable Means of Compliance AMC2(a)(3) for regulation Part-145.A.48(b), Performance of Maintenance, to include the treatment of aircraft fuel systems with biocide additives as an example task that is to be considered as a critical maintenance task.

Reply No 1 sent on 31/07/2021: Paragraph 145.A.48 of Annex II (Part 145) of Commission Regulation (EU) No 1321/2014 intentionally allocates the responsibility for classification of tasks as "critical maintenance task" to the maintenance organisation for the following reasons.

First of all, regulation is never able to catch up with new technology and recent design, so any list of examples given in acceptable means of compliance (AMC) / guidance will always lack the latest ones and require constant updating. Therefore, not specific examples but a list of higher level criteria is given which is considered to apply to any new technology as well.

Secondly, the criticality of a task cannot fully be determined at such a high level, it is partly depending on the exact environment in which the task is performed and on the actual equipment used. In this specific example dosing and mixing the biocide manually makes the task much more critical than using a fuelling cart which has a biocide dosing capability. As such the decision whether a task is critical or not can only be appropriately

taken at a level where the full information about how the task is performed and the equipment used is available.

Currently AMC2 145.A.48(b) does give a list of high level examples (e.g. "tasks that may affect the control of the aircraft") which is not compatible with the very specific treatment of aircraft fuel systems with biocide additives.
The European Union Aviation Safety Agency (EASA) therefore disagrees that explicitly adding biocide treatment to AMC2 145.A.48(b) (a)(3) would be an appropriate action, and assumes that giving high level criteria and sources of information to identify critical maintenance tasks is more appropriate than giving specific examples.

EASA will however review the AMC2 145.A.48(b) (a)(3) wording for the possibility of amending it at a higher level.
EASA also recognizes that the list of data sources used to identify critical maintenance tasks in AMC2 145.A.48(b) (b) could be amended, to cover publications like EASA SIB 2020-06 dealing explicitly with biocide treatment.

EASA will include these considerations into the next updating exercise of the rules for Continuing Airworthiness.

Status: Open

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-POWN	AIRBUS A321	take-off from EGKK (LGW) : Londond / Gatwick	26/02/2020	Serious incident

Synopsis of the event:

As part of scheduled maintenance overseas, G-POWN underwent a biocide shock 3 treatment on its fuel system, using Kathon biocide, to treat microbial contamination. The aircraft returned to the UK on 24 February 2020, once the maintenance was complete. In the 24 hours preceding this serious incident, there were abnormalities with the operation of both engines across four flights. On the flight before the fourth (event) flight, the crew reported momentary indications of a No 2 (right) engine stall. After the aircraft landed, this was investigated using an inappropriate procedure obtained from an aircraft troubleshooting manual not applicable to G-POWN, but no fault was found. The aircraft took off from London Gatwick Airport Runway 26L at 0009 hrs on 26 February 2020 but, at around 500 ft agl, the No 1 (left) engine began to surge. The commander declared a MAYDAY and turned right downwind for an immediate return to the airport but, shortly afterwards, the crew received indications that the No 2 engine had stalled. The crew established that the engines were more stable at low thrust settings and the thrust available at those settings was sufficient to maintain a safe flightpath. They continued the approach and the aircraft landed at 0020 hrs.

Safety Recommendation UNKG-2021-019:

It is recommended that the European Union Aviation Safety Agency amend the Acceptable Means of Compliance AMC1(c) for regulation M.A.402(h), Performance of Maintenance, to include the treatment of aircraft fuel systems with biocide additives as an example task that is to be considered as a critical maintenance task.

Reply No 1 sent on 31/07/2021: Paragraph M.A.402 of Annex I (Part M) of Commission Regulation (EU) No 1321/2014 intentionally allocates the responsibility for classification of tasks as "critical maintenance task" mentioned under paragraph M.A.402(h) "performance of maintenance" to the maintenance organisation which ultimately performs the task, and not to the Continuing Airworthiness Management Organization (CAMO) which plans it.

Currently AMC1 M.A.402(h) does give a list of high-level examples (e.g. "tasks that may affect the control of the aircraft") which is not compatible with the very specific treatment of aircraft fuel systems with biocide additives.
EASA therefore disagrees that explicitly adding biocide treatment to M.A.402(h) (c) would be an appropriate action, and assumes that giving high level criteria and sources of information to identify critical maintenance tasks is more appropriate than giving specific examples.

EASA will however review the AMC1 M.A.402(h) (c) wording for the possibility of amending it at a higher level.

EASA also recognizes that the list of data sources used to identify critical maintenance tasks in AMC2 M.A.402(h) could be amended.
EASA will include these considerations into the next updating exercise of the rules for Continuing Airworthiness.

Status: Open

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-POWN	AIRBUS A321	take-off from EGKK (LGW) : Londond / Gatwick	26/02/2020	Serious incident

Synopsis of the event:

As part of scheduled maintenance overseas, G-POWN underwent a biocide shock 3 treatment on its fuel system, using Kathon biocide, to treat microbial contamination. The aircraft returned to the UK on 24 February 2020, once the maintenance was complete. In the 24 hours preceding this serious incident, there were abnormalities with the operation of both engines across four flights. On the flight before the fourth (event) flight, the crew reported momentary indications of a No 2 (right) engine stall. After the aircraft landed, this was investigated using an inappropriate procedure obtained from an aircraft troubleshooting manual not applicable to G-POWN, but no fault was found. The aircraft took off from London Gatwick Airport Runway 26L at 0009 hrs on 26 February 2020 but, at around 500 ft agl, the No 1 (left) engine began to surge. The commander declared a MAYDAY and turned right downwind for an immediate return to the airport but, shortly afterwards, the crew received indications that the No 2 engine had stalled. The crew established that the engines were more stable at low thrust settings and the thrust available at those settings was sufficient to maintain a safe flightpath. They continued the approach and the aircraft landed at 0020 hrs.

Safety Recommendation UNKG-2021-020:

It is recommended that the European Union Aviation Safety Agency (EASA) conduct safety promotion with the National Aviation Authorities (NAAs) of EASA Member States to promote the classification of biocide treatment of aircraft fuel systems as a critical maintenance task.

Reply No 1 sent on 31/07/2021: The European Union Aviation Safety Agency (EASA) is currently working on identifying the best way to promote the topic highlighted by the safety recommendation.

Status: Open

United Kingdom

Registration	Aircraft Type	Location	Date of event	Event Type
G-POWN	AIRBUS A321	take-off from EGKK (LGW) : Londond / Gatwick	26/02/2020	Serious incident

Synopsis of the event:

As part of scheduled maintenance overseas, G-POWN underwent a biocide shock 3 treatment on its fuel system, using Kathon biocide, to treat microbial contamination. The aircraft returned to the UK on 24 February 2020, once the maintenance was complete. In the 24 hours preceding this serious incident, there were abnormalities with the operation of both engines across four flights. On the flight before the fourth (event) flight, the crew reported momentary indications of a No 2 (right) engine stall. After the aircraft landed, this was investigated using an inappropriate procedure obtained from an aircraft troubleshooting manual not applicable to G-POWN, but no fault was found. The aircraft took off from London Gatwick Airport Runway 26L at 0009 hrs on 26 February 2020 but, at around 500 ft agl, the No 1 (left) engine began to surge. The commander declared a MAYDAY and turned right downwind for an immediate return to the airport but, shortly afterwards, the crew received indications that the No 2 engine had stalled. The crew established that the engines were more stable at low thrust settings and the thrust available at those settings was sufficient to maintain a safe flightpath. They continued the approach and the aircraft landed at 0020 hrs.

Safety Recommendation UNKG-2021-021:

It is recommended that the European Union Aviation Safety Agency, during future audits of Continued Airworthiness Management Organisations and Approved Maintenance Organisations for which it is the Competent Authority, include a check that consideration has been given to the classification of biocide treatment of aircraft fuel systems as a critical maintenance task.

Reply No 1 sent on 31/07/2021: The requirements for the performance of critical maintenance tasks, when dealing with complex motor-powered aircraft, are primarily addressed in point 145.A.48(b) of Annex II (Part-145) to Commission Regulation (EU) No 1321/2014.

The European Union Aviation Safety Agency (EASA) makes use of compliance check lists as part of its audit, reflecting the implementing regulation requirements and including a specific check on 145.A.48 (b) requiring the maintenance organisation to establish a procedure to ensure that an error capturing method is implemented after the performance of any critical maintenance task.
This check item covers the verification that the maintenance organisation has established a list of critical maintenance tasks as specified in the acceptable means of compliance (AMC) material "AMC 2 145.A.48(b) Performance of maintenance", the detail of which is fully the responsibility of the organisation and to be customised to the scope of the approval held.

The safety recommendation addresses an expectation for an additional level of detail, to record evidence that the competent authority verifies that biocide treatment is classified as critical maintenance task. This approach has the potential to jeopardise the role of the competent authority, which is intended to verify that the organisation is compliant with regulatory requirements and has implemented a quality system able to monitor such compliance on continuous basis, rather than performing specific quality control activities as suggested in the safety recommendation.
In particular, EASA believes that the suggested level of detail would move the focus of the competent authority's inspection away from primary aspects of compliance verification thereby having a negative effect on safety.

Status: Closed

Switzerland

Registration	Aircraft Type	Location	Date of event	Event Type
HB-SAA	OTHER Not mapped (PIPISTREL (Alpha Electro 167))	near LSGE : Ecuvillens	03/01/2019	Accident

Synopsis of the event:

After a few minutes flight with Pipistrel Alpha Electro 167, the pilot encountered motor power issues. The aircraft cooling system's circulating pump had failed due to a faulty electrical connection, causing the propulsion unit's power controller to overheat within a short time. As a result, the available motor power was automatically reduced to less than 15% of the maximum take-off power. As a result, the pilot was forced to make an emergency landing outside the aerodrome area during which the aircraft was severely damaged and the pilot suffered minor injuries.

Safety Recommendation SWTZ-2021-001:

A Pipistrel Alpha Electro 167 cooling system's circulating pump failed due to a faulty electrical connection, causing the propulsion unit's power controller to overheat within a short time. As a result, the available motor power was automatically reduced to less than 15% of the maximum take-off power. As a result, the pilot was forced to make an emergency landing outside the aerodrome area during which the aircraft was severely damaged.

The fact that a single pump was installed in the cooling system was recognized by the STSB as a lack of redundancy and a very high safety risk.

Safety recommendation no. 569
The EASA should ensure that the aircraft manufacturer adapts the propulsion unit's cooling system in such a way that the failure of a single system component, such as the circulating pump, does not significantly affect cooling and consequently motor power.

Reply No 1 sent on 19/08/2021: The aircraft was an Alpha Electro 167 which is an aircraft falling under the scope of Annex I to Regulation (EU) 2018/1139, therefore the European Union Aviation Safety Agency (EASA) is not the competent authority when it comes to its design. In the reference accident under consideration the Alpha Electro 167 aircraft was being operated as a prototype under EASA-approved Flight Conditions in support of the EASA type certification project for the Virus SW 128 (Commercial designation: Velis Electro) aircraft to coordinate lessons learned while building up knowledge and experience of electrical aircraft operations in different EASA member states.

The fact that the investigation has identified a single point of failure in the propulsion system – such as the engine cooling circuit pump failure – should not result in further requirements to ensure dual redundancy. This is in line with the Certification

Specification – Light Sport Aircraft (CS-LSA) certification code applicable for this class of aircraft with a Maximum Take-Off Mass (MTOM) of 600kg and two persons onboard.

Furthermore, considering the more stringent CS-23 light aircraft certification code which has a specific requirement for failures and malfunctions in paragraph 23.1309, which results in designers performing a Functional Hazard Analysis and Failure Classifications in accordance with SAE ARP 4761 - Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment, the failure condition - total power loss - for a single engine design such as the Alpha Electro 167 under CS-23 results in a classification of "Major" and therefore requires no dual redundancy; this condition can be the result of a single point of failure such as a power shaft failure or DC/AC converter failure. Such designs are not atypical and are common for all single-engine aircraft.

Nevertheless, in the design under EASA certification, an event such as the cooling pump failing would be signalled to the pilot via a pre-flight test. Furthermore, it should be noted that following a total power loss failure the aircraft will have some ability to glide adding further mitigation to the loss of power scenario, as has been noted in this incident.

In the case of the accident aircraft, the root cause was identified as a production issue due to poor crimping of the connector and unsuitable wire length in the subject installation; this implies the need to identify and establish the necessary procedures to rectify the production issues.

Status: Closed

Switzerland

Registration	Aircraft Type	Location	Date of event	Event Type
HB-SAA	OTHER Not mapped (PIPISTREL (Alpha Electro 167))	near LSGE : Ecuvillens	03/01/2019	Accident

Synopsis of the event:

After a few minutes flight with Pipistrel Alpha Electro 167, the pilot encountered motor power issues. The aircraft cooling system's circulating pump had failed due to a faulty electrical connection, causing the propulsion unit's power controller to overheat within a short time. As a result, the available motor power was automatically reduced to less than 15% of the maximum take-off power. As a result, the pilot was forced to make an emergency landing outside the aerodrome area during which the aircraft was severely damaged and the pilot suffered minor injuries.

Safety Recommendation SWTZ-2021-002:

During an emergency landing outside the aerodrome area, which was due to a loss of motor power, the Pipistrel Alpha Electro 167 made a hard impact with the ground and then flipped over. The left attachment point of the pilot's lap belt was torn from the airframe.

Safety recommendation no. 570
The EASA, in cooperation with the aircraft manufacturer, should ensure that the seat belt attachment points can withstand such forces in all aircraft types which have an airframe similar to the Alpha Electro 167.

Reply No 1 sent on 19/08/2021: The aircraft was an Alpha Electro 167 which is an aircraft falling under the scope of Annex I to Regulation (EU) 2018/1139, therefore the European Union Aviation Safety Agency (EASA) is not the competent authority when it comes to its design. In the reference accident under consideration the Alpha Electro 167 aircraft was being operated as a prototype under EASA-approved Flight Conditions in support of the EASA type certification project for the Virus SW 128 (Commercial designation: Velis Electro) aircraft to coordinate lessons learned while building up knowledge and experience of electrical aircraft operations in different EASA member states.

Following receipt of the draft report EASA has contacted the aircraft manufacturer and can confirm that such seat-belt attachment points are not used in the manufacturer's EASA-certified aircraft fleet. Furthermore, when approving future flight conditions, consideration for pilot restraints will be addressed in the flight conditions limitations section to require that the restraints fulfil the relevant EASA certification requirements applicable to the aircraft design.

Status: Closed

Italy

Registration	Aircraft Type	Location	Date of event	Event Type
I-EDIC **F-PMGV**	AEROSPATIALE AS350JODEL D140	Rutor Glacier	25/01/2019	Accident

Synopsis of the event:

The AS350 B3 helicopter, mark I-EDIC, operated by GM Helicopters (GMH) of Entrèves (Courmayeur), with the pilot and another trainee pilot on board, had carried out the morning of the accident day, personal transport and aerial work, for a total flight time of 4h 35 min. The same pilot, carrying an mountain guide and 4 skiers, had started the flight at 12:42 hrs and had taken off from Bonne to release the guide and skiers at "Le Vedette del Rutor", near Rifugio degli Angeli-Testa del Rutor at about 13:03 hrs, then descended to the valley and landed at about 13:07 hrs at Lago dei Seracchi-Cascate (Superiore).
From this point the pilot had started again at 13:21 hrs and had taken off at about 13:24:36 hrs with the mountain guide and skiers on board, presumably for a further release of the guide and skiers at "Le Vedette del Rutor" or for their return to Bonne.
The aircraft Jodel D.140E, registration marks F-PMGV, had taken off at 13:00 hrs from Megève aerodrome (F) with an instructor and two pilots on board, to carry out a training mission to obtain and maintain the mountain rating.
At 13:25:36 hrs the two aircraft collided in flight, at an altitude of about 2777 m ASML, along the Valle Sospesa (La Thuile), close to the last position recorded in flight by the ski tracking system installed on the I-EDIC.

Safety Recommendation ITAL-2021-001:

ANSV recommends to evaluate the feasibility to install on board of aircraft operating under VFR in class "G" airspace, as mandatory equipment, anti-collision systems or systems designed to detect the proximity of other aircraft.

Reply No 1 sent on 19/08/2021: The European Plan for Aviation Safety (EPAS) 2020-2024 foresees the rulemaking task (RMT) RMT.0376 Anti-collision and traffic awareness systems for aircraft with maximum take-off mass less than 5700 kg or less than 19 passengers, through which the European Union Aviation Safety Agency (EASA) intended to set-up a framework for reducing the risk of airborne collisions.
Before initiating RMT.0376, EASA undertook a detailed review and assessment of the airborne collision risk. The outcome of the assessment was summarised in a Best Intervention Strategy (BIS) that has been validated through a survey and a stakeholders' consultation.
The BIS concluded that a broader use of iConspicuity solutions and improvement of their interoperability together with a better airspace utilisation and design, while ensuring compatibility with the U-space regulatory framework established under Implementing Regulation (EU) 2021/664, should be at the heart of the future actions.
iConspicuity (or in-flight electronic conspicuity plus) means in-flight capability to transmit position of aircraft and/or to receive, process and display positions of other aircraft in a real time with the objective to enhance pilots' situational awareness about

surrounding traffic. It is an umbrella term for a range of technologies and solutions, regardless of whether airborne or on the ground, that can help airspace users and other affected stakeholders to be more aware of other aircraft in their vicinity or in a given airspace.
Therefore, EASA decided that RMT.0376 will be removed from the EPAS and replaced by a strategy composed of a set of EPAS tasks compounded of existing rulemaking tasks which will be implemented through new safety promotion (SPT), research (RES) and member state tasks (MST). The best safety benefits are expected to be achieved through synergies of all proposed actions, while utilising the U-space regulatory framework as a catalyst for safety improvements.
The following bullet points summarize the collective actions which are planned to be implemented for Anti-collision and traffic awareness systems for aircraft with maximum take-off mass less than 5700 kg or less than 19 passengers:
• EASA, with support of technical partners, to demonstrate and validate feasibility of achieving interoperability of different iConspicuity devices/systems through network of stations while respecting data privacy requirements.
• EASA to analyse 'Net Safety Benefit' and 'Operational Safety Assessment' concepts for the use of iConspicuity devices/systems in Flight Information Services.
• EASA to facilitate installation of iConspicuity devices in all EASA certified aircraft types and promote their use by airspace users at user affordable cost.
• EASA to actively support initiatives enhancing interoperability of iConspicuity devices/systems.
• EASA to promote good practices in airspace design that reduce 'airspace complexity' and 'traffic congestion' with the aim to reduce the risk of collisions involving uncontrolled traffic.
• Member States to consider 'airspace complexity' and 'traffic congestion' as safety relevant factors in airspace changes affecting uncontrolled traffic, including the changes along international borders.
• EASA to ensure technical and operational compatibility of U-space and iConspicuity solutions.
• EASA to conduct a Safety Issue Assessment (SIA) of airspace infringements.
• EASA to explore the use of iConspicuity data for enhanced safety monitoring of Airborne Collision Risk.
Collectively, the aforementioned EASA actions serve as a multi-pronged final response which address the safety concern for mitigating airborne collision risks.

Status: Closed

Portugal

Registration	Aircraft Type	Location	Date of event	Event Type
I-B998	OTHER (TARIK) OTHER (TARIK)	Viseu: LPVZ (VSE)	14/09/2015	Accident

Synopsis of the event:

On September 14, 2015, an Italian registered I-B998 ultralight aircraft, took off from Viseu aerodrome for a local flight, with the pilot and sole occupant.
After some manoeuvres close to the aerodrome, in both runway directions, and when it was located on runway 36 downwind end, the aircraft's engine stopped producing power with subsequent full stop. The pilot realized that he would not be able to reach the runway and opted for an off-field emergency landing on unprepared terrain, having collided with a large rock.
Following the ground collision, the aircraft was destroyed, the pilot suffered serious injuries and was transported to an hospital.

Safety Recommendation PORT-2021-005:

It is recommended that EASA, within a defined time schedule, issue guidance material as provided for in Article 140 (4) of EASA Basic Regulation compatible with the approach set for this aircraft category, aiming to ensure a common level of safety within the European Union for the technical and operational conditions of Annex 1 aircraft below the 600 kg MTOM. Within this task, EASA, in cooperation with the European Commission, should consider assessing the current status of the regulatory framework in each Member-State regarding Annex 1 aircraft, in order to introduce common harmonized minimum requirements.

Reply No 1 sent on 26/10/2021: The European Union Aviation Safety Agency (EASA), having consulted the European Commission, wishes to clarify that the transitional provision of Article 140 (4) of Regulation (EU) 2018/1139 only gives to EASA the opportunity, within the deadline of 12 September 2021, to issue guidance for voluntary use by Member States to support the development of proportionate national rules concerning the design, production, maintenance and operation of aircraft listed in Annex I to Regulation (EU) 2018/1139 ('Annex I aircraft').

However, based on the assessment of all elements available, EASA does not intend to opt for it. In fact, it is considered to be more relevant and efficient to replace this option with extensive use of the existing EASA Safety Promotion platform, already widely used in General Aviation, and reach the same objective going beyond any boundary of aircraft weight and performance. EASA intends to target Safety Promotion material specifically towards the community flying Annex I aircraft to ensure that the information reaches this community as widely as possible. This approach is found to be by far more consistent with the one followed hitherto for EASA's General Aviation Roadmap, including the introduction of the new Part-21 Light concept.

Status: Closed

France

Registration	Aircraft Type	Location	Date of event	Event Type
F-HTIN	EUROCOPTER EC135	Le Conquet	11/05/2019	Accident

Synopsis of the event:

The helicopter was called on a rescue mission to take into account an injured person on the beach at Le Conquet. The experienced pilot had made numerous flights and approaches to sites outside the aerodromes and was familiar with the environment between Brest and Le Conquet. Today's mission seemed simple in its execution. During the preparation of the flight, he acquired the elements (meteorology, airspace) which enabled him to take the decision to take off. He did not receive any particular danger information at the intervention site. From the start, he followed a direct route to the casualty's recovery area and opted for a beach landing area as close as possible to him. Due to the short duration of the flight, the pilot chose a low flight height to allow him to quickly reach the site. For this same reason, the pilot chose to make a semi-direct approach and at a constant descent angle which brought him to an onset of descent at 2 Nm across the east of the site. This trajectory then restricted his visual field to the beach, masked by the relief that borders it, a few tall trees and houses.
The pilot and the TCM then noted the presence of kitesurfs on the left while the pilot continued his approach. When he passed the final hills and reached the final, the pilot saw the paraglider, ahead of him and to his right. The pilot assigned each person on board a task to ensure anti-collision with the various sails.
The helicopter was 170 ft above the beach, the paraglider in front of it about 300 m to its right.

Safety Recommendation FRAN-2021-006:

The BEA recommends that:

- considering the danger associated with wake turbulence generated by the movement of even light helicopters;

- considering the lack of knowledge of the aeronautical community (operators, pilots and certification authorities) on the wake turbulence associated with the movement of helicopters;

EASA, in coordination with major European helicopter manufacturers, assesses orders of magnitude of wake turbulence generated by a helicopter compared to an aircraft of equivalent mass and shares this information to raise awareness in the aviation community.

Reply No 1 sent on 29/10/2021: The European Union Aviation Safety Agency (EASA) is performing a review of the available means and resources to compare the intensity and persistence of wake turbulence generated by helicopters with fixed-wing aircraft having similar weight and speed. Based on this review, EASA will decide on appropriate

measures including future safety promotion campaigns.

Status: Open

Belgium

Registration	Aircraft Type	Location	Date of event	Event Type
D-EPCE	CESSNA 172	Runway 21 of Aerodrome Genk/Zwartberg (EBZW)	29/05/2019	Accident

Synopsis of the event:

During a proficiency check for the renewal of a SEP (Single Engine Piston) rating, the aircraft experienced a tail strike.

Safety Recommendation BELG-2021-003:

It is recommended that EASA incorporates in the projected EASA FEM:
• a thorough description on which items to be included in the pre-flight briefing (such as the designation of the PIC, handover of controls, the roles in the event of an actual emergency, method of simulated emergencies..)
• the guidelines (that were part of the former JAA FEM) and a formalized prior risk assessment on performing simulated emergency landings during PPL test and SEP check flights

Reply No 1 sent on 02/12/2021: The European Union Aviation Safety Agency (EASA) has developed the Flight Examiner Manual (FEM) which was published on EASA website on 02 November 2021. The aim of the document is to provide a non-binding reference to further support the implementation of the examiner standardisation requirements of Commission Regulation (EU) 1178/2011('Aircrew Regulation') . In addition to the regulatory contents of the Aircrew Regulation, the purpose of the FEM is to provide standardisation and best practice guidance to examiners for the conduct of skill tests. In addition, each competent authority may provide supplementary guidance and instructions specific to its territory. This information can be found in the Examiner Differences Document (EDD) which is published and regularly updated on the EASA website. The content of the EDD should also be covered in detail during examiner standardisation and refresher courses.

The FEM contains ten modules (test standards) which address the following:
•Clear definition of the roles of the examiner and candidate, particularly with respect to real or simulated emergencies;
•Conduct of a pre-flight briefing to review the procedures for exchanging flight controls;
•Review of the basic sequence of events, including pre-flight briefing, examiner briefing, candidate briefing, and oral examination on the ground;
•Statement by the examiner on the purpose of the test to ensure no ambiguity exists. The briefing should cover among other things: test or check sequence, contents of

exercise to be performed, respective roles of the candidate and the examiner during emergency procedures;
•Use of good judgement by the examiner when simulating any emergency or abnormal procedures;
•Clear request by the examiner for the candidate to simulate the manoeuvre when performing test items that have the potential to affect safety.

In this context, EASA would like to highlight that for events where a lack of piloting technique appears to be evident, the role and the effectiveness of the examiner's standardisation activity, as provided by the relevant competent authority, could also be considered among the possible contributing factors.

For each of the specific type of licences, ratings and certificates, the FEM addresses the following:
•For examiner briefing: examiner has pilot-in-command (PIC) responsibility; the candidate acts autonomously as if he was the PIC, examiner role-play in normal operations and simulated emergencies, engine failure-simulation (minimum safety height, handling of engine-controls), handling of possible contingencies (technical, weather, ATC), handling of actual emergencies (e.g. engine failure procedures, change of aircraft control), simulated emergencies, expectation on handling, checklist use and what and how to simulate;
•For candidate flight briefing: threat and error management aspects;
•For oral examination on the ground: the examiner should verify the relevant theoretical knowledge of the candidate during the briefing on the ground in relation to emergency procedures;
•Mandatory skill test items including the expanded guidance and additional explanations;
•The lists of abnormal and emergency procedures.

Furthermore, EASA is looking into the possibility to incorporate into the FEM guidelines and prior risk assessment on performing simulated emergency landings during PPL (Private Pilot Licence) test and SEP (Single Engine Piston) check flights in order to provide the best possible guidance to examiners.

The FEM can be downloaded at:
https://www.easa.europa.eu/newsroom-and-events/news/easa-publishes-manual-support-flight-examiners

Status: Open

Netherlands

Registration	Aircraft Type	Location	Date of event	Event Type
N/A	Safety Study	N/A	N/A	N/A

Synopsis of the event:

On 17 July 2014, flight MH17 crashed in Ukraine, following the detonation of a surface-to-air missile outside the aircraft's cockpit. All 298 persons on board lost their lives in the

crash. The Dutch Safety Board investigated the crash and published a final report (in 2015) and a follow-up report (in 2019) about the risks of flying over conflict zones.

Safety Recommendation NETH-2021-001:

Further develop the European Information Sharing and Cooperation Platform on Conflict Zones by expanding the available information without losing rapidity, including analysis and recommendations to member states, airlines and other stakeholders.

Reply No 1 sent on 16/12/2021: The European Union Aviation Safety Agency (EASA) further developed the European Information Sharing and Cooperation Platform on Conflict Zones, in particular:

•On 25 February 2021 the Agency launched a trial version of the European Information Sharing and Cooperation Platform on Conflict Zones (the Platform). The trial version of the Platform was implemented in order to fine tune its scope and to design the required IT functionalities in partnership with the Members of the Platform. The overall purpose of the Platform was to support the existing EU Conflict Zone Alerting System and particularly the 'Integrated EU Aviation Security Risk Assessment Group'.
•The Platform provides access to relevant, credible and accurate information for aviation operators and states to complement their own risk assessments and is a means of exchanging timely information and alerts between EU Institutions, EASA Member States and air carriers.
•Between 10 and 21 May 2021, the Agency conducted an assessment of the Platform through a survey addressed to the Members of the Platform (EU air carriers, EASA Member States and EU institutions). The outcome confirmed the usefulness of the mechanism to improve the risk assessments conducted by States and operators (over 96% of respondents indicated that they were either satisfied or extremely satisfied with the Platform). Furthermore, the members requested that EASA ensure the continuity of the Platform given its relevance for information sharing and risk assessments.
•A virtual Conflict Zone Platform Evaluation workshop was held on 17 June 2021 to give the members an additional opportunity to express their expectations and to discuss possible ways forward regarding the future of the Platform, taking into consideration the operational interests of the various aviation stakeholders.
•Considering the positive feedback and the interest of the European aviation community in the services provided by the Platform, the Agency launched a procurement procedure aimed at implementing the European Information Sharing and Cooperation Platform on Conflict Zones as a long-term solution, following completion of the trial period. The contract for the Conflict Zones Platform has since been awarded for a period of four years, and is expected to commence in February 2022, paving the way for the implementation of a long-term solution. In the meantime, the trial version of the Platform will continue to operate.
•The Agency is committed to ensuring a smooth transition between the trial phase and the long-term solution, as well as to further streamlining information sharing and cooperation, so that the relevant information on conflict zone developments potentially affecting the safety of flights can be shared without delay among the Platform members.

Status: Closed

Finland

Registration	Aircraft Type	Location	Date of event	Event Type
OH-DBS	CESSNA 150	Lahti-Vesivehmaa Aerodrome	07/02/2021	Accident

Synopsis of the event:

In a wintry afternoon on February 7, 2021, a student pilot and his instructor were conducting a touch-and-go in a Cessna 150 airplane at Lahti-Vesivehmaa aerodrome. The cloudy weather and snow-covered runway combined to make the edges of the runway difficult to discern. To compensate for right crosswind, the airplane was crabbed to the right, and crab was maintained on touchdown. During the ground run, the instructor focused on monitoring the flap position indicator, and neither pilot was aware of the airplane's drift to the right. Neither pilot took action to decrab the airplane, and as a result the airplane hit a snow bank bordering the right edge of the runway and ended up inverted. There were no injuries, but the airplane was damaged beyond repair.

Safety Recommendation FINL-2021-035:

The European Aviation Safety Agency (EASA) establishes the minimum requirements for theoretical knowledge instruction before the commencement of flight instruction. It is also recommended that the agency lays down a requirement that approved training organizations shall describe, in writing and in an unambiguous manner, acceptable reasons for deviations from the prescribed order of air exercises before the solo flight phase. These reasons shall be based on risk assessment. [2021-S35]

Reply No 1 sent on 16/12/2021: In the opinion of the European Union Aviation Safety Agency (EASA), Annex I (Part-FCL) of Commission Regulation (EU) No 1178/2011 and the associated Acceptable Means of Compliance (AMC) contain sufficient details for training course design while leaving necessary flexibility to training organisations as illustrated below. Additionally, the cause for the accident does not seem to be related to a particular sequence of theoretical knowledge instruction but rather to the instructor's intervention in the student's handling of the aircraft during the landing.

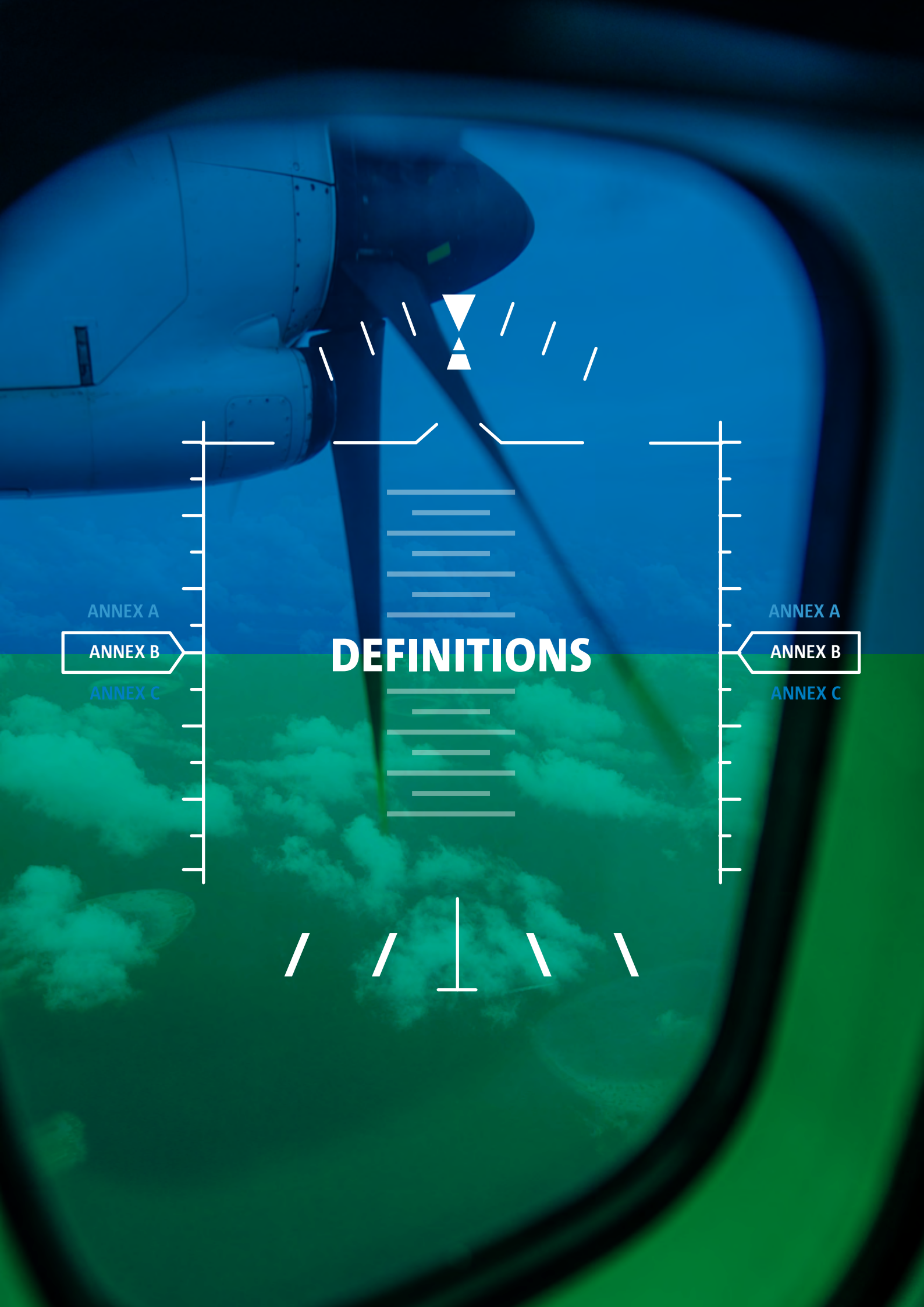
According to the current regulatory framework, the training organisation and the involved flight instructor should base the decision for a particular sequence of flight exercises on various factors, such as the student pilot's progress and ability (see, for example, AMC1 FCL.210 paragraph (c)(1) for PPL(A) training).

In addition to the existing requirements, the EASA Notice of Proposed Amendment 2020-14 (Simple, lighter and better Part-FCL requirements for general aviation of 14.12.2020), proposes to clearly prescribe in point FCL.020(a) of Part-FCL that a student pilot needs to have acquired the competence to safely operate the aircraft before going for a solo flight, in addition to being specifically authorised to do so and supervised by a flight instructor. In the specific context of solo flights (where no flight instructor will be able to intervene for safety reasons), this rule clarification underlines the necessity for a student pilot to have undergone all relevant theory and flight instruction that is needed to safely undertake the intended solo flight.

Furthermore, to ensure additional safety, FCL.910.FI FI already prescribes that while conducting training under supervision, in accordance with FCL.910.FI FI(a), the flight instructor shall not have the privilege to authorise student pilots to conduct first solo flights and first solo cross-country flights.

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

Status: Closed


ANNEX A
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DEFINITIONS
ANNEX A
ANNEX B
ANNEX C

Definitions

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

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

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

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

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

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

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

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

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

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

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

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

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

Safety Recommendation of Global Concern (SRGC)[1]: is defined as a safety recommendation made to a State civil aviation authority, to a regional certification authority, or to ICAO regarding a systemic deficiency having a probability of recurrence with potential for significant consequences, and requiring timely action to improve safety.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SAFETY RECOMMENDATIONS CLASSIFICATION

Safety Recommendations classification

This classification has been established in the scope of the safety recommendations taxonomy working group in cooperation with representatives from European Safety Investigation Bodies, Eurocontrol, the European Joint Research Centre (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.

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

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

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

- **Adequate:** safety recommendation for which appropriate action is planned or implemented or sufficient evidence of completed action satisfying the objective has been received by the originator.
- **Partially adequate:** safety recommendation for which the planned action or the action taken will reduce but not substantially reduce or eliminate the deficiency or for which a safety issue has been recognised and a new orientation has been given to the recommended action.

- **Not adequate:** safety recommendation for which no action has been taken or proposed that will reduce or eliminate the deficiency, or for which the proposed action is considered not applicable/ unacceptable.
- **Response is awaited:** safety recommendation for which no response has been received.
- **Response received awaiting assessment:** response to the safety recommendation has been received by the originator and is awaiting assessment.
- **Superseded:** if the recommendation has been superseded by another recommendation.
- **Unknown:** the safety recommendation is one which was issued before any tracking implementation status and for which insufficient information to assign any other status has been received.

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

- **Open safety recommendation**: safety recommendation for which the reply has not yet been defined or the appropriate action addressing the safety concern is still in progress.
- **Closed safety recommendation:** safety recommendation for which appropriate action has been taken and completed addressing the safety issue.


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EASA
European Union Aviation Safety Agency

EUROPEAN UNION AVIATION SAFETY AGENCY
SAFETY INTELLIGENCE
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