



European Aviation Safety Agency  
Safety Analysis and Research Department  
Executive Directorate

**2008**

*Annual Safety Recommendations review*



## 2008

### *Annual Safety Recommendations review*

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## **Executive foreword**

The Annual Safety Recommendations review is produced by the European Aviation Safety Agency (EASA). This edition provides an overview of the Safety Recommendations that have been addressed to EASA in 2008. It also presents the replies produced during the year.

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

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



# 1 Introduction

At European Union level, the basic principles governing the investigation of accidents and serious incidents are included in the Directive 94/56/EC of 21 November 1994. This Directive is compliant with international recommended practises as described in Annex 13 to the Chicago Convention. According to those principles, accidents and serious incidents have to be investigated. Investigation reports and the related Safety Recommendations are communicated to the competent aviation authorities for consideration and appropriate action, as needed.

Basic Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 defines the objectives of the EASA. It states that "Results of air accident investigations should be acted upon as a matter of urgency, in particular when they relate to defective aircraft design and/or operational matters, in order to ensure consumer confidence in air transport".

Currently EASA's remit involves type-certification, (aircraft, engines, etc), approval and oversight of aircraft design organisations as well as of production and maintenance organisations outside the EU. EASA is also directly involved in the European aviation safety rulemaking process. EASA's remit has been expanded in 2008 to Flight Operations and Flight Crew Licensing. As a consequence, EASA has adopted an organisational structure commensurate to its activities.

Thus, the handling of the Safety Recommendations in both an expeditious and responsible manner constitutes one of the pivotal responsibilities for EASA. Consequently, EASA provides responses to Safety Recommendations addressed to it and publishes an annual review of the Safety Recommendations handled in 2008 with a statistical overview of the situation.

The aim of this Annual Safety Recommendations review is twofold.

First, the review presents general statistical data of the Final Safety Recommendations that the Accidents Investigation Boards have addressed to EASA in 2008. It gives an overview of the work performed by EASA in the area of Safety Recommendations.

Second, it presents the replies that EASA has given in 2008 to Safety Recommendations and shows the Safety concerns that have been managed and their follow-up.



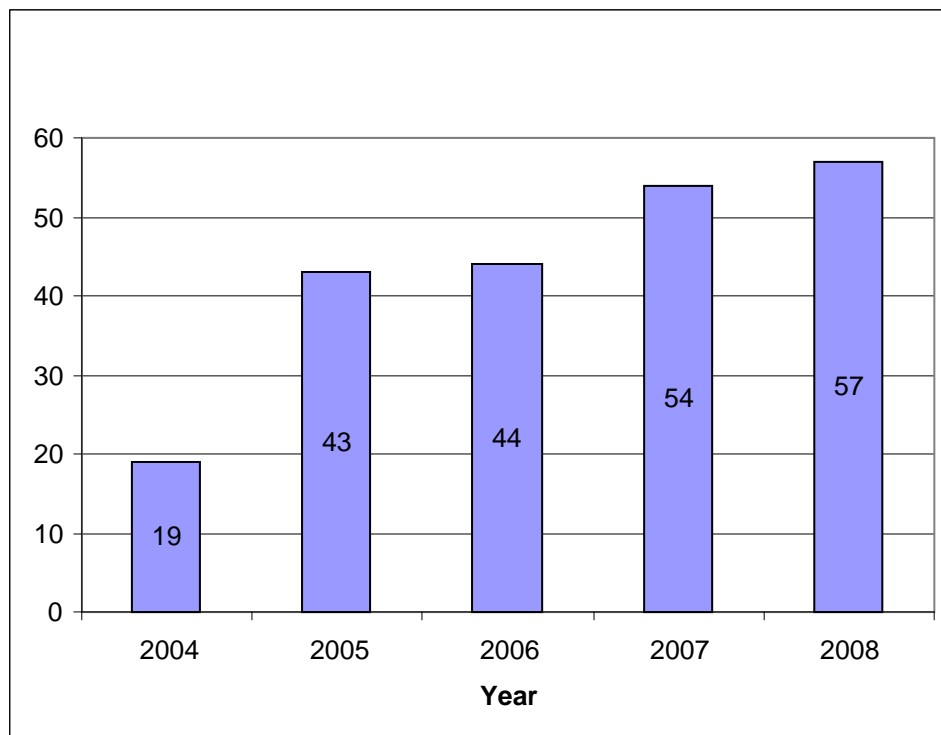
## 2 Overview of Safety Recommendations in 2008

### 2.1 Safety Recommendations received in 2008

During the year 2008, 57 Final Safety Recommendations were addressed to EASA. These Safety Recommendations were related to 35 different events<sup>1</sup>.

The total annual number of the Final Safety Recommendations that EASA has received so far, is shown in Chart 1.

As observed, in 2008 the number of Final Safety Recommendations increases slightly in relation to 2007.



**Chart1: Final Safety Recommendations per year**

It should be noted as the remit of EASA expanded, several related Final Safety Recommendations which were initially addressed to the member states were transferred to EASA.

Also, in some exceptional cases EASA, acting on its own initiative, has taken on board Final Safety Recommendations which, although they were not addressed to it, were found to fall within its area of activities.

### 2.2 Origin of the Final Safety Recommendations received in 2008

In 2008, Accident Investigation Boards of 11 different States addressed Final Safety Recommendations to EASA.

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<sup>1</sup> The number of safety recommendations which have been addressed to EASA but are still in a draft form, is not included.



With the exemption of 4 countries (USA, Indonesia, Brazil and Korea which addressed to EASA 13 Final Safety Recommendations accounting for 23% of the total amount, the remaining part was issued by EASA members states. This part accounts for 77%.

## 2.3 Thematic distribution of Final Recommendations received in 2008

Comparatively to 2007, the thematic distribution of the Final Safety Recommendations covers a wider range of safety concerns identified by the Accident Investigation Boards during the investigation process. This range of concern is taken into account by several units who have established responsibilities to act in the domain.

The Executive directorate (E) concentrates the executive tasks for managing the Agency as a whole. The area in which the EASA is taking action is as followed:

E – Safety Analysis & Research for safety studies and research projects related to Safety Recommendations follow-up.

The Rulemaking Directorate (R) produces opinions addressed to the Commission and certification specifications, including airworthiness codes and acceptable means of compliance, as well as any guidance material for the application of this Regulation and its implementing rules. The handling of Safety Recommendations is dealt with:

R – Product Safety for the initial and continuing airworthiness.

R – Flight Standard for the flight crew licensing and air operations.

The Certification Directorate (C) concentrates all certification tasks, consisting of type certification and continued airworthiness of products, parts and appliances; as well as the environmental approval of products; the handling of Safety Recommendations is dealt with:

C – Large Aeroplanes

C – General Aviation

C – Rotorcraft, balloons, airships

C – Propulsion

C – Flight Standards

C – Experts section

The Approvals and Standardisation Directorate (S) performs inspections, training and standardisation programmes to ensure uniform implementation of European aviation safety legislation in all Member States. It also deals with design organisations and, as appropriate, production organisations approval; foreign organisations approval; and coordinates the European Community programme SAFA (Safety Assessment of Foreign Aircraft) regarding the safety of foreign aircraft using Community airports. The handling of Safety Recommendations is dealt with:

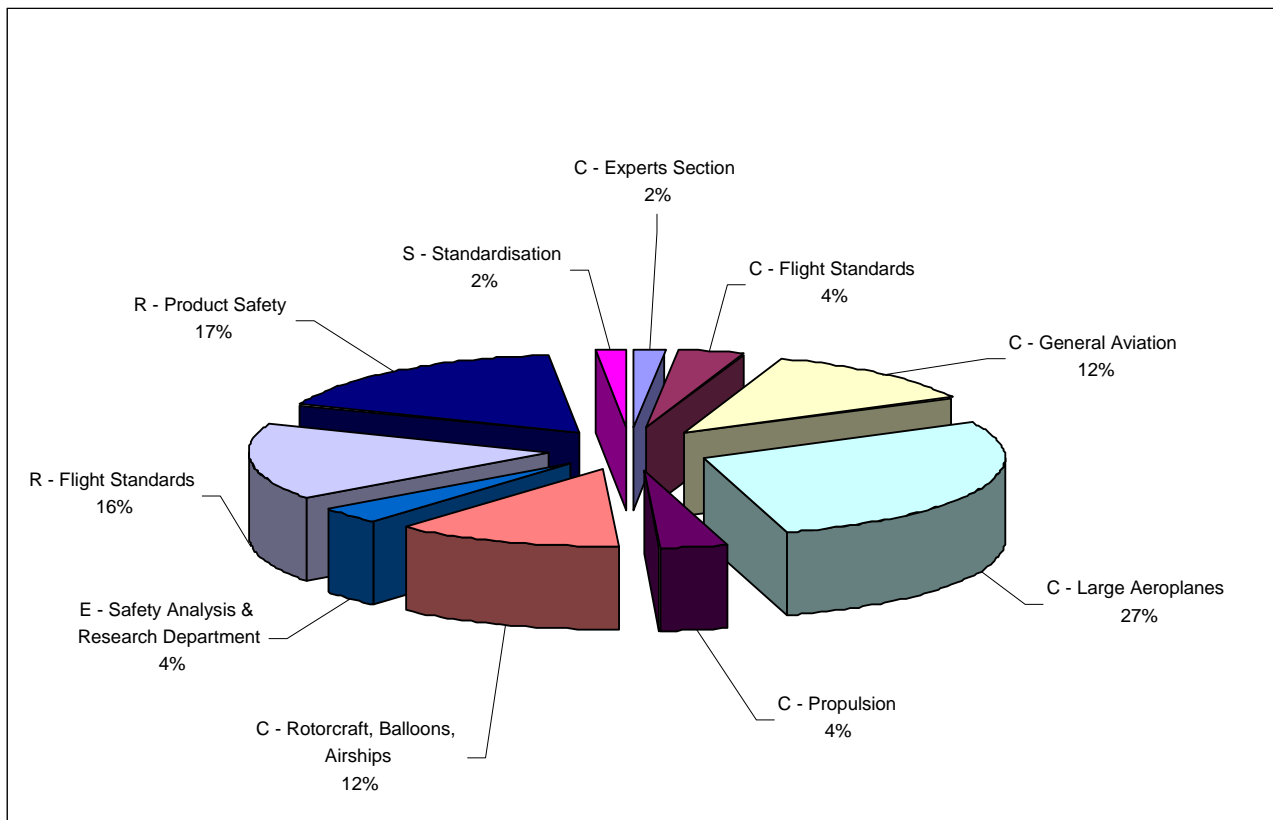
S – Organisations

S – SAFA coordination

S - Standardisation



As shown in Chart 2, the Final Safety Recommendations whose content was related to certification issues corresponded to 61%. 33% had a rulemaking character. The remaining 6% came within the fields of Standardisation and Safety Analysis & Research.



**Chart 2: Thematic distribution of Final Safety Recommendations in 2008**

Thus, taking into account that areas in which EASA is involved are growing, it is expected that in the future, the number of Safety Recommendations to EASA will further increase, whenever the expansion of EASA's competencies to other aviation areas is decided.

### 3 Final Safety Recommendations replied

#### 3.1 Final Safety Recommendations replied in 2008

During 2008, EASA replied to 52 Final Safety Recommendations, concerning 42 different events. The replies provided were either a first reply to a recommendation or an update to a recommendation in process. The Final Safety Recommendations that were reviewed and replied had been received in the years 2004 (4%), 2005 (11%), 2006 (25%), 2007 (38%) and 2008 (21%).

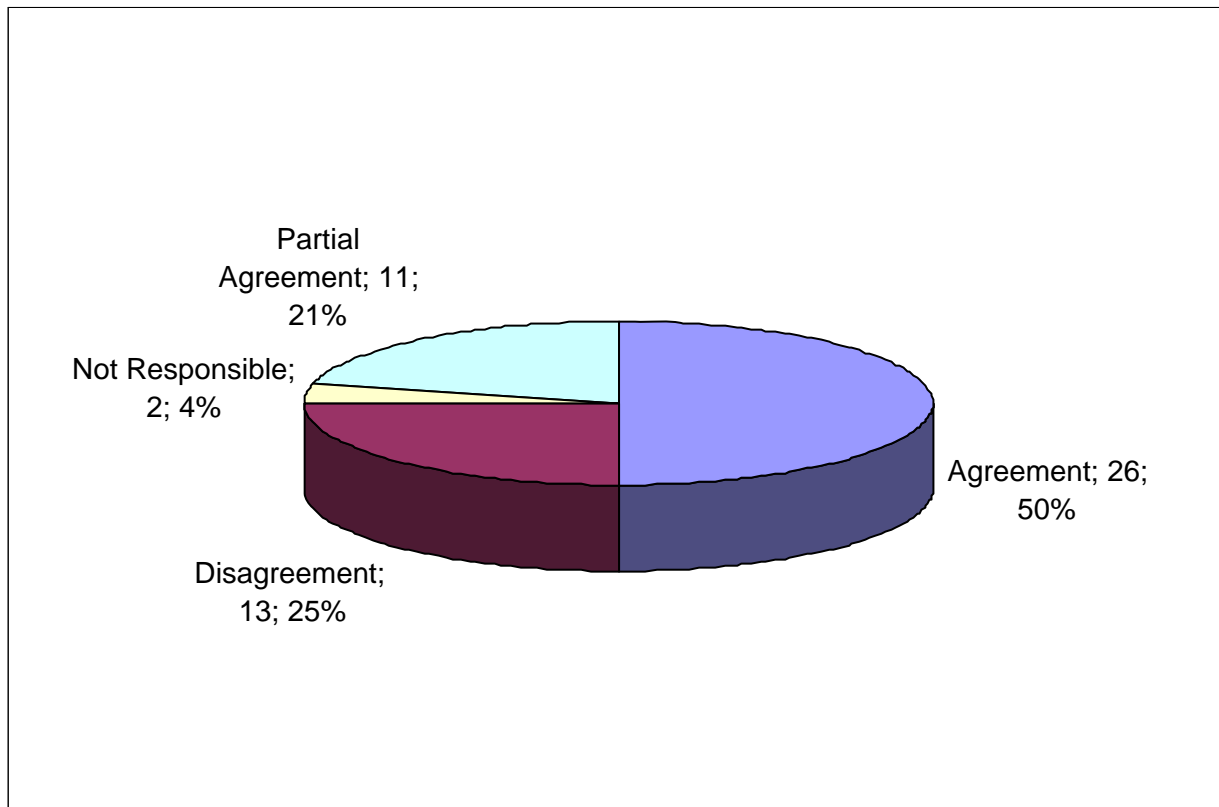
The number of replies provided to Final Safety Recommendations in 2008, was approaching the number of the Final Safety Recommendations received in the same period.





During the review of the Final Safety Recommendations, EASA classifies them in a systematic way, using the definitions of classification categories<sup>2</sup> given in Annex.

Thus, in 2008, EASA has accepted the Final Safety Recommendations made by the Accident Investigation Boards in 26 cases (50%). Furthermore, in 11 cases (21%), EASA partially agreed with the Final Safety Recommendations made, while in another 13 cases (25%) the Final Safety Recommendations were not accepted, as depicted in Chart 3.



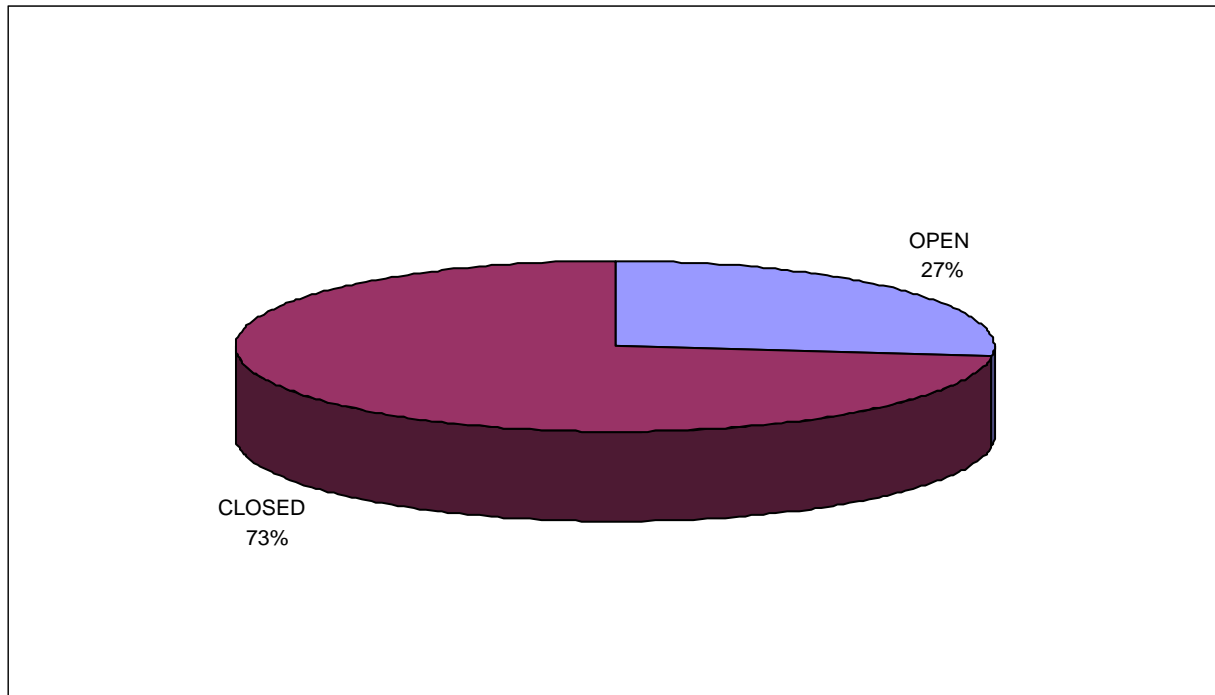
**Chart 3: Categories of replies to Final Safety Recommendations in 2008**

### 3.2 Status of Final Safety Recommendations replied in 2008

As far as the status of the Safety Recommendations replied in 2008 is concerned, 38 (73%) Final Safety Recommendations were classified as closed, while another 14 (27%) remained open, as it was assessed that further actions were required in order to fully address the Final Safety Recommendations made, as displayed in Chart 4.

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<sup>2</sup> These definitions of classification categories have been developed in co-operation with the European Accident Investigation Agencies and are part of a wider set of internal procedures and actions undertaken, in order to better organise the handling of safety recommendations.



**Chart 4: Status of Final Safety Recommendations replied in 2008**

### 3.3 Concluding actions

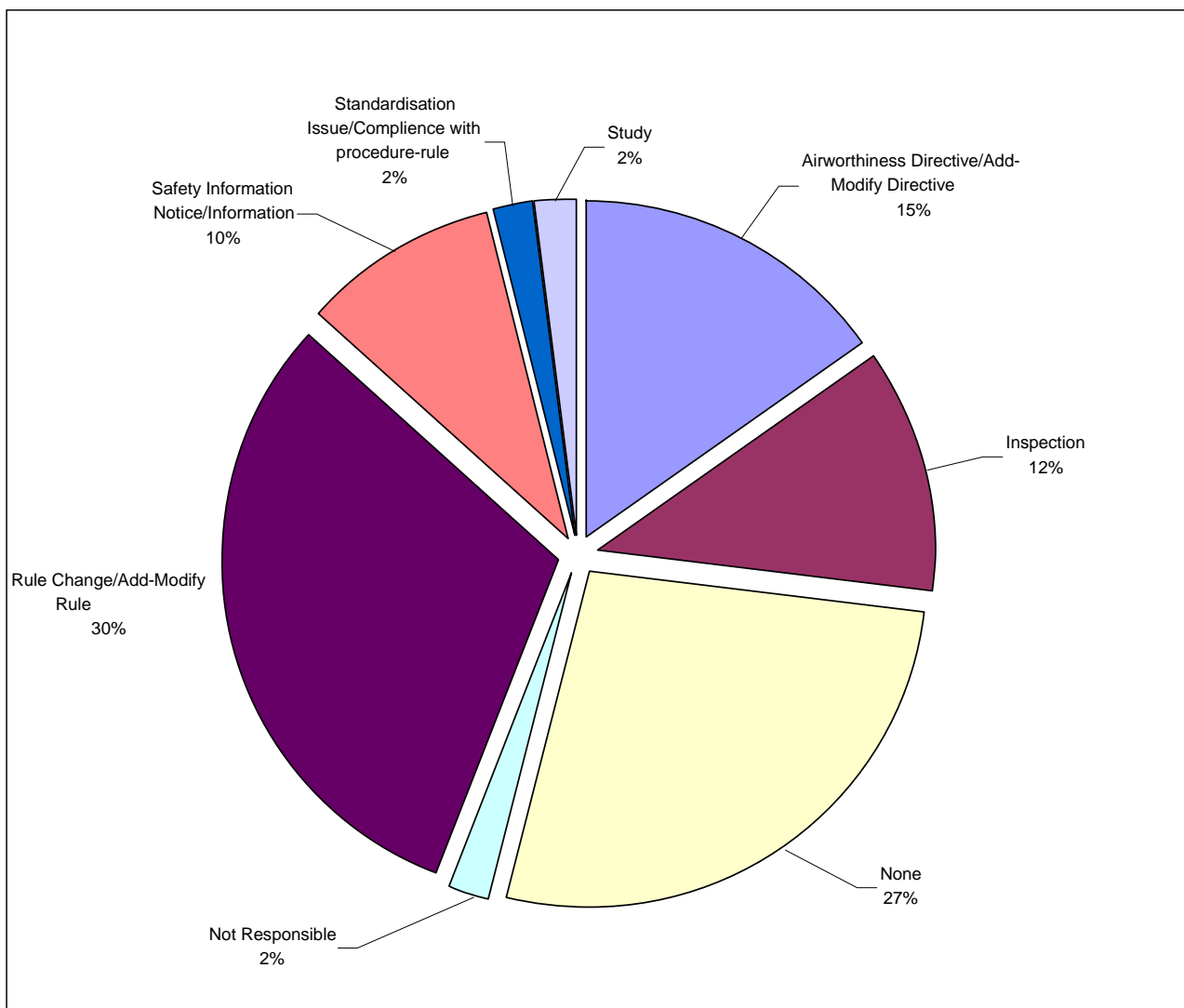
Following the review of the Final Safety Recommendations made, appropriate action is planned, depending on the content of the Final Safety Recommendation and of course on how the safety concern identified, if any, may be best addressed.

As shown in Chart 5, in the majority of the Final Safety Recommendations classified as “agreement” or “partial agreement” (73%), it was determined that considering a change in the regulations would be the best way to address the Safety Recommendation. This can be easily understood since EASA is the main European regulator and consequently tends to concentrate all regulatory related issues.

It should be reminded that such rule changes require significant amount of time, thus affecting the overall picture of the open Final Safety Recommendations. As such, a regulatory modification has a wider impact on the overall aviation system and needs to be carefully assessed before being implemented. Such rulemaking activity requires getting the feed back of qualified entities and needs a minimum of stability and continuity to be implemented by organisations and States. This is why the processing of some rulemaking activities and associated recommendations can take years.

The other important area is the Continued Airworthiness. Unlike the rulemaking activity, the follow-up of such activity has a narrow impact and tends to be implemented in shorter delays.

It should also be noted that in 27% of those Final Safety Recommendations, it was found that no action was needed to be taken by EASA. This is the case when the Safety Recommendation was disagreed or was transferred to another authority which has the competence to deal with.



**Chart 5: Concluding actions in 2008**

## 4 Conclusions

In the year 2008, the number of Final Safety Recommendations addressed to EASA is slightly above the 2007 one and practically equivalent to the number of replies.

It is expected that in the future the number will increase further, following the planned gradual expansion of EASA's competences.

The majority of the Final Safety Recommendations have been addressed to EASA by the Accident Investigation Boards of the member states.

The largest part of the Final Safety Recommendations received in 2008, was related to certification issues.



## 5 Annex A: Replies to Recommendations in 2008

All responses made in 2008 to Final Safety Recommendations are listed below. They are sorted by country of origin and grouped by occurrence.

FRANCE <sup>3</sup>

Registration	Aircraft Type	Location	Date of event	Event Type
F-OIQI	DHC-6 Twin Otter	Moorea, French Polynesia	08.09.2007	Accident

**Synopsis of the event** <sup>4</sup>: [FRENCH] L'avion décolle de l'aérodrome de Moorea pour un court vol à destination de Tahiti Faa'a. Il s'élève normalement jusqu'à une altitude estimée entre trois et quatre cents pieds puis le pilote rentre les volets et ajuste les paramètres moteurs. Il perd alors le contrôle en tangage de l'avion après la rupture du câble de la commande à cabrer de la profondeur. L'avion se met à piquer brusquement et percute la surface de l'eau à environ sept cents mètres du rivage.

**Safety Recommendation FRAN-2007-006**<sup>5</sup>: [ENGLISH] Consequently, the BEA recommends that Transport Canada and the European Aviation Safety Agency:

- Require operators to perform an inspection as soon as possible on stainless steel stabilizer control cables installed on DHC-6 Twin Otter airplanes, with particular attention being paid to chafing areas in contact with cable guides;
- Consider extending these inspections to carbon steel cables that may also be installed on the stabilizer control system of this airplane.

[FRENCH] En conséquence, le BEA recommande à Transports Canada et à l'Agence Européenne de la Sécurité Aérienne :

- de demander aux exploitants de contrôler au plus vite les câbles en acier inoxydable équipant la commande de profondeur des DHC-6 Twin Otter, en insistant sur les zones de frottement au contact des guide-câbles ;
- de déterminer l'opportunité d'une extension de ces contrôles aux câbles en acier-carbone également susceptibles d'équiper cette commande de profondeur.

**Reply:** EASA and transport Canada have coordinated with Viking Air Limited an elevator control cable wear survey among operators engaged in high cycle/hour ratio operations.

The survey was conducted on 65 aircrafts with carbon and stainless steel cables. It was concluded that carbon steel cables are more wear resistant than stainless steel cables and that tropical marine or saline environments have an adverse effect on control cable longevity.

However, the higher corrosion protection in saline environment does not indicate that the replacement of stainless steel cables is required. Furthermore, the level of wear does not show any unsafe condition. The 12 months or 1000 hours replacement interval, specified in the Original Equipment Manufacturer (OEM) or Instructions for Continued Airworthiness (ICA), appears to be adequate. However, the manufacturer intends to recommend a special inspection at a 125 hour interval, only for those aircraft operated in tropical marine or tropical

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<sup>3</sup> The countries whose Accident Investigation Agencies issued the safety recommendations are presented in alphabetical order.

<sup>4</sup> The synopsis provided for each event, has either been copied directly from the corresponding investigation report or in certain cases, is a summary of the relevant part or the report. In certain cases information such as, flight number etc, has been removed. In other cases the registration mark, although available to the EASA, has not been included, because it was already de-identified in the investigation report submitted to the EASA.

<sup>5</sup> The reference number to each safety recommendation is composed by the 4 letters corresponding to each state, the year (4 digits), as well as a 3-digit number.



saline environments and to incorporate the inspection procedure in Service Bulletin 6/523 into the ICA. EASA believes the actions proposed address the intent of the safety recommendation. EASA believes that the actions proposed address the intent of the safety recommendation.

**Category:** Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
SU-BMF	MD83	Nantes Atlantique airport	21.03.2004	Serious incident

**Synopsis of the event:** At night under IMC conditions, the crew performed a non-stabilized approach to runway 21 at Nantes-Atlantique airport, deliberately exited the protection envelope in the published procedure then performed a go-around while they were over-flying a built-up area at a height of around four hundred feet.

**Safety Recommendation FRAN-2004-004.02:** The BEA recommend that the FAA ensure that MD 83 Flight Manuals be modified so as to make autopilot performance limitations apparent.

**Reply:** The FAA, as prime authority for changing the MD83 Flight Manual, has reviewed this recommendation and does not concur with it. The reply provided is the following:

"From all indications, the autopilot appears to have been functioning normally and per design. When the VOR/LOC mode was engaged, the autopilot captured the selected inbound course to the NTS VOR as indicated by the VOR CAP annunciation in the Flight Mode Annunciator roll window. The left deviation of one-dot on the Course Deviation Indicator noted by the First Officer and radar track data showing an approximately 0.8 nm deviation left of the intended course seem consistent.

While in the capture mode (VOR CAP), the autopilot will manoeuvre the aircraft to intercept the centre of the selected radial. Optimum autopilot performance during the capture mode will be obtained at intercept angles of 90° or less. As demonstrated in this incident, the autopilot will capture a course at an intercept angle greater than 90°, but optimum autopilot performance may not be obtained due to a number of factors, including the increased time necessary for the autopilot to compute the appropriate flight control commands, the reduced roll rate authority while in capture mode, local environmental conditions (e.g., wind and turbulence), and aircraft state (e.g., configuration and speed). Non-optimum performance means that the airplane will likely not roll out of the turn exactly on the intended course. If this is the case, the autopilot will need additional time and distance to manoeuvre the airplane close enough to the intended course so that the track mode (VOR TRK) can engage and keep the airplane on the intended course.

**The characterization in the BEA report that there is a 90° intercept angle limit for autopilot operation is incorrect.** Autopilot operation in VOR mode does not place any limitations on the airplane or its operation. There are no FAA Approved Airplane Flight Manual limitations relating to autopilot performance for operation in any of the VOR modes. Boeing, in its MD-80 DFGS/Electronic Displays Operational Description document, recommends that pilots use intercept angles up to 90° so that optimum autopilot performance may be obtained. Intercept angles of greater than 90° are not prohibited in the Boeing document.

After due consideration of the information regarding the segment of interest in this incident, the Los Angeles Airplane Certification Office finds that:

- The autopilot was functioning normally and performed as intended,
- Boeing provides procedures and a description of VOR modes in its MD-80 DFGS/Electronic Displays Operational Description publication, as well as simplified criteria for VOR CAP and VOR TRK in the Flight Procedures volume of the Flight Crew Operating Manual,
- There are no airplane level autopilot limitations relating to VOR intercept, capture, and track modes, nor are any warranted.



Therefore, the FAA concludes that no further action pertaining to this safety recommendation is necessary and this matter is considered closed." The EASA supports the FAA's position.

**Category:** Disagreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
F-GLZC	A340-311	Cayenne Rochambeau airport	25.05.2001	Incident

**Synopsis of the event:** [FRENCH] En approche finale ILS en piste 08 de l'aérodrome de Cayenne-Rochambeau, l'avion rencontre un cisaillement de vent et s'enfonce brutalement à une hauteur d'environ cent pieds. Une alarme SINK RATE retentit. Le copilote, aux commandes, tire sur le manche puis réduit la poussée pour atterrir. Le commandant de bord augmente la poussée et reprend les commandes.

L'avion touche sur le train gauche trente mètres avant le seuil de piste, rebondit et atterrit environ cinq cents mètres plus loin.

**Safety Recommendation FRAN-2007-003:** [FRENCH] Le BEA recommande que: l'AESA évalue le bénéfice que pourrait apporter l'utilisation sur les avions de transport public d'un système permettant aux équipages de disposer des informations pertinentes pour la conduite d'approches stabilisées jusqu'au sol (collimateur tête haute, par exemple).

[ENGLISH-NON OFFICIAL TRANSLATION] EASA should study the benefit on transport category aircrafts of a system enabling the crew to get relevant parameters for the conduct of a stabilized approach until the ground (head up display for instance).

**Reply:** Studies were made showing the benefit of the HUD for a stabilized approach, in particular when performing a continuous descent final Approach (CDFA). The JAA NPA-OPS 41 (Joint Aviation Authorities Notice of Proposed Amendment on Operations) dealing with this issue was integrated into EU-OPS (European Community regulation on OPS matters) second amendment. It is also included in the EASA NPA for OPS.

**Category:** Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
	FDR Study		03.04.2005	

**Synopsis of the event:** The readout of Flight Data Recorders (FDR), whether performed in France or elsewhere, often brings to light a variety of problems such as aircraft operators having incomplete, outdated or inappropriate documents or not having the relevant documentation at all. Sometimes this significantly delays the validation of the readout work.

**Safety Recommendation FRAN-2005-004:** The BEA recommends that the DGAC ensure, in cooperation with the JAA, that European regulations be updated to meet the standards of ICAO Annex 6 in terms of necessary corrective actions when a mandatory parameter is not correctly recorded or the chronological recording structure does not match the history of the flights performed.

**Reply:** Attachment D to ICAO Annex 6 Part I provides guidance for a proper maintenance of the recorders. Relevant provisions exist in EUROCAE Annex I-A to ED-112. Consideration is given as to making these provisions applicable in the European regulation system.

**Category:** Agreement - **Status:** Open



## GERMANY

Registration	Aircraft Type	Location	Date of event	Event Type
	Diamond DA 42	Germany	04.03.2007	Incident

**Synopsis of the event:** On 4 March 2007 a DA 42 suffered a total electrical power loss immediately after take-off during the retraction of the landing gear- As result, both engines failed. During the emergency landing on the runways extended centre line, the airplane was severely damaged.

**Safety Recommendation GERF-2007-004:** EASA should ensure that failure of the entire aircraft electrical system and both engines because of temporary voltage interruptions in the aircraft type DA 42 with electrically controlled engines is effectively prevented. Until the modifications are implemented, these aircrafts should not be operated.

**Reply:** The EASA has addressed this issue by issuing Airworthiness Directives 2007-0182 and 2007-0183 on 02.07.2007, mandating technical solutions proposed by the aircraft and the engine manufacturer.

Airworthiness directive 2007-182, regarding TAE125-01 and TAE125-02-99 engines installed in Diamond DA42 aircraft, requires the inspection of the engine installation to verify conformity to the instructions contained in the Engine Installation Manuals IM-02-01 or IM-02-02, dealing with the electrical system and the FADEC, as revised by the engine manufacturer following this event.

Airworthiness directive 2007-0183 mandates the modification of the electrical system of the DA 42 aircraft, by the installation of additional Engine Control Unit backup batteries, in accordance with the aircraft manufacturer's Mandatory Service Bulletin 42-042 and Work Instruction WI-MSB-42-042, issued in June 2007. It also mandates the amendment to the DA 42 Aircraft Maintenance Manual made by the aircraft manufacturer after this event, and the update of the operators maintenance programme. Finally, it mandates the amendment to the DA42 Airplane Flight Manual, introduced by the aircraft manufacturer following the event.

**Category:** Partial Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
	Cessna 172 N and Robin DR 400/140B	In flight	28.09.2007 11.09.2007	incident

**Synopsis of the event:** Two occurrences of an Inflight loss of power

**Safety Recommendation GERF-2007-010:** EASA should establish appropriate corrective measures for the engines already in production and operation to prevent the unsafe condition.

**Reply:** EASA has in close connection with TAE reviewed and discussed this safety recommendation.

As a result of this and some additional testing, TAE issued the Service Bulletin TM TAE 125-0017 on 14 December 2007 which requires an inspection of all affected engines. The EASA has issued Airworthiness Directive No. 2008-0016 in order to mandate this action. Based on the results of this inspection possible further actions will be determined, which we would communicate with you. The EASA believes that these actions adequately address, at this stage, this safety recommendation.

**Category:** Agreement - **Status:** Closed





## GREECE

Registration	Aircraft Type	Location	Date of event	Event Type
5B-DBY	B737-300	near Grammatiko	14.08.2005	Accident

**Synopsis of the event:** On 14 August 2005, a Boeing 737-300 aircraft, registration number 5B-DBY, operated by Helios Airways, departed Larnaca, Cyprus at 06:07 h for Prague, Czech Republic, via Athens, Hellas. The aircraft was cleared to climb to FL340 and to proceed direct to RDS VOR. As the aircraft climbed through 16 000 ft, the Captain contacted the company Operations Centre and reported a Take-off Configuration Warning and an Equipment Cooling system problem. Several communications between the Captain and the Operations Centre took place in the next eight minutes concerning the above problems and ended as the aircraft climbed through 28 900 ft. Thereafter, there was no response to radio calls to the aircraft. During the climb, at an aircraft altitude of 18.200 ft, the passenger oxygen masks deployed in the cabin. The aircraft levelled off at FL340 and continued on its programmed route.

At 07:21 h, the aircraft flew over the KEA VOR, then over the Athens International Airport, and subsequently entered the KEA VOR holding pattern at 07:38 h. At 08:24 h, during the sixth holding pattern, the Boeing 737 was intercepted by two F-16 aircraft of the Hellenic Air Force. One of the F-16 pilots observed the aircraft at close range and reported at 08:32 h that the Captain's seat was vacant, the First Officer's seat was occupied by someone who was slumped over the controls, the passenger oxygen masks were seen dangling and three motionless passengers were seen seated wearing oxygen masks in the cabin. No external damage or fire was noted and the aircraft was not responding to radio calls. At 08:49 h, he reported a person not wearing an oxygen mask entering the cockpit and occupying the Captain's seat. The F-16 pilot tried to attract his attention without success. At 08:50 h, the left engine flamed out due to fuel depletion and the aircraft started descending. At 08:54 h, two MAYDAY messages were recorded on the CVR.

At 09:00 h, the right engine also flamed out at an altitude of approximately 7 100 ft. The aircraft continued descending rapidly and impacted hilly terrain at 09:03 h in the vicinity of Grammatiko village, Hellas, approximately 33 km northwest of the Athens International Airport. The 115 passengers and 6 crew members on board were fatally injured. The aircraft was destroyed.

**Safety Recommendation GREC-2006-042:** EASA/JAA require aircraft manufacturers to install in newly manufactured aircraft, and on a retrofit basis in older aircraft, in addition to the existing cabin altitude warning horn, a visual and/or an oral alert warning when the cabin altitude exceeds 10 000 ft.

**Reply:** As part of the Agency's rulemaking programme, task 25.037(a) has been initiated. This task aims to update CS 25.1322, AMC 25.1322 and AMC 25-11 to reflect advances in technology and other forms of pilot alerting systems. It is envisaged that crew alerts requiring immediate flight crew awareness will be provided through at least two different senses by a combination of aural, visual, or tactile indications.

EASA rulemaking task 25.037(a) has developed a draft NPA and the current planning is to publish this for public comment according to the Rulemaking Programme.

The Agency will determine by undertaking a Regulatory Impact Assessment if newly manufactured aircraft and the retrofitting of aircraft to the revised standard is the correct action that is proportionate to the risk, on completion of the final rule.

**Category:** Partial Agreement - **Status:** Open

**INDONESIA**

Registration	Aircraft Type	Location	Date of event	Event type
PK-GZN	Boeing 737-200/300/400/500	Syamsudin Noor Airport, Banjarmasin, South Kalimantan	23.07.2008	Incident

**Synopsis of the event:** The National Transportation Safety Committee's investigation into a failed main landing gear assembly on Boeing 737 aircraft, registration PK-GZN, Serial number 29209, that occurred at Syamsudin Noor Airport of Banjarmasin, South Kalimantan on 23 July 2008, found a crack in one of the brake mounting holes propagating inwards. The crack resulted in the fracturing of the inner cylinder and collapse of the axle.

**Safety Recommendation INDO-2008-001:** Recommendation KNKT/ 08.16.07.03 E

The National Transportation Safety Committee of the Republic of Indonesia recommends that the European Aviation Safety Agency require operators of Boeing 737-200/300/400/500 series aircraft affected by The Boeing Company Overhaul Manual (32-11-11 page 301) instructions to:

- Conduct one time non-destructive inspections on landing gear assemblies on all Boeing 737-300/400/500 series aircraft which have accumulated 15,000 Cycles since Overhaul. Specifically, the inspections should be conducted on the outer surface of the axle root and the flange area (including brake attach flange, flange holes and adjacent axle surfaces).
- Conduct eddy current inspections of the brake attachment flange on the inner cylinder and Ultrasonic inspections of the outer surface of the axle root of Boeing 737-200/300/400/500 series aircraft at each 'C' check inspection.
- Replace the inner cylinder/sliding member assemblies whenever a crack is found in one or more brake mounting holes or any other part of the assembly.

**Reply:** The Safety Recommendation has been forwarded to the FAA as State of Design authority for Boeing type design. EASA is keeping the contact with the FAA if specific actions regarding the Continued Airworthiness of the design have to be taken.

**Category:** Not Responsible- **Status:** Closed



## IRELAND

Registration	Aircraft Type	Location	Date of event	Event Type
N712DB	Beech 65-A90 King Air	West Airport Knock, Ireland	22.08.2006	Accident

**Synopsis of the event:** The aircraft took off at about 13.10 hrs UTC from Weston (EIWT) for Ireland West Airport Knock (EIKN) to practice flying instrument approaches. The Pilot flew a manual instrument approach in daylight Instrument Meteorological Conditions (IMC) followed by an overshoot. During the overshoot, at about 1,800 ft, the aircraft rolled to the right in excess of 90°. The non-flying Pilot took control and initially attempted to recover. He then decided to continue the roll to the right through 360°. With a high power setting and an inverted nose down attitude, altitude was lost and speed rose rapidly. In the recovery the aircraft was subjected to a gross over-speed with high G loading in avoiding ground contact. The flight returned to EIWT where it landed safely. There were no injuries. The aircraft, as a result of this event, is probably damaged beyond economic repair.

**Safety Recommendation IRLD-2007-009:** The relevant Technical Standards Order working group within the FAA, and the JAR Technical Standards Order working group within European Aviation Safety Agency, should consider amending the certification requirements for airborne GPS receivers to require the inclusion of a memory module that would record details of the aircraft's track and altitude.

**Reply:** While EASA understands that this recommendation aims to support the potential accident investigation by making available data from the aircraft for that investigation, the benefit of the proposed change is limited to those aircraft out of radar coverage. The time to introduce the requested function in GA is expected to be quite long. However, the Agency is involved in a number of studies related to the development of lightweight low cost recorders which aims to address this safety concern.

Consequently the EASA is not starting a rulemaking activity to change the GNSS requirements as proposed.

**Category:** Disagreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
EI-CHM	Cessna 150M	Raharney, Killucan, Co. Westmeath	25.05.2006	Accident

**Synopsis of the event:** The aircraft departed Weston Aerodrome (EIWT) at a reported time of 08.20 hrs on a flight to the west of the aerodrome. The purpose of the flight was a revision detail for a pre-Instructors rating test of the right hand seat occupant. At approximately 08.55 hrs, witnesses who were working on a house close to Raharney, Co, Westmeath, heard the sound of a revving engine and on looking towards the West saw an aircraft spiralling vertically down to earth. A survey of the accident site determined that the aircraft impacted vertically; there was no wreckage path and both occupants were found fatally injured within the wreckage of the aircraft. An inspection of the engine did not reveal any abnormalities. No evidence of pre-impact aircraft malfunction was found. There was no fire.

**Safety Recommendation IRLD-2007-002:** EASA should initiate a study of the necessity for aerial work aircraft in the General Aviation category to have installed a simple on-board device to record basic flight parameters.

**Reply:** EASA has launched a research project on this subject [EASA.2007.OP.18 Investigation of the technical feasibility and safety benefit of a light aeroplane operational Flight Data Monitoring (FDM) system].



On the other hand EASA is monitoring the work of EUROCAE Working Group 77 (WG77 Development of a Specification for lightweight flight recorders for small aircraft), that has the aim to create an EUROCAE MOPS for Lightweight Flight Recorder Systems (ED-155) for small aircraft. This document will define the minimum specification to be met for all small aircraft required to carry lightweight flight recorders which may record Flight Data, Cockpit Audio, Images or Data-Link, in a robust recording medium primarily for the purposes of the investigation of an occurrence (accident or incident). WG77 activities and EASA research project are interrelated.

**Category:** Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
EI-BYJ	Bell 206 Jetranger	Innisken, Co Monaghan	13.06.2004	Accident

**Synopsis of the event:** The helicopter was carrying out routine commercial pleasure flights in the Carrickmacross area of Co. Monaghan. On the final flight the pilot reported that a "FUEL PUMP" warning light illuminated and the engine failed seconds later. He carried out an autorotation approach and landed in a cornfield. All on board exited the helicopter safely and without injury. There was no fire.

The helicopter suffered significant damage in the landing. The Investigation found that the engine stoppage was due to insufficient fuel in the helicopter's fuel tank.

**Safety Recommendation IRLD-2006-017:** The European Aviation Safety Agency (EASA) should review the certification for helicopters engaged in commercial operations, with the objective of requiring such helicopters to be fitted with an independent low fuel contents warning light. (SR 17 of 2006).

**Reply:** The Agency partially accepts the recommendation.

For newly designed rotorcraft the current CS 27.1305(l) and CS 29.1305(a)(4) requires an independent warning system to notify the crew when approximately 10 minutes of usable fuel remains in the tank.

For those rotorcraft certified prior to the introduction of above requirement the Agency will determine by undertaking a Regulatory Impact Assessment if retrofitting of those rotorcraft engaged in commercial operation is a measure proportionate to the risk.

**Category:** Partial Agreement - **Status:** Open



## ITALY

Registration	Aircraft Type	Location	Date of event	Event Type
OE-AGG	Diamond DV 20 KATANA	San Vito Romano, Sabaudia	08.07.2006	Accident

**Synopsis of the event:** [ITALIAN] Dopo circa 13 minuti di volo dal decollo, in avvicinamento all'aviosuperficie di Sabaudia, si accendeva la spia luminosa di bassa pressione carburante. Il pilota inseriva la pompa elettrica ausiliaria, ma tale azione non comportava lo spegnimento di tale avviso. L'indicatore di carburante segnava 1/4, ma il motore continuava a non funzionare correttamente, per poi spegnersi completamente. Il pilota era quindi costretto ad effettuare un atterraggio di emergenza, fuori campo, che avveniva su un terreno posto a circa 2 miglia nautiche dall'aviosuperficie di Sabaudia. Durante la fase finale di avvicinamento l'aeromobile impattava inizialmente con il carrello le cime di alcuni alberi, assumendo conseguentemente Un assetto a picchiare, con impattava inizialmente con il carrello le cime di alcuni alberi, assumendo conseguentemente Un assetto a picchiare, con una leggera inclinazione a destra. Successivamente, l'aeromobile urtava il palo di una linea elettrica con l'estremità alare destra: quest'ultimo urto determinava un secondo cambiamento di assetto (a cabrare) e l'aeromobile impattava al suolo con velocità relativamente bassa, riportando gravi danni.

[ENGLISH-NON OFFICIAL TRANSLATION]: After 13 minutes of flight after take-off, in the proximity of the aerodrome from Sabaudia, the light indicator of low fuel pressure lighted on. The pilot actuated the auxiliary electrical pump, but this action did not put out the warning. The fuel indicator displayed ¼, but the engine was keeping on not functioning correctly, and made a complete shut-down.

Therefore, the pilot was forced to perform an emergency landing, outside the airstrip, on a piece of land located at around 2 NM (nautical miles) of the aerodrome of Sabaudia. During the final phase of the approach, the aircraft initially hit with the undercarriage the tops of some trees, thus provoking a nose down attitude, with a small inclination to the right side.

Then, the aircraft collided with the pole of one power line with the extremity of its right wing: this last collision created a second modification of the aircraft attitude (nose-up) and the aircraft collided with the ground with a relatively slow speed, generating serious damages.

**Safety Recommendation ITAL-2007-001:** [ITALIAN] Considerare la possibilità di effettuare sui velivoli KATANA DV 20 ed eventualmente anche su aeromobili dotati dello stesso tipo di sensore carburante, una verifica sulla corretta rispondenza delle connessioni elettriche a quanto previsto dai relativi schemi elettrici; considerare, inoltre, la possibilità di modificare uno dei due terminali elettrici installati sul sensore stesso al fine di consentire una univoca connessione del cablaggio elettrico senza possibilità di errore.

[ENGLISH-NON OFFICIAL TRANSLATION] Consider the possibility to carry out on KATANA DV 20 aircraft and also possibly on aircraft equipped with the same type of fuel sensor, one verification on the correct correspondence of electrical connections according to the provisions of the wiring diagram; consider, moreover, the possibility to modify one of the two electrical terminals installed on the same sensor in order to establish a unique (univocal) connection of the electrical wiring without possibility of error.

**Reply:** This accident was further reviewed with the manufacturer. Considering that the safety records do not show any other reported incidents where missinstallation was the primary cause and that DV20 Aircraft Maintenance Manual Chapter 28-40 Item 5 requires a recalibration of the indicator after replacement and a recalibration every 600 Hrs, it is felt that this already addresses the required safety level.

**Category:** Disagreement - **Status:** Closed



Registration	Aircraft Type	Location	Date of event	Event Type
I-ACRO	Schleicher AS-K13 glider	Guidonia airport	07.05.2005	Serious incident

**Synopsis of the event:** On May 7, 2005, a Schleicher AS-K13 glider experienced an undershoot landing in Guidonia airport (Rome), after the airbrakes were blocked up and completely extended due to the premature rupture of the upper part of the airbrakes lever.

**Safety Recommendation ITAL-2005-001:** ANSV recommends that EASA consider the possibility to require an AS-K13 fleet "ad hoc" inspection on the airbrakes lever to all operators.

**Reply:** The broken airbrake lever was a non-approved part, with dimensions and materials different from the OEM (Original Equipment Manufacturer) part and with no installation or manufacture records. There is no evidence of a safety problem of the original and approved design and no justification for a special inspection of this lever which is accessible during daily and annual inspections.

**Category:** Disagreement - **Status:** Closed

**Safety Recommendation ITAL-2005-002:** ANSV recommends that EASA require Schleicher AS-K13 manufacturer to revise glider maintenance manual, in order to introduce non invasive inspections of the airbrakes lever and, more specifically, on the flight control system components .

**Reply:** The broken airbrake lever was a non-approved part, with dimensions and materials different from the OEM (Original Equipment Manufacturer) part and with no installation or manufacture records. There is no evidence of a safety problem of the original and approved design and no justification for a special inspection of this lever, which is accessible during daily and annual inspections.

**Category:** Disagreement- **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
I-IVBP	Grob G 102	Aosta aerodrome "Corrado Gex"	09.03.2006	Serious incident

**Synopsis of the event:** [ITALIAN] Il pilota dell'aliante Grob G 102 Standard Astir III, giunto alla quota di sgancio di 800 m, effettuava, come da procedura, la retrazione del carrello. A metà corsa avvertiva la rottura del leveraggio ed il sistema rimaneva conseguentemente in posizione retratta e bloccata.

L'atterraggio su pista 27, con carrello retratto, eseguito in ottemperanza alle procedure previste, produceva danni lievi all'aeromobile ed alla pista stessa.

[ENGLISH] The pilot of the glider aliante Grog G 102 Standards Astir III reached the 800m release altitude, carried out, according to the procedure, the retraction of the landing gear. At half run (of the leverage) the pilot perceived the fracture of the command lever and consequently the landing gear remained in a retracted position.

The subsequent landing on runway 27 with retracted landing gear, carried out according to the procedure, caused light damages both to the aircraft and to the runway.

**Safety Recommendation ITAL-ANSV-25/88-06/1/I/06:** [ITALIAN] Qualora l'evento trovi riscontro in una adeguata base statistica di rotture analoghe, valutare l'opportunita di rivedere





il progetto del competente, o in termini di processo di fabbricazione, o in termini di introduzione di un opportuno controllo non distruttivo.

[ENGLISH-NON OFFICIAL TRANSLATION]: If this event finds confirmation in sufficient statistical basis of similar (analogous) fractures, evaluate the opportunity to review the item project/design, either in terms of manufacturing (building) process, or in terms of the introduction of an appropriate NDT (Non Destructive Test).

**Reply:** Investigation done by the TC-Holder (TCH) revealed that a wrong screw i.e. differing from the original drawing was used during the manufacturing of the spare part. There are no similar incidents known and the parts manufacturer and supplier has ensured that no other defective parts have been delivered. EASA accepts the explanations provided by the TCH and its supplier which demonstrate that the event was an isolated case.

**Category:** Disagreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
EI-CSN	Boeing B737 - 8AS	Treviso Sant'Angelo, Italy	25.06.2007	Accident

**Synopsis of the event:** On June 25th 2007, at 15.46 UTC, the aircraft B737/8AS, registration marks EI-CSN, operating flight FR 9513 from Gerona (LEGE) to Treviso Sant'Angelo (LIPH), suffered the NLG left wheel separation during the landing roll.

Cockpit and cabin crew members reported a loud "bang" three to five seconds after the nose wheel touched the runway, at an aircraft speed of approximately 100 kts. After that, the aircraft yawed slightly to the left, but no difficulties were reported in keeping the centreline. The subsequent actions were carried out uneventfully till the stand, when the separation was observed.

**Safety Recommendation ITAL-ANSV-8/419-7/1/A/07:** Based on the previous considerations, pending the maintenance manual revision, ANSV recommends European Aviation Safety Agency (EASA) and Federal Aviation Administration (FAA) to: perform an una tantum visual inspection on the NLG axles installed on all the 737 models currently equipped with similar component.

The inspection should be accomplished by preliminary removal of the spacer and then particularly focused on verifying any presence of corrosion at the 6 o'clock position after removal of the spacer. If corrosion is detected in that specific area an additional NDT for cracks (dye penetrants or MPI) has to be implemented.

As a matter of fact, when not correctly found and removed, the corrosive attack seems able to promote an instantaneous failure of the axle, also when it has a short accumulated life with respect its original time limit.

**Reply:** The EASA has issued and revised Safety Information Notice 2006-07, following the issuance of the previous ANSV safety recommendations ANSV-13/341-06/2/A/06 and ANSV-17/341-06/1/A/06.

**Category:** Partial Agreement - **Status:** Closed



## NETHERLANDS

Registration	Aircraft Type	Location	Date of event	Event Type
G-JSAR	Eurocopter AS 332L2	North Sea	21.11.2006	Accident

**Synopsis of the event:** During an evacuation mission of an oilrig on the North Sea with a Eurocopter AS 332L2 search and rescue helicopter on 21 November 2006, on the way back to the mainland, at 3,000 feet the N1 RPM of engine #1 fluctuated while its temperature rose. At the same time the temperature of engine #2 decreased. The crew tried to identify which engine had problems but did not succeed. The decision was made to descend to 1,000 feet. During descent cyclic control problems developed. The control problems increased rapidly, whereupon the crew decided to ditch the helicopter into the North Sea. All thirteen passengers and four crew members evacuated the aircraft safely. The helicopter was equipped with two automatic inflatable life rafts. These life rafts were not inflated. A small life raft ('air droppable') that was carried in the cabin was inflated by the cabin crew. Two occupants succeeded in climbing in the raft, all others remained in the water. All occupants were wearing survival suits and were rescued within 1 hour 15 minutes.

**Safety Recommendation NETH-2007-001:** The Dutch Safety Board asks the certifying authority for the Eurocopter products, the European Aviation Safety Agency, to take the following actions in order that:

Operators check the proper functioning of the life raft activating mechanism on the AS 332L2 Eurocopter helicopters equipped with sponson mounted life rafts within two months after publication of this message.

**Reply:** This recommendation is partially accepted by EASA. Eurocopter SB 25.01.93 was therefore published on July 25th 2007 to recommend operators to check the life raft activation system proper functioning.

Considering 1) that the yearly check of the release system never revealed the cable slide phenomenon on aircraft in service,

and 2) that the time interval between Dutch Safety Board investigations for checking proper life raft deployment and the actual helicopter ditching was 2 months, EASA considered that issuance of an Airworthiness Directive to mandate this one-time check was not warranted.

Indeed, at the time of the test, the control mechanism cables showed significant signs of corrosion that is deemed to be the cause of the system non-activation when the test itself was performed. It is unlikely that an aircraft correctly maintained would be subject to similar corrosion development. Furthermore, it is EASA understanding that the crew did not attempt deployment of such a life raft at the time of the event, i.e. its condition at that time could not be determined to be as faulty.

**Category:** Partial Agreement - **Status:** Closed

**Safety Recommendation NETH-2007-002:** The Dutch Safety Board asks the certifying authority for the Eurocopter products, the European Aviation Safety Agency, to take the following actions in order that:

Eurocopter improves the design of the sponson mounted life raft activating systems to assure proper deployment.

**Reply:** This recommendation is accepted by EASA. Eurocopter were asked to launch a design change for improvement of the life raft activation system, so that even in case of (unlikely) important corrosion, deployment is ensured. EASA reviewed and agreed principles of this change, which consists in:

- replacement of the cable clamp at the end of the control mechanism channel with an improved one featuring double tightening devices;
- specifying an improved value of tightening torque to apply on the new cable clamp.





Eurocopter Service Bulletin AS332 25.01.98 was published on 16 April 2008 and recommends incorporation of this design improvement.

**Category:** Agreement - **Status:** Closed

**Safety Recommendation NETH-2007-003:** The Dutch Safety Board asks the certifying authority for the Eurocopter products, the European Aviation Safety Agency, to take the following action in order that:

Eurocopter improves the maintenance procedures of the sponson mounted life raft activating systems as needed.

**Reply:** This recommendation is not accepted by EASA. EASA Work Cards already exist, requesting to check and to test life raft activation system every year. Given that external source of corrosion may only be a salt-air environment as opposed to contact with salt-water from the sea, those maintenance inspections are deemed to be appropriate.

**Category:** Disagreement - **Status:** Closed

**NORWAY**

Registration	Aircraft Type	Location	Date of event	Event Type
LN-OOD	Eurocopter EC-135 P2	Liagardene, Norway	13.04.2006	Accident

**Synopsis of the event:** The flight in question was an ambulance flight where an EC 135 P2 HEMS rotorcraft had to land in a snow covered area. The AIBN has concluded that a considerable amount of snow passed through the lower part of the fenestron during landing, resulting in permanent deformation of all the fenestron blades. It is the opinion of the AIBN, that the consequence of this was that the hub cover in the fenestron had loosened and was drawn into the fan where it was cut into bits and caused extensive damage.

**Safety Recommendation NORW-2007-073:** Safety recommendation SL no. 2007/37T  
The accident has revealed that the hub cover of the Fenestron on EC 135 can loosen when the rotor tips are bent out. A loosened cover will be sucked through the Fenestron and cause extensive damage. AIBN recommends that Eurocopter consider whether the fixing mechanism between the cover and hub could be changed to prevent loosening.

**Reply:** EASA agrees with this recommendation. Eurocopter Deutschland (ECD) has launched a technical review of possible design improvements to the fenestron hub cap installation; this might lead to a future design change if deemed suitable. However, no unsafe design features have been identified so far. In-flight loss (as well as all other three events reported to ECD) was accompanied by contact of the fenestron/tail boom with obstacles.

**Category:** Agreement - **Status:** Closed

**PORTUGAL**

Registration	Aircraft Type	Location	Date of event	Event Type
C-GITS	Airbus A330-243	Lajes Airport, Azores	24.08.2001	Accident

**Synopsis of the event:** On August 24, 2001, Air Transat Flight TSC236, an Airbus 330-243 aircraft, was on a scheduled flight from Toronto Lester B Pearson Airport, Ontario (CYYZ), Canada to Lisbon Airport (LPPT), Portugal with 13 crew and 293 passengers on board. At 05:33, the aircraft was at 4244N/2305W when the crew noted a fuel imbalance.

At 05:45, the crew initiated a diversion from the flight-planned route for a landing at the Lajes Airport (LPLA), Terceira Island in the Azores. At 05:48, the crew advised Santa Maria Oceanic Control that the flight was diverting due to a fuel shortage. At 06:13, the crew notified air traffic control that the right engine (Rolls Royce RB211 Trent 772B) had flamed out. At 06:26, when the aircraft was about 65 nautical miles from the Lajes airport and at an altitude of about FL 345, the crew reported that the left engine had also flamed out and that a ditching at sea was possible.

Assisted by radar vectors from Lajes air traffic control, the crew carried out an engines-out, visual approach, at night and in good visual weather conditions.

The aircraft landed on runway 33 at the Lajes Airport at 06:45. After the aircraft came to a stop, small fires started in the area of the left main-gear wheels, but these fires were immediately extinguished by the crash rescue response vehicles that were in position for the landing.

The Captain ordered an emergency evacuation: 16 passengers and 2 cabin-crew members received injuries during the emergency evacuation.

The aircraft suffered structural damage to the fuselage and to the main landing gear.

**Safety Recommendation PORT-2004-AJ:** It is recommended that the European Organization for Civil Aviation Equipment, ICAO, all CAAs and safety investigation authorities: Take into account the circumstances of this particular occurrence in their deliberations on the requirements for independent power supplies for on-board aircraft recordings.

**Reply:** In so far as the Agency's responsibilities are concerned the criterion for approval of equipment is in place, since EUROCAE ED-112 can be used for this purpose. The subject of Recorder Independent Power Supply (RIPS) is addressed within ED-112, which should be an acceptable means of compliance to the future OPS implementing rule for recorders.

**Category:** Agreement - **Status:** Closed

**SPAIN**

Registration	Aircraft Type	Location	Date of event	Event Type
EC-JCQ	Tecnam P2002-JF	Borjas Blancas (Lleida)	14.07.2006	Serious incident

**Synopsis of the event:** On Friday, 14 July 2006, aircraft EC-JCQ took off at 10:30, with pilot and a second person aboard, from Sabadell airport en route to Madrid-Cuatro Vientos following the installation of a new ROTAX 912S2 engine. A few minutes after takeoff, an increase in the oil temperature and slight vibrations, forced the pilot to return to Sabadell. The aircraft was inspected by the maintenance centre that had performed the engine installation and took off again at 12:45 after a pipe in the fuel system was changed and all engine parameters were verified to be within specifications on ground.

Thirty minutes after takeoff, while on level flight, the aircraft once again experienced an increase in the oil temperature to 120°. After a brief period, during which the pilot descended the aircraft at 100 fpm in an attempt to lower the temperature, the engine revolutions dropped to 1300 rpm, intermittent power losses took place and a metallic sound appeared.

After declaring an emergency to ACC Barcelona, the pilot made an emergency landing. Both occupants were uninjured, though the aircraft's nose gear was slightly damaged.

**Safety Recommendation SPAN-2007-042:** It is recommended that EASA and ROTAX take measures intended to guarantee the continued airworthiness of ROTAX 912/914 engines in service which use hydraulic tappets manufactured prior to the implementation of the improvements.

**Reply:** EASA and the manufacturer reviewed the technical content of the Report IN-042/2006. This review has shown that all the actions already taken by BRP-Rotax and the EASA, (refer to AD 2006-0316-E) are satisfactory in order to avoid any unsafe conditions related to the technical problem.

In the light of this review, no further action is considered to be required by the EASA.

**Category:** Disagreement - **Status:** Closed

**SWEDEN**

Registration	Aircraft Type	Location	Date of event	Event Type
OO-DJN	Avro RJ85	Gothenburg/Landvetter Airport	10.03.2006	Accident

**Synopsis of the event:** After takeoff from Gothenburg/Landvetter airport the red lamp on the instrument panel, indicating that the nose wheel gear was not retracted and locked, did not extinguish. When the pilots, after several tries, did not manage to get normal function of the landing gear they requested to go back and land at the departure airport. During the return flight the pilots requested to make a low fly-by over the airport to try to get the position of the landing gear checked from the ground by airport personnel.

This was accepted and the aircraft made an ILS approach<sup>1</sup> to runway 03 and levelled out at 200-300 above ground level. The low pass was made parallel to runway 03 and approximately halfway between the runway and the control tower. After the fly-by, during which the pilots heard that staff on the ground thought that all the landing gear was lowered, they decided to land on runway 03.

A smooth landing was achieved on the main gear at about 100 knots IAS and with the nose wheel in the air. The nose wheel remained extended for about 2.5 seconds after its first contact with the ground, and then the nose wheel gear folded forwards towards its retracted state. The nose of the aircraft hit the runway and the aircraft slid further, supported by its nose and the main landing gear for about 300 meters before it stopped.

No one onboard was injured and the evacuation was made via slides. During the evacuation one of the cabin crew, a female, had difficulties to lock the rear left door in full open position which made the evacuation difficult.

**Safety Recommendation SWED-2006-020:** EASA is recommended to : on certification of new types of aircraft to ensure that physical strength is not a decisive factor for opening and locking emergency exits on aircraft in the open position, even in the case of abnormal tilting angle.

**Reply:** The Agency does not accept the recommendation as the existing Certification Specifications requires that:

- CS25.809 (b) "(...)Each emergency exit must be capable of being opened, when there is no fuselage deformation –  
(1) With the aeroplane in the normal ground attitude and in each of the attitudes corresponding to collapse of one or more legs of the landing gear; and(...)" ; Plus
- CS25.809 (c) "The means of opening emergency exits must be simple and obvious and may not require exceptional effort; (...)"

However, the Agency recognises the importance of correct operation and access routes to emergency exits and as such has issued NPA 2008-004 - Type III Emergency Exit Access and Ease of Operation.

This Notice of Proposed Amendment (NPA) introduces for large aeroplanes with 20 or more passenger seats definition of minimum dimensions to ensure ease of operation of the exit and egress access. It also introduces a proposal to introduce a seat back break over restriction to discourage escaping passengers from climbing over the seat backs into the access path, and a proper design of the structures bounding the access path to avoid foot traps and protrusions. In addition, instead of the conventional Type III exit design incorporating a removable hatch, an Automatically Disposable Hatch (ADH), is required for aeroplanes with a passenger seating configuration of 41 or more. The intention of the ADH is that it does not require manual intervention to ensure that its final location after opening is in a position that does not present an impediment in the exit access path, in the exit opening itself, or outside the aircraft.

**Category:** Disagreement - **Status:** Closed



Registration	Aircraft Type	Location	Date of event	Event Type
SE-DSP	Avro RJ 100	south-west of Bromma airport, AB county	22.03.2007	Incident

**Synopsis of the event:** The aircraft taxied out at Stockholm/Bromma airport for a scheduled flight to Gothenburg/Landvetter Airport. Due to the changing weather conditions, the switches for the aircraft's de-icing system and air conditioning system (which among other things pressurises the cabin) were switched on and off at various points during the take-off and climb out. The climb checklist did not contain any specific item for checking the air conditioning unit ("pack") switches, which control the pressurisation of the cabin, only a summary item in respect of the air conditioning system in general.

At about 10 000 feet the "Avionics fan off" warning light lit in the cockpit. The pilots began to read the emergency checklist for this warning, which may among other things be initiated by low air pressure, but there were no instructions for checks or measures to be taken related to this warning. At about 18 000 feet one of the cabin crew called and said that the oxygen masks above the passenger seats in the cabin had dropped down. The pilots discovered that the aircraft cabin was not pressurised and immediately began to descend to a safe altitude. The aircraft had reached an altitude of 19 000 feet before the descent began. During the descent, the warning light for high cabin altitude came on, that according to the specifications should have warned the pilots when the cabin altitude exceeded 10 000 feet.

On investigation it was found that the relevant pressure sensor was damaged. The reason why the aircraft climbed to about 19 000 feet without the cabin being pressurised was that the checklist was not defined clearly enough. A contributory factor was that the inspection interval for the cabin low pressure sensor was probably too long.

**Safety Recommendation SWED-2008-001:** It is recommended that EASA takes steps to ensure that the inspection interval for cabin pressure sensors in this particular type of aircraft is reduced.

**Reply:** Following discussions with the manufacturer of the high altitude switch, BAE Systems established that this type of switch can experience a time-dependant failure mechanism. This is basically oxidation of the contacts. Based on the recommendations of the manufacturer, BAE Systems are recommending to the Maintenance Working Group that the inspection threshold remains unchanged at 15.000 cycles/7,5 years, but that the repeat inspections intervals are reduced from 15.000 cycles/7,5 years to 5.000 cycles/2,5 years. The change is scheduled for discussion/adoption at the next planned meeting of the Working Group, and will be published as a revision to the Maintenance Review Board Report (MRBR) and Maintenance Planning Document (MPD) shortly thereafter.

EASA concurs with the actions being taken by BAE Systems and deems that they constitute an appropriate response to the Recommendation.

**Category:** Agreement - **Status:** Open

**Safety Recommendation SWED-2008-002:** It is recommended that EASA Takes steps to ensure that the emergency checklist in this particular type of aircraft is complemented in the respect of checking cabin pressure when the "Avionics Fan Off" warning is activated while airborne.

**Reply:** BAE Systems intend to revise the relevant Aircraft Flight Manuals (AFMs) to provide a caution/note to confirm that cabin air has been selected on following the illumination of an "Avionics Fan Off" warning. Following approval of the AFM amendments, the relevant aircraft operating manuals produced by BAE Systems will be amended to match the AFMs. EASA concurs with the actions being taken by BAE Systems and deems that they constitute an appropriate response to the Recommendation.

**Category:** Agreement - **Status:** Closed



## SWITZERLAND

Registration	Aircraft Type	Location	Date of event	Event Type
HB-ZER	Eurocopter EC120B	Gebirgslandeplatz Hotel Steingletscher	13.08.2003	Accident

**Synopsis of the event:** [GERMAN] Nach dem Abheben wurde ein kurzer Schwebeflug zur Überprüfung der Steuerwirkung und der Leistung durchgeführt. Wie der Pilot aussagte, wollte er daraufhin den Helikopter um die Hochachse nach rechts in den Wind drehen, um talabwärts weg zu fliegen.

Zwei Zeugen beobachteten, wie der Helikopter nach dem Abheben auf ungefähr einem Meter Höhe über Boden mit zunehmender Drehrate um die Hochachse nach links zu drehen begann und dabei weiter stieg. Gemäß seiner Aussage drückte der Pilot in dieser Phase das rechte Pedal bis an den Anschlag, ohne dass sich die Drehung merklich verlangsamte. Mit der zyklischen Blattverstellung (cyclic stick) versuchte er über der Landestelle zu bleiben und entschied sich schließlich, den Helikopter durch Senken der kollektiven Blattverstellung (collective stick) wieder zu landen. Beim Aufsetzen mit gleichzeitiger Drehung um die Hochachse nach links kippte der Helikopter auf die rechte Seite um und blieb oberhalb einer steil abfallenden Böschung liegen.

[FRENCH] Après avoir quitté le sol, le pilote effectue un bref vol stationnaire afin de contrôler la puissance et le fonctionnement des commandes. Selon ses affirmations, son intention est de faire pivoter l'hélicoptère vers la droite autour de son axe de lacet afin de décoller face au vent et de quitter la place en direction de l'aval.

Deux témoins observent l'hélicoptère qui, après s'être élevé à environ un mètre du sol, commence de tourner vers la gauche autour de son axe de lacet avec une vitesse de rotation toujours plus grande, et continue de monter. Durant cette phase, selon ses déclarations, le pilote presse la pédale de droite jusqu'à la butée sans que la rotation ne se ralentisse sensiblement. Il tente de se maintenir au-dessus du terrain d'atterrissage à l'aide de la commande de pas cyclique (cyclic stick) puis décide finalement d'atterrir à nouveau en baissant le levier de commande du pas collectif (collective stick). Lorsqu'il se pose, l'hélicoptère tourne toujours à gauche autour de son axe de lacet. Il bascule alors sur le flanc droit et s'immobilise au sommet d'un talus pentu.

**Safety Recommendation SWTZ-2008-389:** [GERMAN] Die Europäische Agentur für Flugsicherheit (EASA) soll in Zusammenarbeit mit den nationalen Zivilluftfahrtbehörden sicherstellen, dass die Beschreibung der Eigenschaften und Eigenheiten sowie die Zertifizierungsbedingungen der verschiedenen Helikoptertypen in Flughandbuch vorhanden sind.

[FRENCH] L'Agence Européenne de la Sécurité Aérienne (EASA), en collaboration avec l'administration nationale de l'aviation civile, devrait s'assurer que les caractéristiques, les propriétés ainsi que les limites de certification soient décrites dans le manuel de vol des différents types d'hélicoptères.

**Reply:** EASA partially agrees with this Safety Recommendation. There is no regulatory requirement for limiting winds to be declared in the Flight Manual of a CS 27 helicopter. Satisfactory operation in winds of at least 17 knots from all directions must be demonstrated at the critical mass up to 7000 feet, for certification.

In this case it has been Eurocopter practice to refer to at least this demonstrated wind envelope in the performance section of the manual as part of the Hover Inside Ground Effect (HIGE) performance chart (indeed referred to an envelope above 17 knots and up to 35 knots). This information was included in the Flight Manual revision 05 November 2001 (before the accident).

The pilot should be made aware of the significance of this information in the technical instruction aspect of his conversion course.





The Flight Manual provides sufficient information on operating procedures, limitations and performance as required by CS27.1581 to allow the aircraft to be operated safely. It is appropriate that more detailed information on the aircraft flight characteristics is included in other operational publications such as the Eurocopter Service-Letter 1673-67-04 issued on 04 February 2005.

It is then the role of flight training organisations during type rating training to highlight the particular flight characteristics of helicopters under specific conditions

**Category:** Partial Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
HB-XKE	Kamov KA-32A12	Approx. 15 kms west of Berne-Belp airport, "Ufem Schoren" municipality of Neuenegg/BE	26.03.2002	Accident

**Synopsis of the event:** [GERMAN] Am Nachmittag des 26. März 2002 startete der zweimotorige Helikopter Kamov KA-32A12 BH-XKE auf dem Flugplatz Bern-Belp zu einem Typenberichtigungsflug. Auf dem Rückflug führte der Fluglehrer einen technischen Triebwerkstest durch. Dabei stellten beide Triebwerke nahezu gleichzeitig ab. Der Pilot leitete daraufhin eine Autorotation ein und landete in einem Feld. Beim Aufsetzen kippte der Helikopter auf die rechte Seite. Das Luftfahrzeug wurde schwer beschädigt. Die Insassen bleiben unverletzt

[ENGLISH-NON OFFICIAL TRANSLATION] On the afternoon of 26 March 2002 the twin-engine Kamov KA-32A12 helicopter, registration HB-XKE, took off from Berne-Belp aerodrome on a type rating flight. On the return flight, the flying instructor carried out a technical engine test. When he did so, both engines cut out, almost simultaneous. The pilot then initiated an autorotation and landed in a field. On touch-down, the helicopter tipped onto its right side. The aircraft was severely damaged. The occupants were unharmed.

**Safety Recommendation SWTZ-2008-256:** The Swiss AAIB makes the application, that the free turbine overspeed test switch and the gas generator test switch in relation to their function, risk analysis, safety device and colouring have to be verified and the necessary measures have to be taken. In particular it has to be guaranteed technically, that an unintentional activation of these test sequences is not possible during flight.

**Reply:** Kamov Company has developed the following corrective actions:

- re-paint the EEG (Electronic Engine Governor) TEST switch caps by more appropriate color;
- re-design the turbine compressor and free turbine EEG TEST caps by bridging each other with a plate that provides distinguishable difference of these caps from other controls even by touch;

These type design changes of Ka-32A12 and other Ka-32 versions have been certified in accordance with IAC AR (Interstate Aviation Committee Aviation Register) approved procedures.

Shortly after the accident Kamov Company forwarded to Heliswiss corresponding accomplishment instructions for the modification of Ka-32A12 HB-XKE helicopter. In accordance with this Heliswiss has performed these modifications on their base in Switzerland. The given modification has been embodied on all Ka-32A11BC (and all Ka-32A12) helicopters operated in Europe.

IAC AR and Kamov state that they have made all necessary corrective actions directed to prevent similar accidents in the future and there is no need for other actions. EASA agrees with this conclusion.

**Category:** Partial Agreement - **Status:** Closed





## UNITED KINGDOM

Registration	Aircraft Type	Location	Date of event	Event Type
G-BYLE	Piper PA38-112 Tomahawk	near Biggin Hill airport	22.10.2005	Accident

**Synopsis of the event:** Shortly after takeoff the aircraft experienced an engine problem which was probably the result of water contamination of the fuel. In the resultant situation, the recommended option was to land straight ahead into a field. However, possibly influenced by a partial engine recovery, the commander decided to attempt to turn back towards the departure runway. The aircraft had turned through approximately 180 to the left when it stalled and crashed.

**Safety Recommendation UNKG-2006-109:** The EASA should investigate a one-off inspection of PA-28 and PA-38 aircraft fuel filler caps to identify any with unserviceable rubber gaskets or excessive wear in the metal locating lugs and require refurbishment or replacement of any defective caps.

**Reply:** The EASA has reviewed all US accident and incident data associated to water contamination and fuel cap deficiency related causes. This review has shown only three incidents related to fuel cap of the particular aircraft types, while no relevant FAA Airworthiness Directive has been issued.

The maintenance manuals and Pilot's Operating Handbooks (POHs) were also reviewed in relation to fuel cap/adaptor and relevant pre-flight inspection items. This review has shown that abnormal conditions of the fuel cap locking mechanism (rough operation, frictions, looseness) should become obvious to an average pilot and especially to a licensed mechanic. Nevertheless, the EASA has issued a Safety Information Notice 2008-08 to emphasise the importance of the relevant inspections during scheduled maintenance.

**Category:** Partial Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
G-EFSM	Slingsby T67M260	near Cambridge Airport, Bedfordshire	23.11.2006	Incident

**Synopsis of the event:** Whilst attempting to recover from a spin during an aerobatic training flight, the instructor was initially unable to move the rudder pedals from their fully pro-spin position. He managed to free the pedals by applying a high pedal force and was then able to recover from the spin. The restriction delayed recovery by an estimated two and a half turns. The restriction had probably been caused when one of the pedals contacted a fixed bracket, probably due to a relatively small lateral displacement of the rudder pedal mechanism.

**Safety Recommendation UNKG-2007-077:** The European Aviation Safety Authority should review the rudder pedal system of the Slingsby T67 aircraft. Consideration should be given to improving both the lateral stiffness and strength of the rudder bar support brackets and the integrity of the attachments for the brackets, in order to prevent possible interference with the free movement of the rudder pedals. Consideration should also be given to requiring means to limit the loads applied to the rudder system during towing.

**Reply:** Review of the circumstances surrounding the incident to G-EFSM has led to a clearer understanding of the mechanism that has led Slingsby Advanced Composites to re-issue Service Bulletins 187 and 188. The T67 aircraft was originally designed for ground movement by hand and vehicular tow bars - the latter drawing having been first issued in 1984.



The design of the vehicular tow bar was originally designed to be "weak" to the extent that it will break at a load below that which would damage the rudder system through back loading. There is no evidence to suggest that a SACL tow bar has ever damaged a rudder system but it is accepted that the use of unapproved "stiffer" tow bars has the potential to damage the rudder system if the towing angle is exceeded. Slingsby Advanced Composites (SACL) has amended and raised Service Bulletins 187 and 188 to issue 3 to clarify that ground handling of the T67 aircraft should only use accepted and appropriate equipment and have specified the part numbers of the approved equipment. SACL consider the issue of Service Bulletins 187 and 188 at issue 3, along with the MM AIL 01/2007, to be adequate in preventing further damage to the rudder system during vehicular towing of the aircraft.

SACL have been looking at the feasibility of re-designing the rudder system, or nose wheel steering system, in order to prevent overloading of the rudder system during vehicular towing of the aircraft whilst using any tow bar but have not agreed to implement such a modification. The EASA has reviewed the SACL's action which are found to be satisfactory.

**Category:** Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
G-BXDO	Cozy	near Junction 12 of the M5 motorway, Gloucestershire	10.07.2004	Accident

**Synopsis of the event:** At the conclusion of the previous flight, the aircraft landed at Kemble with the nose landing gear retracted (inadvertently). Damage to the underside of the nose was considered minor and the aircraft departed for Shobdon Airfield. During this flight, the inspection hatch for the retractable nose wheel system separated from the upper surface of the nose and passed through the propeller at the rear of the fuselage. The resulting damage to the propeller caused severe vibrations, which necessitated the gradual reduction of engine power. The enforced power reduction culminated in a loss of height from 1,200 feet over a period of about three minutes and a forced landing. Before the landing the pilot turned off all the aircraft's systems.

The aircraft landed at a microlight field near Morton Valence which is located approximately one mile south of Junction 12 of the M5 motorway. The surface wind was from 300° at 15 kt and, being unable to discern a runway, the pilot elected to land to the south of the field, in a direction aligned with its length.

After touchdown, the aircraft's nosewheel sank into soft ground and the nose landing gear collapsed. The aircraft yawed and then pitched onto its back, causing substantial damage to the airframe including destruction of the right wing and canard, and the left wingtip-mounted fin. The aircraft was quickly righted by several people who were at the scene and the pilot then exited normally from the relatively undamaged cockpit, once the canopy, which opens upwards on a forward hinge, was free to open

**Safety Recommendation UNKG-2004-107:** The EASA should review the requirements for the design of exits and the provision of safety equipment within the Certification Specifications for Very Light Aeroplanes (CS-VLA), to enable rapid escape from such aircraft in any normal or crash attitude including turnover.

**Reply:** The Notice of Proposed Amendment NPA-2008-11 "Exits" is now open for consultation on EASA website.

**Category:** Agreement - **Status:** Closed



Registration	Aircraft Type	Location	Date of event	Event Type
G-YMMM	Boeing 777-236ER	London Heathrow	17.01.2008	Accident

**Synopsis of the event:** The flight from Beijing to London (Heathrow) was uneventful and the operation of the engines was normal until the final approach. The aircraft was correctly configured for a landing on Runway 27L and both the autopilot and the autothrottle were engaged. The autothrottles commanded an increase in thrust from both engines and the engines initially responded. However, at a height of about 720 ft the thrust of the right engine reduced to approximately 1.03 EPR (Engine Pressure Ratio); some seven seconds later the thrust on the left engine reduced to approximately 1.02 EPR. The reduction in thrust on both engines was the result of less than commanded fuel flows and all engine parameters after the thrust reduction were consistent with this. Parameters recorded on the Quick Access Recorder (QAR), Flight Data Recorder (FDR) and Non-Volatile Memory (NVM) from the Electronic Engine Controllers (EECs) indicate that the engine control system detected the reduced fuel flows and commanded the Fuel Metering Valves (FMVs) to open fully. The FMVs responded to this command and opened fully but with no appreciable change in the fuel flow to either engine.

**Safety Recommendation UNKG-2008-047:** It is recommended that the Federal Aviation Administration and the European Aviation Safety Agency, in conjunction with Boeing and Rolls-Royce, introduce interim measures for the Boeing 777, powered by Trent 800 engines, to reduce the risk of ice formed from water in aviation turbine fuel causing a restriction in the fuel feed system.

**Reply:** EASA adopted the FAA Airworthiness Directive 2008-19-04, which covers this safety concern.

**Category:** Agreement - **Status:** Closed

**Safety Recommendation UNKG-2008-048:** It is recommended that the Federal Aviation Administration and the European Aviation Safety Agency should take immediate action to consider the implications of the findings of this investigation on other certificated airframe / engine combinations.

**Reply:** EASA has requested data from affected Type Certificate Holders. EASA will take appropriate action in conjunction with FAA following review of the data from TC Holders.

**Category:** Agreement - **Status:** Open

Registration	Aircraft Type	Location	Date of event	Event Type
G-HASO	Diamond DA-40 D (TAE-125-01)	near Old Stratford, Northamptonshire	29.04.2004	Accident

**Synopsis of the event:** The aircraft's engine failed in flight when most of the oil was lost overboard. From an altitude of 2.000 ft the pilot carried out a successful forced landing into a field. The engine's turbocharger compressor had been damaged resulting in an imbalance that caused vibration. This vibration induced a fatigue failure of a bearing and a piece of this bearing passed into the oil scavenge pump, causing it to seize. With the pump seized, the oil separator overfilled causing the engine oil to escape via the breather vent line. This caused a loss of oil that resulted in the engine overheating and then seizing.

**Safety Recommendation UNKG-2005-048:** The EASA should consider requiring Thielert Aircraft Engines to modify its TAE-125 diesel engine's oil system to reduce the likelihood of sections from a failed turbocharger causing seizure of the oil scavenge pump.



**Reply:** As a further incident happened within similar circumstances EASA issued the AD 2007-0232 on 23 August 2007 which refers to the Thielert Service Bulletin TM TAE 125-0016, initial issue dated 19 September 2006 and Revision 1 dated 15 June 2007.

**Category:** Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
G-BXKD	Airbus A320-214	London Gatwick Airport, West Sussex	15.01.2005	Incident

**Synopsis of the event:** The left nose wheel detached from the aircraft during the takeoff from London (Gatwick) Airport. Airport staff saw the wheel fall off and the flight crew were notified by Air Traffic Control (ATC). After holding for two hours, to burn off fuel and reduce the landing weight, the aircraft landed safely at Gatwick. The nose wheel detached as the result of the partial seizure of the outer wheel bearing, most probably caused by water contamination of the grease in the bearing.

**Safety Recommendation UNKG-2005-075:** For newly manufactured aircraft, the European Aviation Safety Agency should require that the cockpit voice recorder and cockpit area microphone are provided with an independent 10 minute back-up power source, to which the cockpit voice recorder and cockpit area microphone are switched automatically, in the event that normal power is interrupted.

**Reply:** In so far as the Agency's responsibilities are concerned the criterion for approval of equipment is in place, since EUROCAE ED-112 can be used for this purpose. The subject of Recorder Independent Power Supply (RIPS) is addressed within ED-112, which should be an acceptable means of compliance to the future OPS implementing rule for recorders.

**Category:** Disagreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
G-BXLI	Bell 206B Jet Ranger III	Priors Park Wood, 5 nm south of Taunton, Somerset	22.01.2005	Accident

**Synopsis of the event:** The pilot had planned to fly with some friends from Staverton Airport, near Gloucester, to a private landing site in the Torbay area but, due to deteriorating weather, landed at Topsham to the south of Exeter Airport. After a period of several hours, the weather had not improved so the pilot decided to return to Staverton. Although on the outbound trip he had routed south via the Bristol Channel and the M5 corridor, an area of low lying terrain, he elected to return to Staverton via Sidmouth, and communicated this to Exeter ATC, advising them that he would be flying at an altitude of 900 ft.

As he approached Sidmouth, he then informed Exeter that he was going to go north towards Wellington and Taunton. This route would take the helicopter over the Blackdown Hills, which rise to a height of some 1.000 ft amsl. Witnesses in an area approximately 5 nm south of Taunton generally heard, but did not clearly see, a low flying helicopter and one heard a 'bang'. A subsequent search and rescue effort failed to locate the helicopter, due to very poor weather conditions, and it was found by a dog walker the following morning. All four occupants had received fatal injuries in the accident. No pre-accident defects were found during the wreckage examination.

**Safety Recommendation UNKG-2005-100:** The EASA should promote research into the design and development of inexpensive, lightweight, airborne flight data and voice recording equipment.



**Reply:** EASA has launched a research project on this subject [EASA.2007.OP.18 Investigation of the technical feasibility and safety benefit of a light aeroplane operational Flight Data Monitoring (FDM) system].

On the other hand EASA is monitoring the work of EUROCAE Working Group 77 (WG77 Development of a Specification for lightweight flight recorders for small aircraft), that has the aim to create an EUROCAE MOPS for Lightweight Flight Recorder Systems (ED-155) for small aircraft. This document will define the minimum specification to be met for all small aircraft required to carry lightweight flight recorders which may record Flight Data, Cockpit Audio, Images or Data-Link, in a robust recording medium primarily for the purposes of the investigation of an occurrence (accident or incident). WG77 activities and EASA research project are interrelated.

**Category:** Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
G-CFAC	Avro 146-RJ100 and others	various	18.03.2005	Incident

**Synopsis of the event:** During the winter of 2004/2005, UK-based airline operators experienced numerous incidents of restricted elevator and aileron controls on their Avro 146-RJ100 fleets. One operator also reported occurrences of restricted elevator controls on its Embraer 145 and Bombardier DHC-8 aircraft. These aircraft types are similar in having non-powered flight controls. Other European operators of Avro 146/RJ-series aircraft also reported flight control restriction events during the same period.

**Safety Recommendations UNKG-2005-135:** It is recommended, that the Joint Aviation Authorities, in consultation with the European Aviation Safety Agency, issue safety documentation to strongly encourage operators of aircraft with non-powered flight controls to use Type I de/anti-icing fluids, in preference to 'thickened' fluids, for de-icing.

**Reply:** The Agency published the Advanced Notice of Proposed Amendment (A-NPA) no. 2007-11 in order to address the issue of residues from the application of de-icing and anti-icing fluids. The outcome of this A-NPA will be issued in order to define an EASA action plan to address this issue.

**Category:** Agreement - **Status:** Open

**Safety Recommendations UNKG-2005-136:** It is recommended that where the use of 'thickened' de/anti-icing fluids is unavoidable, the Joint Aviation Authorities, in consultation with the European Aviation Safety Agency, ensure that operators of aircraft with non-powered flight controls, who use such fluids, invoke controlled maintenance procedures for the frequent inspection for accumulations of fluid residues and their removal.

**Reply:** The Agency published the Advanced Notice of Proposed Amendment (A-NPA) no. 2007-11 in order to address the issue of residues from the application of de-icing and anti-icing fluids. The outcome of this A-NPA will be issued in order to define an EASA action plan to address this issue.

**Category:** Agreement - **Status:** Open

**Safety Recommendations UNKG-2005-137:** It is recommended that the European Aviation Safety Agency introduce certification requirements relating to de/anti-icing fluids for use on aircraft with both powered and non-powered flight controls.





**Reply:** The Agency published the Advanced Notice of Proposed Amendment (A-NPA) no. 2007-11 in order to address the issue of residues from the application of de-icing and anti-icing fluids. The outcome of this A-NPA will be issued in order to define an EASA action plan to address this issue.

**Category:** Agreement - **Status:** Open

**Safety Recommendations UNKG-2005-148:** It is recommended that prior to the European Aviation Safety Agency assuming responsibility for operational matters within Europe, they consider the future need for the training and licencing of companies who provide a de/anti-icing service, so that anti-icing fluids are applied in an appropriate manner on all aircraft types, but specifically to ensure that the entry of such fluids into flight control mechanisms and control surfaces is minimised.

**Reply:** The Agency published the Advanced Notice of Proposed Amendment (A-NPA) no. 2007-11 in order to address the issue of residues from the application of de-icing and anti-icing fluids. The outcome of this A-NPA will be issued in order to define an EASA action plan to address this issue.

**Category:** Agreement - **Status:** Open

Registration	Aircraft Type	Location	Date of event	Event Type
EI-SLD	ATR42-300	Stansted Airport, UK	18.01.2007	Serious incident

**Synopsis of the event:** Soon after takeoff from London Stansted Airport the aircraft developed a yawing motion which persisted as a yawing/rolling motion of varying severity. The yaw damper could not be engaged. An emergency was declared and the aircraft returned to Stansted.

**Safety Recommendation UNKG-2008-019:** The European Aviation Safety Agency should, when considering AAIB Safety recommendation 2007-60, include in its deliberations the FDR deficiency identified in this investigation and the adverse effect this had on the investigation process, with a view to expediting any remedial actions.

**Reply:** Attachment D to ICAO Annex 6 Part I provides guidance for a proper maintenance of the recorders. Relevant provisions exist in EUROCAE Annex I-A to ED-112. Consideration is given as to making these provisions part of the relevant European regulation system.

**Category:** Agreement - **Status:** Open

Registration	Aircraft Type	Location	Date of event	Event Type
G-BHDZ	Reims Cessna F172N	Snetterton, Norfolk	28.10.2006	Accident

**Synopsis of the event:** An electrical system failure which occurred in-flight, but close to an airfield, resulted in flames and smoke emanating from behind the left instrument panel, after the pilot attempted to re-set the alternator circuit breaker. During short final approach to the airfield for a precautionary landing, the engine stopped and the aircraft landed in a field close to the runway. A combination of a defective battery and a failure of the voltage regulator was identified as the main causal factor of this event.

**Safety Recommendation UNKG-2007-049:** It is recommended that the European Aviation Safety Agency, in conjunction with Civil Aviation Authority, promulgate the information contained in FAA Special Airworthiness Information Bulletin CE-04-72, so that European



operators of single-engine Cessna aircraft, together with their maintenance organisations, can ensure that the aircraft electrical systems have the required level of over-voltage protection.

**Reply:** After reviewing the available information, EASA concurred with the recommendation and decided to release the Safety Information Bulletin SIB 2008-54 on the 26 June 2008 to ensure that all owners and operators of affected aircraft, registered in European Union Member States or associated countries, are aware of the content of Federal Aviation Administration (FAA) Special Airworthiness Information Bulletin (SAIB) CE-04-72R1 dated 18 August 2004 & Cessna Single Engine Service Bulletin SEB03-3 dated 28 July 2003, incorporating Cessna Owner Advisory SEB03-3A and Service Kit SK210-170 instructions.

We deem that the SIB publication fulfils the intent of the Safety Recommendation.

**Category:** Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
TF-CSB	Dornier 328	Aberdeen airport	22.06.2006	Serious incident

**Synopsis of the event:** During the landing roll, the crew were unable to decelerate the aircraft sufficiently because they were unable, repeatedly, to select the power levers into the beta range. The aircraft overran the runway and the Runway End Safety Area, coming to rest some 350 metres beyond the end of the runway.

**Safety Recommendation UNKG-2007-104:** The European Aviation Safety Authority should require the Dornier 328 Type Certificate holder to re-design the power lever/beta/reverse latch system to eliminate the shortcomings of the present arrangement.

**Reply:** EASA has reviewed the service history of the Dornier 328-100 with the TC-holder in respect of the power lever handling.

The TC holder has previously published crew training and procedural information in response to earlier similar incidents; however in long term this information has not proven effective in preventing re-occurrence.

In response to the EASA review, the TC holder has proposed design changes which are intended to both improve crew awareness of the power lever position and to improve the mechanical characteristic of the latches that are released to achieve power settings below flight idle.

These changes have yet to be installed on an aircraft and evaluated by the TC-holder and EASA flight test.

EASA anticipates AD action will follow assuming successful completion of the flight testing.

**Category:** Agreement - **Status:** Open

Registration	Aircraft Type	Location	Date of event	Event Type
	Boeing 737 - Boeing 737-436 (G-DOCH and G-DOICE) - Boeing 737-300 (G-LGTI) Concorde Type 1 V102 (G-BOAC)	Various places		Incident

**Synopsis of the event:** A number of accident and incident reports in recent years have identified causal factors that include electrical arcing and damage to aircraft wiring.



**Safety Recommendation UNKG-2004-019:** It is recommended that the European Aviation Safety Agency (EASA) expedite the transcription by the European Ageing Systems Co-ordination Group (EASCG) of the material in the FAA Advisory Circulars (ACs) produced by the Ageing Transport Systems Rulemaking Advisory Committee (ATSRAC), which gives guidance for operators and maintenance organisations on developing an electrical systems standard wiring practices manual, developing an effective wiring systems training programme and on changes to existing maintenance practices and analysis methods. This guidance should be applied to both in-service aircraft and new designs, to ensure adequate consideration is given to potential in-service deterioration of electrical wiring systems.

**Reply:** In response to the safety recommendation mentioned above, as advised in the Agency's previous reply [reference JVI/FKO/EASA E2(2007)D/54554 dated 14 November 2007] the Agency published a Notice of Proposed Amendment (NPA) no. 2007-01 in order to address the issue of ageing wiring.

Following publication of the NPA and public consultation, the Agency published two Executive Directors Decisions, 2008/006/R and 2008/007/R on the 29 August 2008, amending CS-25 and introducing AMC 20-21, AMC 20-22 and AMC 20-23 that address the issue of ageing wiring.

As a result of the above Agency Decisions, the recommendation, mentioned above is considered to be closed.

**Category:** Partial Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
BGA4432	DG-505 Elan Orion	North Hill Airfield, Broadhembury, Honiton, Devon, UK	22.04.2007	Accident

**Synopsis of the event:** The accident occurred during a solo flight, the purpose of which was to convert an experienced glider pilot on to type. On approach, the glider was seen to enter a steep dive and strike the ground, seriously injuring the pilot. The dive was caused by the failure of a piece of electric cable being used to restrain the hinged rear cockpit headrest. This allowed the headrest to fall forward, restricting the rearward travel of the rear cockpit control column resulting in a loss of control. The electrical cable had been fitted as a replacement for the original nylon cord, installed by the manufacturer, which had become damaged.

**Safety Recommendation UNKG-2007-127:** It is recommended that the Luftfahrt-Bundesamt and the EASA require DG-Flugzeugbau GmbH to review the design of the hinged headrest introduced to the DG500 series glider by Glaser Dirks Flugzeugbau GmbH Technical Note 348/5 to remove any possibility of a control restriction in the event that the headrest becomes unrestrained.

**Reply:** Since March 1995 an optional headrest for rear cockpit can be retrofitted on DG500. This was published with the Technical Note 348/5. In 2001 DG-Flugzeugbau GmbH published a TN 348/15 which describes that the headrest must be fixed by 2 independent ropes to give a double safety. This TN is mandated by LBA AD 2001/079, which is applicable in EASA members states. The implementation of this AD would have prevented this problem.

**Category:** Disagreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
G-BGED	Cessna U206F STATIONAIR	Beacon Village, near Honiton	27.06.2004	Accident





**Synopsis of the event:** Shortly after takeoff, with the pilot and five parachutists on board (including one 'tandem' pair), the aircraft's engine began to lose power. The pilot flew to the east away from the airfield for a distance of some 6 nm, achieving a maximum height of approximately 1.100 ft agl, before turning back. As the engine lost power the pilot was unable to maintain height and, in attempting a forced landing, the aircraft clipped the tops of several tall trees and crashed steeply nose down into a sloping grass field.

**Safety Recommendation UNKG-2005-062:** It is recommended that the European Aviation Safety Agency develop standards for appropriate recording equipment that can be practically implemented on small aircraft.

**Reply:** EASA has launched a research project on this subject [EASA.2007.OP.18 Investigation of the technical feasibility and safety benefit of a light aeroplane operational Flight Data Monitoring (FDM) system].

On the other hand EASA is monitoring the work of EUROCAE Working Group 77 (WG77 Development of a Specification for lightweight flight recorders for small aircraft), that has the aim to create an EUROCAE MOPS for Lightweight Flight Recorder Systems (ED-155) for small aircraft. This document will define the minimum specification to be met for all small aircraft required to carry lightweight flight recorders which may record Flight Data, Cockpit Audio, Images or Data-Link, in a robust recording medium primarily for the purposes of the investigation of an occurrence (accident or incident). WG77 activities and EASA research project are interrelated.

**Category:** Agreement - **Status:** Open

Registration	Aircraft Type	Location	Date of event	Event Type
G-EUOB	Airbus A319-131	during climb after departing London Heathrow	22.10.2005	Serious incident

**Synopsis of the event:** As the aircraft climbed to Flight Level (FL) 200 in night Visual Meteorological Conditions (VMC) with autopilot and autothrust engaged, there was a major electrical failure. This resulted in the loss or degradation of a number of important aircraft systems. The crew reported that both the commander's and co-pilot's Primary Flight Displays (PFD) and Navigation Displays (ND) went blank, as did the upper ECAM1 display.

The autopilot and autothrust systems disconnected, the VHF radio and intercom were inoperative and most of the cockpit lighting went off. There were several other more minor concurrent failures.

The commander maintained control of the aircraft, flying by reference to the visible night horizon and the standby instruments, which were difficult to see in the poor light. The copilot carried out the abnormal checklist actions which appeared on the lower ECAM display; the only available electronic flight display. Most of the affected systems were restored after approximately 90 seconds, when the co-pilot selected the AC Essential Feed switch to Alternate ('ALTN'). There were no injuries to any of the 76 passengers or 6 crew. After the event, and following discussions between the crew and the operator's Maintenance Control, the aircraft continued to Budapest.

**Safety Recommendation UNKG-2007-064:** The European Aviation Safety Agency should mandate either Airbus Service Bulletin SB A320-24-1120 or the provision of a back-up power supply for the standby horizon which is independent of the aircraft's normal electrical power generation systems, on A320 family aircraft.

**Reply:** Modifications 37329 or 37330 (Service Bulletin A320-33-1057) introduce improvements to the emergency lighting for the standby instruments. A review of these modifications has established that the method employed to introduce the power supply to the



emergency lighting of the standby instruments also ensures that all standards of classic standby horizon would be provided with a back-up power supply from the BATT HOT BUS. The installation of modifications 37329 / 37330 is mandated under the cover of EASA Airworthiness Directive 2007-0286 with a compliance time of no later than 27th May 2011. As such the intent of this Safety Recommendation is addressed by AD 2007-0286.

**Category:** Agreement - **Status:** Closed

**Safety Recommendation UNKG-2007-066:** The European Aviation Safety Agency should mandate the provision of a power supply for the standby instrument integral lighting which is independent of the aircraft's normal electrical power generating systems, on A320 family aircraft. (Safety Recommendation 2007-066).

**Reply:** Modifications 37329 or 37330 (Service Bulletin A320-33-1057) introduce improvements to the emergency lighting for the standby instruments with a power supply from the BATT HOT BUS.

The installation of modifications 37329 / 37330 is mandated under the cover of EASA Airworthiness Directive 2007-0286 with a compliance time of no later than 27th May 2011. As such the intent of this Safety Recommendation is addressed by AD 2007-0286.

**Category:** Agreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
G-DNHI	Agusta A109A	near Biggin Hill airport, Kent	09.10.2006	Accident

**Synopsis of the event:** During cruise flight, an engine exhaust duct separated from the helicopter and struck the tail rotor assembly, causing the tail rotor gearbox to also separate. After an initial yaw to the right, the pilot regained limited control. However, a further sudden yaw, possibly associated with a partial structural failure of the upper vertical stabiliser, prompted an immediate autorotative descent, which culminated in a successful forced landing. The investigation established that a clamp (Mormon clamp) attaching an exhaust duct to the left engine had failed, due to stress corrosion cracking, allowing the duct to disconnect from the engine.

**Safety Recommendation UNKG-2007-085:** It is recommended that the European Aviation Safety Agency require all helicopter manufacturers for whom they have airworthiness responsibility, to review the design of engine exhaust duct attachment and retention systems, to ensure that no part of the ducting will be released from the helicopter in the event of a failure of the attachment.

**Reply:** The EASA does not accept this safety recommendation. As far as Agusta A109 is concerned, Agusta have already issued SB 109-123, which was mandated through EASA AD 2007-0041; these introduce more stringent inspection requirements which aim at reducing the probability of clamp (and consequently duct) failure. As far as the Agusta AB206A and AB206B series are concerned, the Agusta issued SB 206-242, which was mandated by the EASA with AD 2007-0043.

In addition, as far as the BO105, periodic inspections (as established in ASB-BO105-60-107, 2000-11-23) requiring dye-penetrant testing of the removed clamp, have proven to be effective to address stress corrosion cracking failures, as none has been reported since the referred SB was issued.

The EASA believe that it is possible to detect cracks by non-destructive testing, if the clamp is removed. The (stress corrosion) cracking failures are addressed by those tests. Service experience (on the BO105) has supported this EASA opinion.

**Category:** Disagreement - **Status:** Closed



**Safety Recommendation UNKG-2007-114:** It is recommended that the European Aviation Safety Agency require all helicopter manufacturers for whom they have airworthiness responsibility to institute similar Mormon clamp inspection regimes to those detailed in Agusta Service Bulletin Nos 109-123 and 206 242, where they are used to secure exhaust duct components to the turbine engines of helicopters.

**Reply:** EASA does not accept this Safety Recommendation. As far as Agusta A109, Agusta have already issued SB 109-123, which was mandated through EASA AS 2007-0041; these introduce more stringent inspection requirements which aim at reducing the probability of clamp (and consequently duct) failure.

In addition, as far as BO105, periodic inspections as established in ASB-BO105-60-107, 2000-11-23) requiring dye-penetrant testing of the removed clamp, have proven to be effective to address stress corrosion cracking failures, as none has been reported since the referred SB was issued.

EASA believes that it is possible to detect cracks by non-destructive testing, if the clamp is removed. The (stress corrosion) cracking failures are addressed by those tests. Service experience (on the BO105) has supported this EASA opinion.

**Category:** Disagreement - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
CS-DRQ	Raytheon Hawker 800XP	London City Airport	31.10.2006	Incident

**Synopsis of the event:** This aircraft experienced significant navigation problems after taking off from London City Airport (LCY) and was unable to comply with the Standard Instrument Departure (SID). The crew were able to recover heading information after approximately 10 minutes and landed back at LCY without incident. It transpired that several similar incidents had previously occurred with other aircraft and there have been similar incidents subsequent to this one. The cause of the problem was identified as strong magnetic anomalies in the holding area for Runway 28.

**Safety Recommendation UNKG-2007-121:** It is recommended that EASA require airport operators to ensure that no airport infrastructure is allowed to alter significantly the local earth's magnetic field density in areas where aircraft hold prior to departure.

**Reply:** The EASA is not competent for the safety regulation of aerodromes. Although the AAIB is expecting EASA to be soon competent in this field, the nature of the safety recommendation leads us to forward it to the competent authority, for it to be considered as soon as possible.

**Category:** Not Responsible - **Status:** Closed

Registration	Aircraft Type	Location	Date of event	Event Type
G-MEDG	Airbus, A321- 231	Khartoum Airport, Sudan	11.03.2005	Serious incident

**Synopsis of the event:** The aircraft was attempting to land at Khartoum by night in conditions initially reported as blowing sand but which were in fact consistent with a forecast dust storm. Runway 36 was in use but the ILS on this runway was out of service. The commander assessed the weather conditions passed to him by ATC and believed that he was permitted, under his company's operations policy, to carry out a Managed Non-Precision Approach (MNPA) to Runway 36. This type of approach requires the autopilot to follow an approach path defined by parameters stored in the aircraft's commercially supplied Flight Management and Guidance System (FMGC) navigation database.



On the pilot's approach chart, which was also commercially supplied but from a different supplier, the final descent point was depicted at 5 nm from the threshold of Runway 36 whereas the FMGC's navigational database had been correctly updated with a recent change to this position published by the Sudanese CAA which placed it at 4,4 nm from the threshold.

The discrepancy amounted to a difference in descent point of 0,6 nm from the Khartoum VOR/DME beacon, the primary navigation aid for the non-precision approach. The pilots commenced the approach with the autopilot engaged in managed modes (ie the approach profile being determined by the FMGC instead of pilot selections). The aircraft began its final descent 0,6 mn later than the pilots were expecting. Believing the aircraft was high on the approach, the handling pilot changed the autopilot mode in order to select an increased rate of descent. The approach became unstable and the aircraft descended through 1.000 ft agl at an abnormally high rate. The aircraft then passed through its Minimum Descent Altitude (equivalent to a height of 390 ft agl) with neither pilot having established the required visual references for landing. Instead each pilot believed, mistakenly, that the other pilot was in visual contact with the runway approach lights.

When the confusion between the two pilots became apparent, the aircraft had descended to approximately 180 ft agl and the handling pilot commenced a go-around between 3,4 and 5,1 seconds later, with the aircraft at a radio altitude of approximately 125 ft agl, in a position approximately 1,5 nm short of the runway, the Enhanced Ground Proximity Warning System (EGPWS) "TERRAIN AHEAD, PULL UP" audio warning was triggered. The correct emergency pull-up procedure was not followed in full, partly because the handling pilot had already initiated a go-around. The minimum recorded terrain clearance achieved during the recovery manoeuvre was 121ft.

**Safety Recommendation UNKG-2007-044:** The European Aviation Safety Agency, in conjunction with industry, should review the current TAWS system design criteria (ETSO-C151a), and installation certification criteria, with particular emphasis on the timeliness of alerting when close to the runway. Revisions to these standards arising from this review should apply retrospectively to all aircraft currently covered by the TAWS mandate.

**Reply:** The agency issued a revised ETSO-C151B in December 2007, ensuring harmonisation with the FAA in which improvements in the final segment approach test scenarios were introduced. In addition the Agency has a rulemaking task 20.006 to transpose JAA GEN TGL into EASA AMC's. It is proposed that during the transportation of JAA GEN TGL12 into the EASA AMC, additional guidance for the installation of TAWS equipment highlighting the requirement to ensure that the delay between the position sensor and the TAWS system should be kept to a minimum will be introduced.

For those aircraft systems conforming to ETSO-C151a (or JTSO-C151) installed in accordance with the guidance material published in JAA TGL 12, the Agency will determine by undertaking a Regulatory Impact Assessment if retrofitting of these aircraft is a measure proportionate to the risk.

**Category:** Partial Agreement - **Status:** Open

Registration	Aircraft Type	Location	Date of event	Event Type
G-BOMG	Pilatus Britten-Norman BN2B-26 Islander	7.7 NM NW of Campbeltown Airport	15.03.2005	Accident

**Synopsis of the event:** Poor weather at Campbeltown Airport necessitated an instrument approach. There was neither radar nor Air Traffic Control Service at the airport, so the pilot was receiving a Flight Information Service from a Flight Information Service Officer in accordance with authorised procedures. After arriving overhead Campbeltown Airport, the aircraft flew outbound on the approach procedure for Runway 11 and began a descent. The pilot next



transmitted that he had completed the 'base turn', indicating that he was inbound to the airport and commencing an approach.

Nothing more was seen or heard of the aircraft and further attempts at radio contact were unsuccessful. The emergency services were alerted and an extensive search operation was mounted in an area based on the pilot's last transmission. The aircraft wreckage was subsequently located on the sea bed 7,7 nm west-north-west of the airport; there were no survivors.

**Safety Recommendation UNKG-2006-101:** The European Aviation Safety Agency and Joint Aviation Authorities A should review the UK Civil Aviation Authority's proposal to mandate the fitment of Upper Torso restraints on all seats of existing Transport Category (passengers) aeroplanes below 5700 kg being operated for public transport, and consider creating regulation to implement the intent of the proposal.

**Reply:** As an interim response to the safety recommendation, the Agency has issued a Safety Information Bulletin (SIB) 2008-24.

The Agency will undertake further investigations into the possibility to mandate Upper Torso Restraints systems for passengers for all normal, utility and aerobatic category aeroplanes with Maximum Takeoff Weight of less than 5 670 kg and 9 passenger seats or less, when engaged in Commercial Air Transportation operations. The Agency will assess the impact of mandating it in the first issue of EASA Implementing Rules for air operations.

**Category:** Partial Agreement - **Status:** Open



## 6 Annex B: DEFINITIONS

The following definitions are extracted from Directive 94/56/EC of 21 November 1994.

**Accident:** occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:

1. 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
2. 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 the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tyres, brakes, fairings, small dents or puncture holes in the aircraft skin;
3. 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 an accident nearly occurred;

The incidents listed below are typical examples of serious incidents. The list is not exhaustive and only serves as a guide to the definition of 'serious incident'.

- A near collision requiring an avoidance manoeuvre or when an avoiding manoeuvre would have been appropriate to avoid a collision or an unsafe situation.
- Controlled flight into terrain (CFIT) only marginally avoided.
- An aborted take-off on a closed or engaged runway, or a take-off from such runway with marginal separation from obstacle(s).
- A landing or attempted landing on a closed or engaged runway.
- Gross failure to achieve predicted performance during take-off or initial climb.
- All fires and smoke in the passenger compartment or in cargo compartments, or engine fires, even though such fires are extinguished with extinguishing agents.
- Any events which required the emergency use of oxygen by the flight crew.
- Aircraft structural failure or engine disintegration which is not classified as an accident.
- Multiple malfunctions of one or more aircraft systems that seriously affect the operation of the aircraft.
- Any case of flight crew incapacitation in flight.
- Any fuel state which would require the declaration of an emergency by the pilot.
- Take-off or landing 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 which is mandatory for flight guidance and navigation.

Final safety recommendation: safety recommendation which has taken its final form, usually contained in an investigation report.

Investigation: process conducted for the purpose of accident prevention which includes the gathering and analysis of information, the drawing of conclusions including the determination of cause(s) and, when appropriate, the making of safety recommendation, (definition given in Directive 94/56/EC of 21 November 1994).

Safety recommendation: "any proposal by the investigating body of the State conducting the technical investigation, based on information derived from that investigation, made with the intention of preventing accidents and incidents". (definition given in Directive 94/56/EC of 21 November 1994).





## 7 Annex C: Safety Recommendations classification

The classification has been established in the scope of the Safety Recommendations taxonomy working group in cooperation with representatives from European Accident Investigation Bodies, Eurocontrol, the European Joint Research Center (JRC) and EASA. The aim of this group was to initiate a taxonomy dedicated to recommendations. This activity took place in 2007 and is being used to implement a Safety Recommendation database developed by the JRC.

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

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

- a) **Agreement:** Safety Recommendation for which the safety concern is agreed by the addressee and subsequent action is planned or implemented.
- b) **Partial agreement:** Safety Recommendation considered relevant by the addressee but not applicable and for which a Safety issues has been recognised and a new orientation has been given to the recommended action.
- c) **Disagreement:** Safety Recommendation considered not relevant or not applicable by the addressee.
- d) **No longer applicable:** Safety Recommendation has been superseded or has become no longer applicable.
- e) **Not Responsible:** Safety Recommendation wrongly allocated or not in the scope of responsibility of the addressee.
- f) **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.
- g) **Unknown:** Safety Recommendation which was issued before any tracking implementation status and for which insufficient information to assign any other status has been received.

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

- a) **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.
- b) **Closed safety recommendation:** safety recommendation for which appropriate action has been taken and completed addressing the safety issue.