



Agenzia europea per la sicurezza aerea
Dipartimento per l'analisi e la ricerca sulla sicurezza
Direzione esecutiva

2007

Analisi annuale delle raccomandazioni di sicurezza

SAR-002-2007

2007

Analisi annuale delle raccomandazioni di sicurezza

| | | |
|--|--------|---------------|
| Rif. documento | Status | Data |
| SAR-002-2007 | | 6 maggio 2008 |
| Nome e indirizzo di contatto: Agenzia europea per la sicurezza aerea Dipartimento per l'analisi e la ricerca sulla sicurezza Postfach 10 12 53 50452 Colonia - Germania | | |
| Per informazioni sull'EASA consultare la pagina seguente: www.easa.europa.eu | | |

Clausola di esclusione della responsabilità:

L'Agenzia europea per la sicurezza aerea e le persone che agiscono in suo nome non possono essere ritenute responsabili dell'utilizzo che potrebbe essere fatto delle informazioni contenute nel presente documento.

| | | | |
|------------------------|-----------------|-------|----------------|
| Autorizzazione: | | | |
| | Nome | Firma | Data |
| Preparato | Bernard Bourdon | | 6 maggio 2008 |
| Autorizzato | John Vincent | | 07 maggio 2008 |



Sommario

| | | |
|-----|--|----|
| 1 | Introduzione | 5 |
| 2 | Panoramica delle raccomandazioni di sicurezza ricevute nel 2007 | 6 |
| 2.1 | Raccomandazioni di sicurezza ricevute nel 2007 | 6 |
| 2.2 | Origine delle raccomandazioni finali in materia di sicurezza ricevute nel 2007 | 6 |
| 2.3 | Distribuzione tematica delle raccomandazioni finali in materia di sicurezza ricevute nel 2007 | 7 |
| 3 | Raccomandazioni finali in materia di sicurezza che hanno ricevuto risposta | 9 |
| 3.1 | Raccomandazioni finali in materia di sicurezza che hanno ricevuto risposta nel 2007 .. | 9 |
| 3.2 | Categorie delle risposte fornite nel 2007 | 9 |
| 3.3 | Status delle raccomandazioni finali in materia di sicurezza che hanno ricevuto risposta nel 2007 | 10 |
| 3.4 | Azioni conclusive | 10 |
| 4 | Conclusioni | 11 |
| 5 | Allegato A: RISPOSTE ALLE RACCOMANDAZIONI NEL 2007 | 12 |
| 6 | Allegato B: DEFINIZIONI | 56 |



Sintesi

L'analisi delle raccomandazioni di sicurezza è realizzata dall'Agenzia europea per la sicurezza aerea (EASA). Questa prima edizione fornisce una panoramica delle raccomandazioni di sicurezza indirizzate ad EASA nel 2007 e presenta le risposte elaborate nel corso dell'anno.

Tale analisi annuale mira a fornire un riscontro riguardo al seguito dato alle raccomandazioni di sicurezza nel contesto di apertura, trasparenza e responsabilità che caratterizza l'amministrazione pubblica europea.

Oltre a costituire un documento a carattere informativo in materia di sicurezza, la presente analisi intende altresì fornire informazioni rilevanti per quanto riguarda le preoccupazioni sollevate in tale contesto sia per l'EASA che per le parti interessate, compresa l'opinione pubblica europea.



1 Introduzione

A livello europeo i principi fondamentali in materia di inchieste su incidenti e inconvenienti gravi sono stabiliti nella direttiva 94/56/CE, del 21 novembre 1994, mentre a livello internazionale gli stessi sono contenuti nell'Annesso 13 alla Convenzione relativa all'aviazione civile internazionale, stipulata a Chicago. Conformemente a tali principi, gli incidenti e gli inconvenienti gravi devono essere sottoposti a inchiesta. Le relazioni di inchiesta e le relative raccomandazioni di sicurezza sono trasmesse alle autorità aeronautiche competenti per poter essere esaminate e, se necessario, affinché siano adottate opportune misure.

L'attuale mandato di EASA prevede il rilascio di certificazioni di tipo (aeromobili, motori, ecc.) nonché l'approvazione e la supervisione di organizzazioni operanti nel settore della progettazione, della produzione e manutenzione di aeromobili in Paesi terzi. Inoltre, EASA partecipa direttamente al processo normativo a livello europeo in materia di sicurezza aerea. Le sue competenze si stanno attualmente estendendo alle operazioni di volo e alle licenze degli equipaggi di condotta. EASA ha altresì adottato una struttura organizzativa adeguata alle sue attività.

Riconoscendo l'importanza che le raccomandazioni di sicurezza possono avere per l'incremento generale del livello di sicurezza aerea, il legislatore europeo ha stabilito le modalità con cui EASA deve gestire le raccomandazioni di sicurezza. Il testo è reperibile nel preambolo del regolamento di base dell'EASA (CE) n. 216/2008 del Parlamento europeo e del Consiglio, del 20 febbraio 2008.

La gestione rapida e responsabile delle raccomandazioni di sicurezza costituisce quindi una delle responsabilità principali di EASA che ha pertanto sviluppato appositi meccanismi e procedure organizzative per assolvere tale compito. L'Annesso 13 dell'ICAO raccomanda a uno Stato che riceva raccomandazioni di sicurezza di informare lo Stato che le ha emesse sulle azioni preventive o previste o sulle ragioni per cui si è deciso di non intervenire. In tale contesto, EASA fornisce una risposta alle raccomandazioni di sicurezza che le vengono inviate e pubblica un'analisi annuale delle raccomandazioni di sicurezza esaminate nel 2007. Questo documento è il primo nel suo genere.

L'obiettivo dell'analisi annuale delle raccomandazioni di sicurezza è duplice.

Da un lato, tale analisi presenta dati statistici generali relativi alle raccomandazioni di sicurezza indirizzate all'EASA nel 2007 dalle commissioni di inchiesta sugli incidenti.

Dall'altro, analizza il modo in cui EASA ha adempiuto alle sue responsabilità in materia di raccomandazioni di sicurezza.

Alla presente analisi sono allegate, inoltre, le risposte fornite da EASA alle raccomandazioni di sicurezza ricevute nel corso del 2007.



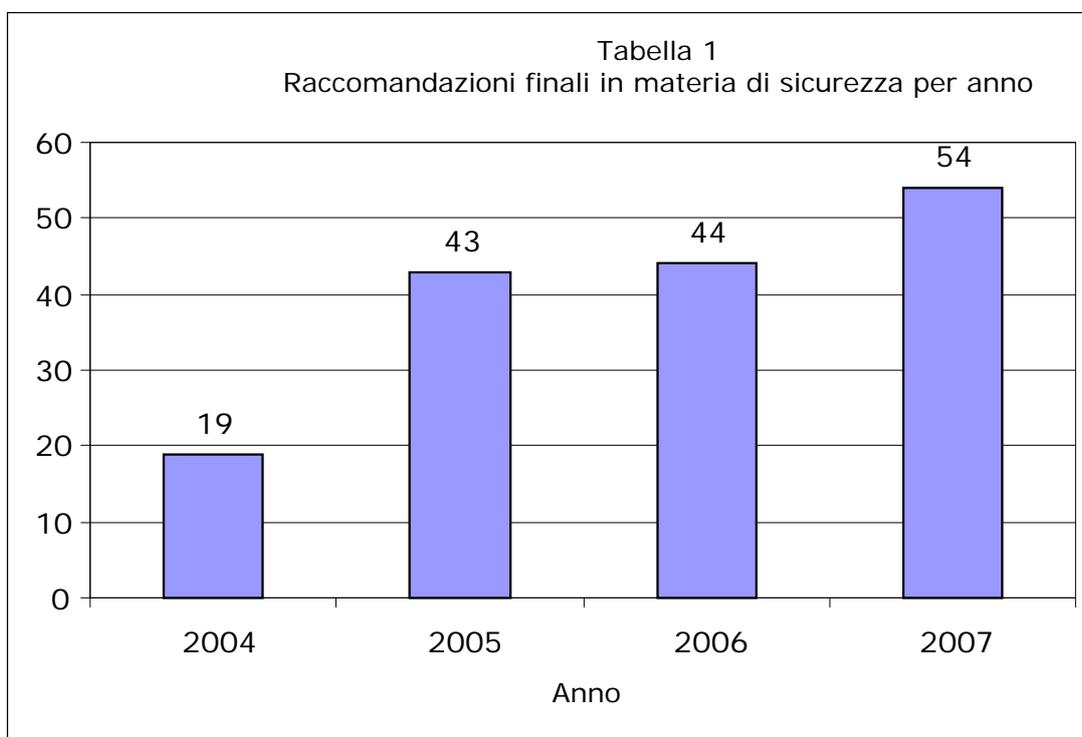
2 Panoramica delle raccomandazioni di sicurezza ricevute nel 2007

2.1 Raccomandazioni di sicurezza ricevute nel 2007

Nel corso del 2007 l'EASA ha ricevuto 54 raccomandazioni finali in materia di sicurezza, riferite a 35 diversi casi¹.

Il computo totale annuo delle raccomandazioni di sicurezza ricevute dall'EASA è illustrato in tabella 1.

Come si può osservare nel 2007 il numero di raccomandazioni di sicurezza è cresciuto del 25 % rispetto al 2006.



Occorre notare che alla luce dell'ampliamento del mandato di EASA numerose raccomandazioni finali in materia di sicurezza inizialmente indirizzate agli Stati membri sono diventate competenza dell'EASA.

Inoltre, in alcuni casi eccezionali, l'EASA, di sua iniziativa, si è occupata di raccomandazioni finali in materia di sicurezza che, nonostante non fossero indirizzate ad essa, rientravano nell'ambito delle sue attività.

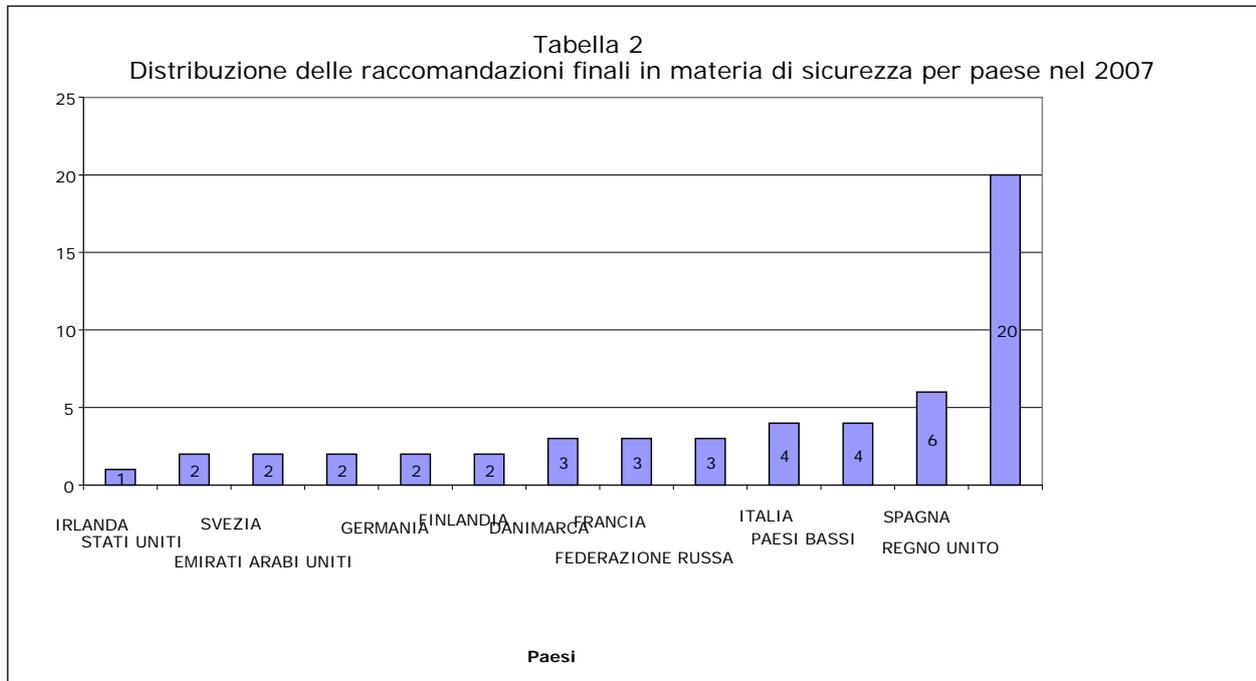
2.2 Origine delle raccomandazioni finali in materia di sicurezza ricevute nel 2007

Nel 2007, le commissioni di inchiesta sugli incidenti di 13 diversi Paesi hanno indirizzato delle raccomandazioni finali in materia di sicurezza all'EASA.

¹ I dati non comprendono le raccomandazioni di sicurezza indirizzate all'EASA che sono ancora in forma di progetto.



Se si eccettuano 7 raccomandazioni finali in materia di sicurezza che provengono da 3 Paesi (USA, Federazione russa ed Emirati Arabi Uniti) e rappresentano il 13 % del totale, le restanti raccomandazioni provengono da Stati membri dell'Unione europea, come illustrato nella tabella 2².



2.3 Distribuzione tematica delle raccomandazioni finali in materia di sicurezza ricevute nel 2007

La distribuzione tematica delle raccomandazioni finali in materia di sicurezza evidenzia le aree di maggiore preoccupazione sotto il profilo della sicurezza aerea identificati dalle commissioni di inchiesta sugli incidenti nel corso delle indagini.

La direzione Regolamentazione elabora pareri destinati alla Commissione e specifiche di certificazione, tra cui codici di aeronavigabilità e mezzi di conformità accettabili nonché ogni materiale esplicativo per l'applicazione del presente regolamento e delle relative norme di attuazione. La gestione delle raccomandazioni di sicurezza e' curata dai settori:

R – sicurezza del prodotto per quanto attiene l'aeronavigabilità iniziale e continua;

R – norme di volo per quanto attiene le licenze degli equipaggi di condotta e le operazioni di volo.

La direzione Certificazione si occupa di tutte le attività di certificazione, ossia la certificazione di tipo e l'aeronavigabilità continua di prodotti, parti e pertinenze nonché della conformità dei prodotti ai criteri ambientali. La gestione delle raccomandazioni di sicurezza e' curata dai seguenti settori:

C – aeromobili di grandi dimensioni;

C – aviazione generale;

² In alcuni casi, le raccomandazioni di sicurezza su un singolo evento, relative alla stessa questione di sicurezza, sono state registrate come un unico dato.



C – velivoli ad ala rotante, palloni, dirigibili;

C – propulsione;

C – parti e pertinenze;

C – norme di volo.

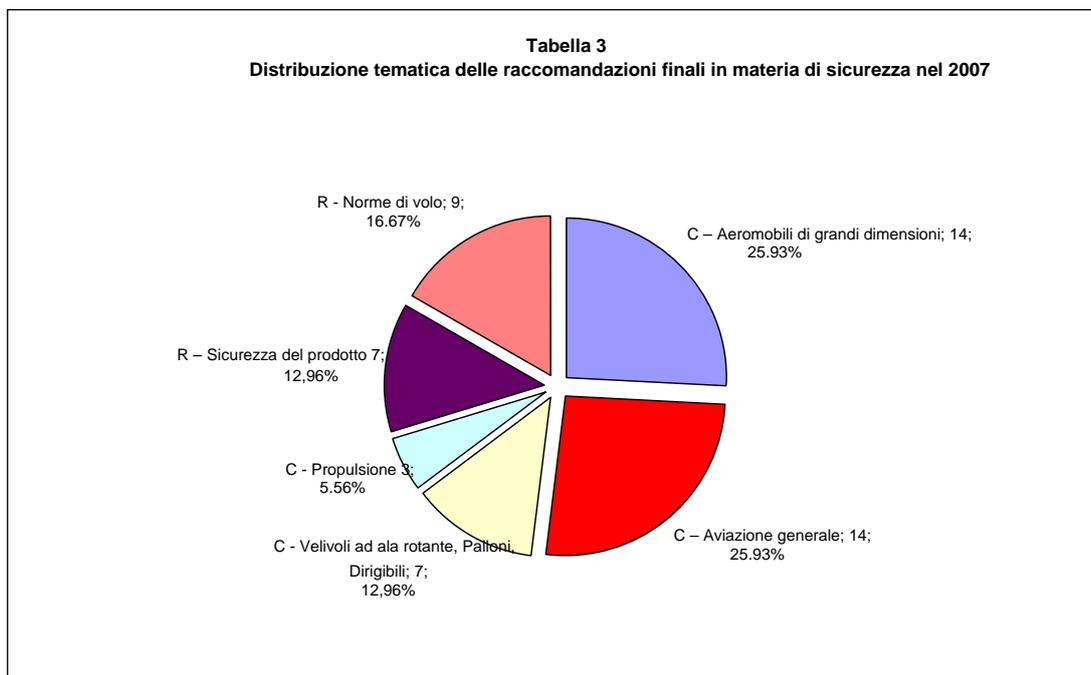
La direzione Approvazione e Standardizzazione realizza programmi di ispezione, formazione e standardizzazione volti ad assicurare un'attuazione uniforme delle norme europee in materia di sicurezza aerea in tutti gli Stati membri. Tale direzione si occupa altresì dell'approvazione di organizzazioni di progettazione e di produzione, dell'approvazione di organizzazioni estere, nonché del coordinamento del programma comunitario SAFA (valutazione della sicurezza degli aeromobili stranieri) relativo alla sicurezza degli aeromobili stranieri che utilizzano gli aeroporti comunitari. La gestione delle raccomandazioni di sicurezza e' curata dai seguenti settori:

A&S – organizzazioni;

A&S – coordinamento SAFA;

A&S – standardizzazione.

Come illustrato nella tabella 3, le raccomandazioni finali in materia di sicurezza su questioni relative alla certificazione rappresentavano il 70 % del totale, mentre il restante 30 % riguardava questioni normative³.



³ Il dipartimento per le norme di volo e il dipartimento per la sicurezza del prodotto sono gli organismi dell'EASA responsabili rispettivamente dell'attività normativa nei settori operazioni di volo-licenze degli equipaggi di condotta e aeronavigabilità iniziale e continua. Per ulteriori informazioni sulla struttura organizzativa dell'EASA consultare il sito <http://www.easa.europa.eu>.



Va altresì osservato che le raccomandazioni finali in materia di sicurezza relative ad aeromobili di grandi dimensioni e quelle riguardanti l'aviazione generale si equivalgono e costituiscono complessivamente il 52 % del totale delle raccomandazioni di sicurezza ricevute.

Il fatto che EASA abbia ricevuto un numero significativo di raccomandazioni di sicurezza relative alle operazioni di volo, pur non essendo legalmente competente in questo settore, potrebbe essere indicativo delle aspettative e della percezione comuni alle commissioni di inchiesta sugli incidenti rispetto al ruolo attuale e futuro di EASA e potrebbe essere parzialmente spiegato dalla fase di progressiva eliminazione che le Autorità aeronautiche comuni (JAA) stanno vivendo nonché dalla pubblicazione delle EU-OPS.

Pertanto, considerando che i settori di attività dell'EASA stanno aumentando, nel caso in cui si decida di estendere le sue competenze ad altri settori dell'aviazione, è probabile che in futuro il numero di raccomandazioni di sicurezza indirizzate all'EASA aumenti.

3 Raccomandazioni finali in materia di sicurezza che hanno ricevuto risposta

3.1 Raccomandazioni finali in materia di sicurezza che hanno ricevuto risposta nel 2007

Nel 2007 l'EASA ha risposto a 68 raccomandazioni finali in materia di sicurezza riguardanti 48 diversi eventi. Le raccomandazioni finali in materia di sicurezza esaminate e alle quali è stata data risposta sono state ricevute nel 2004 (19 %), 2005 (28 %), 2006 (43 %) e 2007 (28 %).

Va osservato che il numero di risposte date alle raccomandazioni finali in materia di sicurezza nel 2007 e' stato superiore del 26 % rispetto al numero di raccomandazioni ricevute nello stesso periodo. Ciò ha permesso di mettersi alla pari con le raccomandazioni di sicurezza ricevute negli anni precedenti.

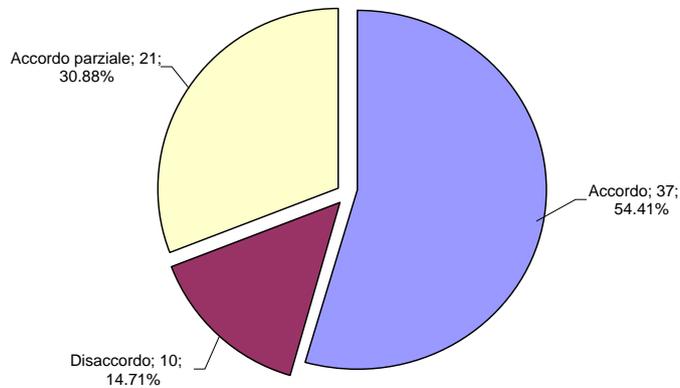
3.2 Categorie delle risposte fornite nel 2007

Nell'esaminare le raccomandazioni finali in materia di sicurezza, l'EASA le ha classificate in modo sistematico, utilizzando le definizioni delle categorie di classificazione⁴ fornite in allegato.

Nel 2007, pertanto, EASA ha recepito favorevolmente 37 (54 %) raccomandazioni finali in materia di sicurezza formulate dalle commissioni di inchiesta sugli incidenti; 21 (31 %), raccomandazioni sono state recepite parzialmente, mentre in 10 casi (15 %), le raccomandazioni finali in materia di sicurezza non sono state accettate, come illustrato nella tabella 4.

⁴ Tali definizioni delle categorie di classificazione sono state sviluppate in cooperazione con le agenzie europee di inchiesta sugli incidenti e sono parte di una più vasta serie di procedure interne e di azioni intraprese al fine di permettere una migliore organizzazione nell'analisi delle raccomandazioni di sicurezza.

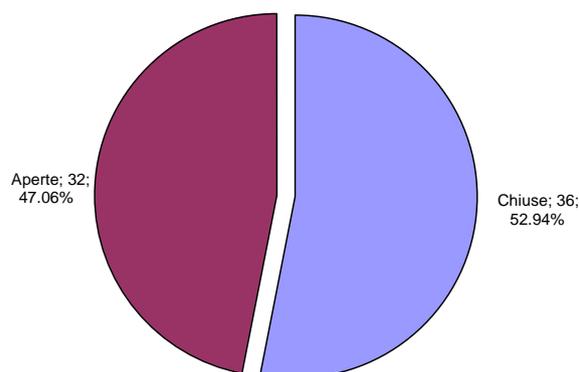
Tabella 4
Categorie di risposte alle raccomandazioni finali in materia di sicurezza nel 2007



3.3 Status delle raccomandazioni finali in materia di sicurezza che hanno ricevuto risposta nel 2007

Per quanto riguarda lo status delle raccomandazioni di sicurezza che hanno ricevuto una risposta nel 2007, 36 di esse (corrispondenti al 53 %) sono state classificate come chiuse, mentre altre 32 (47 %) sono rimaste aperte poiché si è ritenuto che sono necessarie ulteriori azioni per rispondere appieno alle raccomandazioni formulate, come illustrato nella tabella 5.

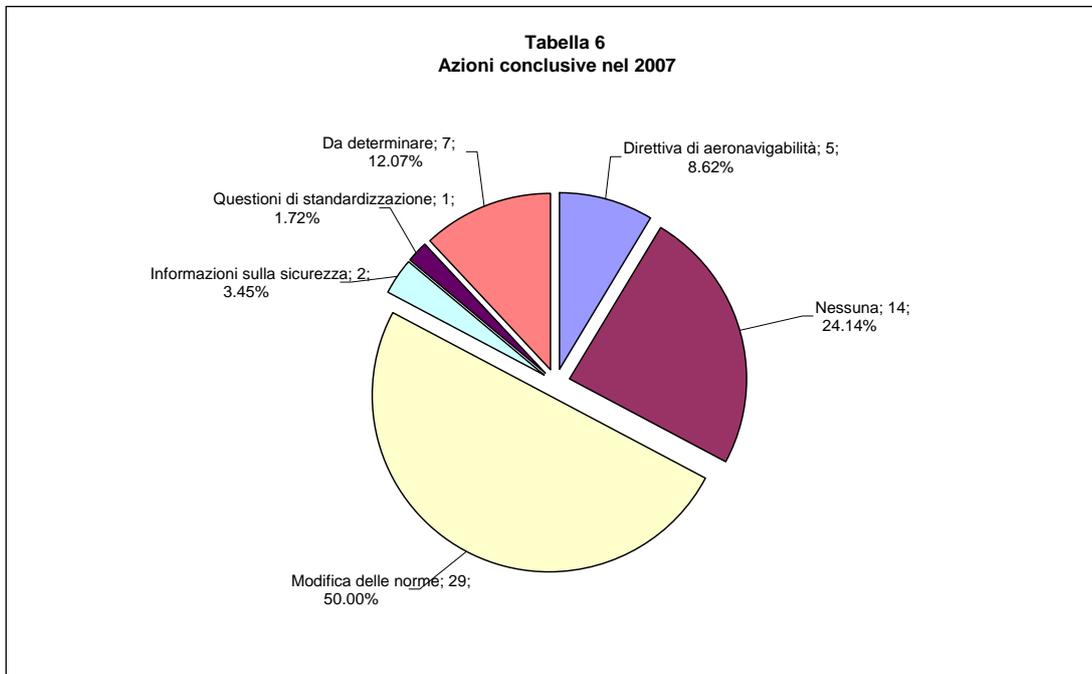
Tabella 5
Status delle raccomandazioni finali in materia di sicurezza nel 2007



3.4 Azioni conclusive

Sulla base dell'analisi delle raccomandazioni finali in materia di sicurezza è stato elaborato un piano d'azione basato sul loro contenuto e che individua il modo in cui potrebbero essere affrontati, se del caso, i problemi di sicurezza identificati.

Come illustrato nella tabella 6, si è valutato che la soluzione più appropriata per la maggioranza delle raccomandazioni finali in materia di sicurezza classificate sotto "Modifica delle norme" (50 %), sarebbe una modifica della normativa. Va sottolineato che tale tipo di modifica richiede tempi lunghi, con conseguenti riflessi sulla situazione delle raccomandazioni finali in materia di sicurezza aperte.



Va inoltre osservato che nel 24 % di tali raccomandazioni finali in materia di sicurezza, si è ritenuto che nessuna azione fosse necessaria da parte di EASA, poiché le azioni richieste dalle raccomandazioni finali in materia di sicurezza (per es. un'analisi) erano già state realizzate ed è stato successivamente verificato che la sicurezza era a livelli accettabili.

4 Conclusioni

Nel 2007, il numero di raccomandazioni finali in materia di sicurezza indirizzate all'EASA è cresciuto in modo considerevole rispetto agli anni precedenti.

Il loro numero dovrebbe crescere ulteriormente in futuro, in seguito alla graduale estensione pianificata delle competenze dell'EASA a nuovi settori.

La maggioranza delle raccomandazioni finali in materia di sicurezza è stata indirizzata all'EASA dalle commissioni di inchiesta sugli incidenti degli Stati membri.

La maggior parte delle raccomandazioni finali in materia di sicurezza ricevute nel 2007 riguardavano questioni relative alla certificazione.

Il numero di risposte fornite nel 2007 ha permesso di recuperare il ritardo accumulato negli anni precedenti, in seguito alla creazione di EASA e al trasferimento a essa di raccomandazioni di sicurezza precedentemente indirizzate agli Stati membri.

Un numero considerevole di raccomandazioni di sicurezza ha richiesto all'EASA di pianificare o avviare un processo normativo.



5 Annex A: REPLIES TO RECOMMENDATIONS IN 2007

Response to Safety Recommendations in 2007 are listed by country of origin.

**AUSTRALIA** ⁵

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|----------------|---------------|------------|
| VH-KTV | Cessna 172P | West Australia | 22.02.2002 | Accident |

Synopsis of the event ⁶: A Cessna 172P (C172) aircraft, VH-KTV and a foreign registered TL Ultralight Sting aircraft, OK-GUU39, converged and collided at low altitude in the vicinity of the threshold of runway 24 right (24R) at Jandakot, WA. The occupants of both aircraft were uninjured. The TL Ultralight Sting (GUU39) was substantially damaged and the C172 sustained only minor damage. (from ATSB report)

Safety Recommendation ASTL-2004-096 ⁷: The ATSB recommends that as a priority the EASA liaise with the US FAA and the ICAO to develop an international standard for the marking on all aircraft with rocket-assisted recovery parachute systems to ensure that they fully alert persons to the hazards and the danger areas on the aircraft.

Reply: The EASA has addressed this concern to ICAO. No specific action is for the time being planned on the marking on aircrafts but ICAO is right now considering to include guidance material in the new Manual of Aircraft Accident and Incident Investigation on this subject.

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

⁵ The countries whose Accident Investigation Agencies issued the safety recommendations are presented in alphabetical order.

⁶ 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.

⁷ 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.

**AUSTRIA**

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|----------------------------|-------------------------------|---------------|------------|
| OE-EXF | Eurocopter SA 315 B "Lama" | 5 km east of Söldern, Austria | 06.09.2005 | Accident |

Synopsis of the event: During a cargo sling operation, the external cargo loads was released in-flight and hit a cableway.

Safety Recommendation AUST-2005-001: The Aircraft manufacturer shall release a time limit for the usage of P/N PB220. This time limit shall be chosen in a way to assure a proper function of the switch until its removal.

Reply: EASA accept the Flugunfalluntersuchungsstelle (BFU) finding that the accident could have been caused by inadvertent operation of the P/N P6220 switch. However, there are other systems on the helicopter, the failure of which could potentially cause release of the cargo from the cargo hook. These include the cargo hook, the mechanical release cable and the interfaces between these systems.

EASA have discussed the details of this accident with the Bureau d'Enquêtes et d'Analyses pour la Sécurité de l'Aviation Civile (BEA), DGAC and Eurocopter (the Type Certificate holder for the SA 315 B "Lama" helicopter). However, the Agency does not at this time have enough information to fully understand of the cause of the accident. Consequently, before EASA can take appropriate continued airworthiness action it will be necessary to review the following;

- the accident investigation report, to better understand of the accident helicopter
 - the completed investigation of in-service P/N PB220 switches
 - details of other helicopter equipment which could have affected the function of the cargo hook
 - any potential effects of configuring different STC equipment with the basic helicopter design
- Accordingly, EASA would like to work closely with Flugunfalluntersuchungsstelle to better understand these issues.

Classification: Partial agreement - **Status:** Open



CANADA

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-----------------|---|---------------|------------|
| C-GPAT | Airbus A310-300 | En route from Varadero, Cuba, to Quebec, Canada | 06.03.2005 | Accident |

Synopsis of the event: An Airbus A310-308 aircraft, departed Varadero, Cuba, for Quebec, Canada, with 9 crew members and 262 passengers on board. At approximately 0702 UTC, the aircraft was 90 nautical miles south of Miami, Florida, United States, and in level flight at flight level (FL) 350, when the flight crew heard a loud bang and felt some vibration. The aircraft entered a Dutch roll and the captain disconnected the autopilot to manually fly the aircraft. The aircraft climbed nearly 1000 feet while the captain tried to control the Dutch roll. The crew initiated a descent back to FL 350 and requested further descent and a possible diversion to Fort Lauderdale, Florida. During the descent, the Dutch roll intensity lessened and then stopped when the aircraft descended through FL 280. No emergency was declared. When the aircraft was abeam Miami, the crew decided to return to Varadero. During the landing flare, the rudder control inputs were not effective in correcting for a slight crab. The aircraft landed and taxied to the gate. After shutdown, it was discovered that the aircraft rudder was missing. Small pieces of the rudder were still attached to the vertical stabilizer. (from TSBC report)

Safety Recommendation CAND-2006-006: The TSBC recommends that the European Aviation Safety Agency, in coordination with other involved regulatory authorities and industry, urgently develop and implement an inspection program that will allow early and consistent detection of damage to the rudder assembly of aircraft equipped with part number A5547/1500 series rudders.

Reply: The EASA agrees with this recommendation. Consequently, the Airworthiness Directive 2006-0066 issued on 24 March 2006 required a mandatory inspection described in paragraph 4.2.2 of AIRBUS All Operator Telex (AOT) A310-55A2043 or A300-55A6042 within 500 Flight cycles or 120 days from the effective date of this AD.

Classification: Agreement - **Status:** Closed

**DENMARK**

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-----------------|--------------------|---------------|------------|
| TF-FIR | Boeing B757-200 | Denmark, in cruise | 11.01.2007 | Incident |

Synopsis of the event: The off-wing escape slide compartment doors were closed by an unidentified person when the aircraft was in for modification work and C-check inspection. The aircraft left Iceland with the left hand side slide compartment door not properly locked. 16 minutes into the flight the door opened and the advisory light illuminated. The crew observed neither visual nor aural abnormalities, and the PIC decided to continue the flight. 2:06 hrs after the advisory light came on the slide carrier was unlocked and deployed. The slide separated from the aircraft and damaged the left stabilizer. (from AIBD report)

Safety Recommendations DENM-2007-01, DENM-2007-002, DENM-2007-003:

- Ensure that the aircraft manufacturer change the "Emer Doors, L and R Wing Slide" advisory light message level from advisory to warning and revises the cockpit crew checklist procedure (the Boeing 757 Operations Manual/Quick Reference Handbook) to include and ensure an immediate flight crew action (DENM-2007-01).
- Ensure that the aircraft manufacturer evaluates the possibility of a physical or visual verification of the locking of the off- wing escape slide carrier and door lock system (DENM-2007-002).
- Ensure that the aircraft manufacturer revises the work task card to ensure proper locking of the off-wing escape slide system (DENM-2007-003).

Reply: The EASA has contacted both the FAA and the aircraft manufacturer. The manufacturer has investigated the event into and determined that the root cause for the failures was the improper closing of the compartment, after maintenance on the system.

As an interim action, the manufacturer has developed a video to share with the aircraft operators in order to highlight the proper compartment closing procedure, the risk of an in-flight loss if the compartment is not properly closed, and to also show what the manufacturer believes is the cause of the recent in-flight losses. The video was linked to the Fleet Team Digest article (FTD) 757-FTD-25- 07001, and is available for download.

As final action for this issue, the manufacturer is proceeding with the initiation of the process for a design change, to increase the emphasis on the closed position of the yellow handle, and to eliminate the possibility of partial engagement of the fittings on the compartment door, if the handle is not in the closed and locked position. The schedule for the retrofit solution has not been determined yet.

The FAA has also added this issue to their planned AD list for mandating the design change, once the manufacturer's Service Bulletin is issued.

The EASA concur with the above position and will be monitoring the progress made.

Classification: Partial agreement - **Status:** Open

**FINLAND**

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|----------------------------|---------------|------------|
| OH-ATB | ATR 42-500 | Seinäjoki Airport, Finland | 11.12.2006 | Incident |

Synopsis of the event: On 11 December 2006 an ATR 42-500 passenger aircraft, registration OH-ATB, was on a scheduled flight from Helsinki to Seinäjoki from where the flight was to continue to Kokkola. An incident occurred during landing at Seinäjoki aerodrome when the aircraft veered off the paved runway onto the left side's sand/gravel runway shoulder during the landing roll. The left main landing gear broke two runway edge lights and its anti skid wiring was cut. The captain was able to steer the aircraft back onto the runway. After the damage was inspected the remaining leg to Kokkola was cancelled. (from AIBF report)

Safety Recommendation FINL-2007-001: The investigation commission recommends that EASA investigate the prevalence of flight data recorder malfunctions and, depending on the results, consider shortening the applicable maintenance cycles in order to ensure continuous proper functioning of flight data recorders.

Reply: The Agency will try to get indications of such malfunctions from those manufacturers that fall within the Agency's remit. 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 rules.

Classification: Partial agreement - **Status:** Open



FRANCE

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|----------------|---------------|----------------|
| | Various types | Various places | 01.01.1995 | Various events |

Synopsis of the event: N/A

Safety Recommendation FRAN-1995-001⁸: The BEA recommends that a study is performed in order that the priority granted to the pilot over automatism is maintained in any circumstances. This could be implemented through:

A) automatic AP disconnection (autopilot, and autothrottle or autothrust) in case of antagonism between pilot actions and flight systems of flight director.

B) and/or setting a clear information in cockpit (eventually an alarm) warning the crew of such antagonism.

Reply: The EASA published NPA No 18/2006 on Flight Guidance Systems and is proposing to modernise the specifications for such systems. Following this, a Common Response Document has been published on 25.10.2007.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|--------------------|---------------|------------|
| F-GNIA | Airbus A340 | Roissy CDG Airport | 20.01.1994 | Accident |

Synopsis of the event: N/A

Safety Recommendation FRAN-1995-002⁹: The BEA recommends that the notion of “designated fire zone” is clearly defined in the Certification Specification and, in such a way that is not only applicable to engines and kerosene areas.

Reply: Taking into account the uncertainties on the flammability of hydraulic liquids and the lack of efficiency of fire extinguisher in ventilated areas, it is premature to classify as “designated fire zone” landing gear bays.

Two significant fire risks exist: an overheat of the breaking system or a tyre burst.

For the first item, an overheat alarm triggered above 300°C. For the second item, DGAC has suggested asking the JAA D and F group to develop a tyre burst model that would be taken into account into the design of wheel wells. This suggestion has been followed up in EASA by the establishment of task 25.028: protection from debris impact and fire: its purpose is to develop a new paragraph of CS/FAR-25 which would cover the protection of the whole aircraft against the threat of tire/wheel failure.

Classification: Partial agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|----------|---------------|------------|
| F-BTSC | Concorde | Gonesse, | 25.07.2000 | Accident |

⁸ This safety recommendation was transferred to the EASA in 2006, by the DGAC-France.

⁹ This safety recommendation was transferred to the EASA in 2006, by the DGAC-France.



| | | | | |
|--|--|--------|--|--|
| | | France | | |
|--|--|--------|--|--|

Synopsis of the event: During takeoff from runway 26 right at Roissy Charles de Gaulle Airport, shortly before rotation, the front right tyre (tyre No 2) of the left landing gear ran over a strip of metal, which had fallen from another aircraft, and was damaged. Debris was thrown against the wing structure leading to a rupture of tank 5. A major fire, fuelled by the leak, broke out almost immediately under the left wing. Problems appeared shortly afterwards on engine 2 and for a brief period on engine 1. The aircraft took off. The crew shut down engine 2, then only operating at near idle power, following an engine fire alarm. They noticed that the landing gear would not retract. The aircraft flew for around a minute at a speed of 200 kt and at a radio altitude of 200 feet, but was unable to gain height or speed. Engine 1 then lost thrust, the aircraft's angle of attack and bank increased sharply. The thrust on engines 3 and 4 fell suddenly. The aircraft crashed onto a hotel. (from BEA report)

Safety Recommendation FRAN-2002-001¹⁰: The DGAC in liaison with the appropriate regulatory bodies, study the reinforcement of the regulatory requirements and demonstrations of conformity with regard to aviation tyres.

Reply: The Rulemaking task 25-028 is related to protection from debris impact and fire: its purpose is to develop a new paragraph of CS/FAR-25 which would cover the protection of the whole aircraft against the threat of tire/wheel failure. The issue raised by the recommendation will be added to the terms of reference of the task.

Classification: Agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|----------------|---------------|----------------|
| | Various | Various places | Various dates | Various events |

Scope of the study¹¹: 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. However, rapidly obtaining complete and accurate data after an accident or an incident is often critical for the technical investigation and, in a broader way, to air transport safety. Data extracted from FDRs help to determine causes and to develop appropriate preventive measures.

There is no single guideline document relating to FDR regulations. Several international and French texts touch on these aspects, though not always in a coherent fashion. In order to get a complete picture of the problems encountered, the BEA has produced this study, based on the analysis of known issues and on consultations with French aircraft operators. Its objective is to increase awareness among the various actors of the importance of FDRs for accident prevention and to recommend improvements.

Safety Recommendation FRAN-2005-001: The BEA recommends that the EASA define the regulatory requirements to have data frame layout information recorded on FDRs themselves, in a format that is readable by investigative bodies.

Reply: The EASA will ask EUROCAE to consider amending ED-112 accordingly. The EASA will then consider that revision as the basis for ETSO C-124.

¹⁰ This safety recommendation was transferred to the EASA in 2006, by the DGAC-France.

¹¹ The safety recommendations have been the outcome of a study performed by the BEA.



Classification: Agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---|--------------------------------|---------------|------------|
| F-GRJS | Bombardier Canadair CL- 600 2B 19 | Guipavas Airport, France | 22.06.2003 | Accident |

Synopsis of the event: On an ILS approach to runway 26 Left at Brest Guipavas aerodrome, the aeroplane deviated progressively to the left of the normal runway approach track. It passed above and then below the glide path and descended until it touched the ground 2,150 meters from the runway threshold, 450 meters from the extended runway centreline. The aeroplane struck several obstacles and caught fire. (from BEA report)

Safety Recommendation FRAN-2005-002: The EASA should study the opportunity to prescribe the combining of localizer and glide information on instruments used during approach.

Reply: The review of this recommendation in the scope of the Rulemaking task 15-2004 has been completed. It is considered that this issue is addressed in a general way in the 3rd amendment of CS-25 published on 19-09-2007 and more specifically in certification specification 25.1302.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|------------------|----------------------------|-------------------------------|---------------|---------------------|
| F-GPMF F-GHQA | Airbus A319 Airbus A320 | near Montélimar, France | 23.03.2003 | Serious Incident |

Synopsis of the event: Sur le trajet Marseille - Paris Orly, l'AF053UL est en montée vers le niveau de vol 260 conformément à la clairance du contrôle aérien. Son TCAS émet un avis de trafic relatif à un avion situé au-dessus sur une route opposée. Dix-huit secondes plus tard, un avis de résolution Adjust Vertical Speed se déclenche, invitant l'équipage à réduire sa vitesse verticale. Le pilote augmente l'assiette de l'avion.

Le trafic opposé est l'AF048JP, stable au niveau de vol 270 sur le trajet Paris Orly-Marseille. Environ dix secondes après le déclenchement du RA de l'AF053UL, un avis de résolution Climb est émis à bord de l'AF048JP. Il est suivi par l'équipage.

Lors du croisement, chacun des deux équipages voit l'autre avion. Le pilote de l'AF053UL effectue un virage d'évitement à gauche. Les enregistrements des paramètres de vol permettent d'estimer les écarts latéraux et verticaux minimums respectivement à environ 0,8 NM et 300 ft. (from BEA report)¹²

Safety Recommendation FRAN-2005-006: The BEA recommends EASA to study the introduction in certification criteria of transport category aircrafts, of a coupling between triggering thresholds of TCAS alarms and altitude capture laws.

¹² Original report available in French only



Reply: The Notice of Proposed Amendments 18-2006 on Flight Guidance Systems was published on 11 January 2007 on EASA website. It includes a request for comments on this specific recommendation.

Classification: Agreement - **Status:** Closed

Safety Recommendations FRAN-2005-007, FRAN-2005-008: The BEA recommends: EASA to mandate SB n°A320-31-1127 related to the A320 EFIS symbol generator V40 (FRAN-2005-007).

EASA to ensure that, for all aircraft equipped with navigation displays, intruders shall be displayed whatever the selected range (FRAN-2005-008)

Reply: After considering the concerns raised by several opposite crew reactions to TCAS alerts, a study, to replace vertical speed adjust RA by one level-off RA has been initiated by Eurocontrol and provided positive feed back. The next steps are the finalisation of the safety analysis and operational performance study and the confirmation of flight crew operational acceptability on an aircraft simulator.

The EASA therefore requested the RTCA Inc. to include this issue on their agenda of their next meeting and, more precisely to remove the ambiguity of the Adjust Vertical Speed aural alert into version 7.1 of the TCAS software. Following this request, the matter was discussed during Special Committee (SC) 147 in Oct. 2006 and the relevant work was initiated. The FAA has also acknowledged that this is a safety issue.

On the same time, a coordinated action has begun with some Airlines to improve crew training and procedures and with the manufacturer of the aircraft involved, to improve its TCAS Vertical Speed display.

Classification: Partial agreement - **Status:** Closed

Safety Recommendation FRAN-2005-010: The BEA recommends EASA to define certification criteria for the presentation of TCAS resolution advisories.

Reply: There are human factors considerations in the Certification Specifications for large aeroplanes (refer e.g. to CS-25.1322, CS-25 AMC 25.1322 Alerting Systems, CS-25 AMC 25-11 Electronic Display Systems). Being too much prescriptive could be detrimental to integration into the cockpit layout and could prove to be difficult to keep up with technology enhancements.

Classification: Disagreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|---|---------------|------------|
| F-GLZC | A340-311 | Cayenne Rochambeau Airport, Guyana | 25.05.2001 | Incident |

Synopsis of the event: 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.(from BEA report)¹³

Safety Recommendation FRAN-2007-003: The BEA recommends that 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 deals with that subject and it should be incorporated into EU-OPS next amendment. The new rule will allow in particular lower than standard minima for Cat. I and Cat. II approaches with the improved guidance offered by a HUD Landing System or by the reduced workload and improved precision delivered by an auto-land system. Adequate considerations and requirements have been given to the ILS performance in order to ensure that the ILS signals will support these operations

Classification: Agreement - **Status:** Open

¹³ Original report available in French only



GERMANY

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-----------------|--------------------------------|---------------|------------------|
| | Airbus A300-600 | en-route near Munchen, Germany | 03.12.2002 | Serious Incident |

Synopsis of the event: The airplane took off from Munich for a scheduled flight to Frankfurt. While climbing to cruise level with autopilot (AP2) engaged the crew noticed during a routine check of the instruments that the allowed airspeed (V_{MO}) would be exceeded. As a countermeasure the preset speed was reduced and a higher climb rate selected on the AP panel. The AP was disengaged after it was noted that the airspeed increased further and the nose started to drop.

Once the pilot took control of the airplane it was trimmed nose down. It was no longer in climb and the maximum allowed airspeed was exceeded by 16kt. A great amount of control forces had to be applied until the wrong trim could be correct by means of the electrical trim device. Vertical acceleration was so great during the re-establishment of the original flight attitude that one crew member fell and injured herself slightly. The flight was continued with disengaged AP and no further incidents. (from BFU report)

Safety Recommendation GEF-2004-026: EASA as the cognizant type certification authority should see that the Criteria for Dispatch (JAR-MMEL/MEL, page 2-C-3, No. 3 dated 1 May 2000) are adopted in all aircraft manufacturers' Master Minimum Equipment Lists (MMEL), and that the latter are supplemented to clearly specify the circumstances where aircraft with unserviceable systems and/or unserviceable items of equipment may be used for flights departing from maintenance bases with appropriate maintenance facilities (home bases).

Reply: The EASA agrees with this safety recommendation. This issue is dealt with in the context of the rulemaking task 21.039, which has been included in the EASA 2008 rulemaking programme.

Classification: Agreement - **Status:** Open

Safety Recommendation GEF-2004-028: EASA as the cognizant aircraft type certification authority should see that a feature (electronic prompt or warning light) is installed in A300/A310 aircraft to indicate any abnormal position or positional shift of the THS (pitch up/down).

Reply: EASA has reviewed this event with the manufacturer and concur with the following facts:

- In manual flight, considering the whooler activation may not be taken into account, the increase in force on the control column is the primary organ of detection of an out of trim situation. The crew systematically detects it and an additional warning would not bring added value. It may also be difficult to define thresholds and delays that would not induce spurious warning when an out of trim is the result of a deliberate controlled manoeuvre. Moreover, a situation of undue out of trim warning following some strong deliberate manoeuvre in a delicate flight phase can be potentially source of pilot's confusion.
- When autopilot is engaged, the design is such that single failure triggers automatic disengagement of the involved trim system. The only reported case is the event considered and actions to restore the integrity of the faulty software have been carried out. Furthermore, the safety analysis demonstrates that the probability of an undetected out of trim situation is lower than $10^{-9}/fh$, thus already fully complying with safety objectives.

Category : Disagreement – **Status:** Closed



| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|---|---------------|------------|
| | BAE146 | Initial climb after departure from Frankfurt, Germany | 12.03.2005 | Incident |

Synopsis of the event: On 12 March 2005 a BAe 146-300 experienced a slow pitch oscillation with increasing amplitude during climb from flight level (FL) 80 to FL100 with engaged autopilot. The airplane was on a cargo flight from Frankfurt to Stuttgart. Since the checklist for abnormal situations and emergencies did not contain a solution to the problem an immediate landing was intended. The flight was continued to Stuttgart because of the better weather situation. Until touchdown, the airplane was only controllable by means of the manual elevator trim. The airplane was examined immediately after the landing and significant amounts of frozen and swollen up de-icing fluid residues were found in the gap between elevator and horizontal stabilizer and in the area of ailerons and rudder. (from BFU report)

Safety Recommendations GEF-2006-09, GEF-2006-010, GEF-2006-011: Aircraft de-icing to maintain the airworthiness of aircraft during winter operation should be accomplished by certified and approved companies under the supervision of civil aviation authorities. If aircraft de-icing is not accomplished by an operator or an approved maintenance organisation the ground service "aircraft de-icing" should be subject to appropriate aeronautical regulation. EASA should agree with the European National Authorities on establishing such regulations (GEFR-2006-09).

The expected drying and re-hydration properties of thickened de-icing fluids (Type II, III, IV) for aircraft de-icing should be described and defined by standardisation in such detail as to eliminate significant quality variations among the products of different manufacturers. EASA should develop certification criteria to establish mandatory limits for and require evidence of unrestricted suitability of such fluids for aircraft with non powered flying controls (GEFR-2006-010).

Considering the thickened de-icing fluids currently available EASA should impose a mandatory requirement on non-powered flying controlled aircraft manufacturers to develop reliable procedures for the aircraft types to ensure the identification and removal of re-hydrated de-icing fluid residues in such time as to prevent any risk to the safety of flight operation (GEFR-2006-011).

Reply: The Agency agrees that this is a safety issue and has already taken the following actions:

- An EASA internal working group has been set-up comprising representatives of the certification and rulemaking directorates. This EASA internal group is coordinating its work with the corresponding JAA Working group and also liaising with SAE in particular the residue Working Group and the Group developing the standard for the Remote On-Ground Ice detection System. One first result of those contacts with SAE was their agreement to add a warning about the problem of residues in their revised standards for fluids type II to IV. EUROCAE has also been informed of those activities. Last but not least contacts with Transport Canada in this area are planned.
- The Safety Information Notice 2006-09 called "Ground De- / Anti-Icing of Aeroplanes; Intake / Fan blade Icing and effects of fluid residues on flight controls" is published on the EASA website. This notice draws the attention to the importance of eradicating frozen residues and provides guidance to that effect. It has been established in consultation with the JAA and builds on their Safety Information Communication by adding further guidance on the maintenance aspects.
- The Agency also started to draft an Advance-Notice of Proposed Amendment (A-NPA). It presents the background of the issue (explains the problem, makes reference to accident investigation bodies recommendations, describes other activities such as those of ERA, JAA, SAE, etc and emphasises the need for coordination and multi-disciplinary approach). It

Direzione esecutiva – Dipartimento per l'analisi e la ricerca sulla sicurezza

© Agenzia europea per la sicurezza aerea, 2008. Tutti i diritti riservati. Documento di proprietà.

Eventuali copie cartacee devono intendersi non controllate. Verificare l'esistenza di eventuali modifiche sul sito Internet/Intranet dell'EASA.



presents several options to address design, continuing airworthiness, operations and airport issues. Proposed actions will be categorised as follows:

action to address the immediate situation, future provisions, advancement in fluid technologies, future aircraft design issues. The A-NPA should be published for comments in the second quarter of 2007.

Updated Reply: The EASA 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 used in order to define an EASA action plan to address this issue.

Classification: Agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|-----------------------------|---------------|------------|
| | ATR72 | Dusseldorf Airport, Germany | 18.03.2006 | Incident |

Synopsis of the event: On 18 March 2006 at about 08:50 hrs local time during flight preparations for the flight from Düsseldorf to Dresden, the ATR 72 crew noticed a difference of about 1,800 kg fuel between the remaining fuel quantity after the last flight and the currently indicated one. Because there was no explanation and no fuelling order the crew objected the flight and insisted that the matter was looked into. Maintenance checked the aircraft and determined that a Fuel Quantity Indicator (FQI) of an ATR 42 had been installed during the previously performed maintenance work. This FQI indicated a fuel quantity which was about 1,800 kg higher as the actual one. (from BFU report)

Safety Recommendation GEF-2006-014: EASA should arrange that the construction of one of the Fuel Quantity Indicators (FQI) of the ATR 72 or ATR 42 be changed to such an extent that they cannot be interchanged any more.

Reply: EASA has brought this event to the TC holder's knowledge. This event emphasizes the ANSV recommendation related to the ATR72 accident registered TS-LBB on August 2005 near the Italian coast. In such occasion, it was validated that the current aircraft Type Design meets the certification requirements, the involved fuel quantity indicators have different part numbers and the maintenance instructions/documentation from the TC Holder takes this into account (in both events, it appears that the maintenance procedure was not strictly followed). Consequently, some additional actions were put into practice:

- ATR distributed among the operators several "All Operators Messages" regarding this event;
 - EASA as well as other Civil Aviation Authorities issued specific Airworthiness Directives to perform a one shot inspection on the fuel quantity indicators for all ATR42 and 72.
- However, in the light of this new occurrence, a new risk assessment will be performed through specific meetings between EASA Certification Team and ATR.

Classification: Partial agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|----------|---------------|------------|
| | Diamond DA 42 | Germany | 04.03.2007 | Accident |



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 runway's extended centre line, the airplane was severely damaged. (from BFU report)

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 issued Safety Information Notice (SIN) No 2007- 08, on 13/04/2007 related to starting procedures using external power. The manufacturer has also issued Service Information No SI 42-040 related to starting engines with external power. Both EASA SIN and DAI SI address the importance of following the correct procedures. The aircraft and engine manufacturer are dealing urgently with this matter, in order to avoid recurrence of the event, even when incorrect procedures are followed. Both organisations have proposed technical solutions and these will be mandated by EASA following public consultation (Proposed Airworthiness Directives 07- 073 and 07-074).

Classification: Partial agreement - **Status:** Open



GREECE

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

Synopsis of the event: A Boeing 737-300 aircraft, registration number 5B-DBY departed Larnaca, Cyprus for Prague, Czech Republic, via Athens, Hellas. 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 concerning the above problems and ended as the aircraft climbed through 28,900 ft. Thereafter, there was no response to radio calls to the aircraft. During the climb, at an aircraft altitude of 18,200 ft, the passenger oxygen masks deployed in the cabin. The aircraft leveled off at FL340 and continued on its programmed route. The aircraft flew over the KEA VOR, then over the Athens International Airport, and subsequently entered the KEA VOR holding pattern. During the sixth holding pattern, the Boeing 737-300 was intercepted by the HAF. One pilot of the 2 F-16 of the HAF reported 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. He also reported a person not wearing an oxygen mask entering the cockpit and occupying the Captain's seat. The left engine flamed out due to fuel depletion and the aircraft started descending. Two MAYDAY messages were recorded on the CVR. The right engine also flamed out. The aircraft continued descending rapidly and impacted hilly terrain. The aircraft was destroyed and all passengers and crew were fatally injured (from AAIB report)

Safety Recommendation GREC-2006-044: EASA/JAA requires practical hypoxia training as a mandatory part of flight crew and cabin crew training. This training should include the use of recently developed hypoxia training tools that reduce the amount of oxygen a trainee receives while wearing a mask and performing tasks.

Reply: Hypoxia training is part of the theoretical flight crew initial training syllabus in the JAR-FCL (see app1 to JAR-FCL 1.470), which will be transposed in the EASA regulatory framework. It is also included in the initial cabin crew training (see app1 to EU-OPS 1.1005(d)3). Taking into account developments of hypoxia training tools, the EASA will consider introducing the subject into the rulemaking process.

Classification: Agreement - **Status:** Open

Safety Recommendation GREC-2006-045: EASA/JAA and ICAO require aircraft manufacturers to evaluate the feasibility of installation of a CVR that records the entire flight.

Reply: EASA will consider the subject for the rulemaking process.

Classification: Agreement - **Status:** Open

Safety Recommendation GREC-2006-046: EASA/JAA and ICAC require all company communications with the aircraft (operations office, technical base/stations, and airport stations) to be recorded.



Reply: The EASA has added this safety recommendation to its rulemaking inventory. It will then be further considered for the rulemaking process, according to the relevant EASA rulemaking procedure.

Classification: Agreement - **Status:** Open

Safety Recommendation GREC-2006-047: EASA/JAA and ICAO require the aircraft manufacturers to also record cabin altitude on the FDR.

Reply: The EASA will consider requesting from EUROCAE an amendment of ED-112 on "*Minimum Operational Performance Specification For Crash Protected Airborne Recorded Systems*", to also include cabin altitude as a recorded parameter.

Classification: Agreement - **Status:** Open

Safety Recommendation GREC-2006-048: EASA/JAA and ICAO study the feasibility of requiring the installation of crash protected image recorders on the flight deck of commercial aircraft.

Reply: The ICAO Flight Recorder Panel (FLIRECP) is currently working on the matter with a view to have proposed amendments to Annex 6 for applicability in 2009. EASA is carefully monitoring that work and will consider starting an amendment procedure of the European regulatory framework.

Classification: Agreement - **Status:** Open

Safety Recommendation GREC-2006-049: EASA/JAA and ICAO implement a means to record international safety audits of the States' Civil Aviation Authorities, which ensures that the findings can be tracked in depth, action plans are developed and implemented in shortest possible time; and impose the necessary pressure when they become aware that international obligations and standards are not being met by the Authorities.

Reply: With Commission Regulation (EC) 736/2006 on "*working methods of the European Aviation Safety Agency for conducting standardisation inspections*", the Community has established a complete legal basis for the conduct of high level standardisation inspections and brought several improvements, namely regarding the depths and the timing of the verifications conducted in the follow-up phase. Standardisation inspections are performed by the EASA on a biannual or annual basis, depending on the case. As far as international obligations and standards are concerned, the EASA has no enforcement powers, while it is the responsibility of each state to correct the reported findings.

Classification: Partial agreement - **Status:** Closed

**ITALY**

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-----------------|-------------------------------------|---------------|------------|
| EI-CIO | Boeing B737-400 | Catania Fontanarossa Airport, Italy | 15.06.2006 | Accident |

Synopsis of the event: On June 15th 2006, the aircraft B737/400 registration marks EI-COI, while taking-off from Catania Fontanarossa airport to Rome Fiumicino, suffered the nose landing gear left wheel separation. The crew carried out the appropriate procedures required for this kind of event and landed uneventfully on runway 16L at Fiumicino. (from ANSV report)

Safety Recommendation ITAL-2006-013: Consider implementing an una tantum visual inspection on the parts (P/N 65-46215-16) that underwent revision at the same shop center in the same time slot. The inspection should be particularly focused on verifying any presence of corrosion in the 6 o'clock position.

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: Following this recommendation the EASA Safety Information Notice 2006-07 was issued, on 18 August 2006, and distributed accordingly. This Safety Information Notice was further revised on 08 March 2007 following the issuance of Safety Recommendation ANSV-17/341-06/1/A/06 addressed to the FAA. National Aviation Authorities may undertake necessary actions under their State of registry responsibility.

The EASA has also contacted both the manufacturer and the FAA who are investigating this issue and consider this not a critical safety issue needing immediate corrective action, given the history of failures of that nature in the B737 fleet and the aircraft design.

Classification: Partial agreement - **Status:** Closed

**NETHERLANDS**

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---|--|---------------|------------|
| TC-ONP | Boeing McDonnell Douglas MD 88 | Groningen Airport Eelde, Netherlands | 17.06.2003 | Accident |

Synopsis of the event: During take-off at a speed of approximately 130 knots the captain, who was pilot flying, rejected the take-off above the decision speed because he experienced a heavy elevator control force at rotation. The stabilizer warning sounded during the entire take-off roll. The aircraft overran the runway end and came to a stop in the soft soil. During subsequent evacuation one cabin crew member and a few passengers sustained minor injuries. The aircraft sustained substantial damage. There was no fire. (from DSB report)

Safety Recommendation NETH-2007-004: It is recommended to the Civil Aviation Authority, the Netherlands (IVW) to develop certification requirements for aircraft from the civil aviation category, to provide weight and centre of gravity measurements to the crew of new aircraft and to investigate the possibility to provide these data with existing aircraft.

Reply: The Agency agrees with this safety recommendation. This issue has already been included in the EUROCAE's agenda, following a request submitted by the EASA, in order to consider developing a standard for mass and balance determination.

Classification: Agreement - **Status:** Open

**NORWAY**

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|------------------------|---------------|------------|
| OY-JRJ | ATR 42-320 | Bergen Airport, Norway | 31.01.2005 | Accident |

Synopsis of the event: An aircraft of type ATR 42 with registration mark OY-JRJ was on a scheduled flight from Bergen Airport Flesland to Florø Airport. During take-off the pilots experienced considerable control problems related to the elevator function. They declared an emergency situation and returned for landing. The landing was accomplished without further incident 7 minutes after take-off.

After landing it was found that the control problems were caused by the right elevator hanging below the horizontal stabiliser, attached only by the inboard of the three hinges that normally connect the elevator to the stabiliser. A bolt was missing from both the centre and outer hinges. Both of the bolts and one of the nuts that normally should connect the hinge assemblies together were found. One of the bolts was found on the runway, the other inside the elevator. (from AIBN report)

Safety Recommendation NORW-2006-013: The cockpit voice recording from the occurrence was recorded over, because the duration of the recording was only 30 minutes, and the power supply to the recorder was not disconnected after landing. The AIBN has noted that several operators lack procedures to ensure that registered data is retained, and recommend that JAA/EASA consider whether the regulations (Appendix 1 JAR OPS 1.1045 pt. 11) should specify that procedures must be drawn up for preservation of data from flight and cockpit voice recorders and included in operation manuals, so that the JAR OPS 1.160 requirements are better adhered to.

Reply: The appropriate rule already exists (EU-OPS 1.160). However, taking into account App.1 to EU-OPS 1.1045 pt 11, EASA will consider possible improvement to the OPS regulatory framework.

Classification: Agreement - **Status:** Open

**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: An Airbus 330-243 was on a scheduled flight from Toronto Lester B Pearson Airport, Ontario Canada to Lisbon Airport, Portugal. According to the crew, the flight processed normally until the crew observed unusual engine oil indications on the Number 2 (right) engine. The indications were communicated to the company's maintenance control centre in Canada. Later the crew became aware of a fuel imbalance between the left and the right inner-wing tanks which they tried to correct. When the fuel on board had reduced to below the minimum required fuel on board to reach Lisbon, the crew initiated the diversion to Lajes Airport on Terceira Island in the Azores. The crew tried unsuccessfully to establish the existence of a possible fuel leak. The right engine flamed out and the crew declared an emergency. The left engine flamed out at a distance of 65 NM from Lajes Airport. The crew managed to land the aircraft at Lajes Airport. The aircraft suffered structural damage to the fuselage and to the main landing gear and was evacuated.

Safety Recommendation PORT-2004-001: It is recommended that Direction Generale de l'Aviation Civile of France:

- Mandate the implementation of the FUEL FU/FOB DISCREPANCY Caution alert for all A-330 aircraft; and
- Mandate the incorporation of a fuel loss alert for other Airbus aircraft with similar fuel system design

Reply: The caution is installed on all A330/340 delivered from msn 392 (but can be disabled by operators), and is installed on all A340-500/600. In March 2002 the DGAC of France issued a Bulletin Recommendation (BR 2002/48(6), dated 13th of November 2002) to recommend implementation of the FUEL FU/FOB DISCREPANCY caution for all A330/340. The decision not to mandate this caution is consistent with the fact that the primary corrective action (revised AFM procedure) was mandated by AD. Furthermore the caution constitutes only an enhancement; and does not address fuel leak scenarios, such as leak located downstream of the fuel flow-meter.

Regarding other Airbus products, the A380 features a FUEL FU/FOB DISCREPANCY Caution, together with a monitoring of engine fuel flows to cover additional leak scenarios. With the view towards further product enhancement, a Fuel Used/Fuel On Board Discrepancy crew alert is available since 2005 for A318, A319, A320 and A321 models on production airplanes. (from GPIAA report)

Classification: Disagreement - **Status:** Closed

Safety Recommendation PORT-2004-002: It is recommended that the civil aviation authorities of other transport aircraft categories manufacturing states, such as Canada, United States of America, and United Kingdom, as well as the European Aviation Safety Authority:

- Review the adequacy of aircraft indications and warning systems and procedures to detect fuel-used/fuel-loss discrepancy situations;
- Review the capability of these systems to provide clear indications as to the causes of these situations; and
- Review the capability of these systems to provide alerts at a level commensurate with the criticality of a fuel-loss situation.

Reply: A task has been added to the advance planning of the Agency's rulemaking programme. This is to be called "25.055 - fuel system low level indication/fuel exhaustion".

Direzione esecutiva – Dipartimento per l'analisi e la ricerca sulla sicurezza

© Agenzia europea per la sicurezza aerea, 2008. Tutti i diritti riservati. Documento di proprietà.

Eventuali copie cartacee devono intendersi non controllate. Verificare l'esistenza di eventuali modifiche sul sito Internet/Intranet dell'EASA.



The plan is to set-up a working group and to publish a Notice of Proposed Amendment (NPA) by the 4th quarter of 2007. This is to be done with the aim of amending the certification specification CS-25 by the 1st quarter of 2009.

Classification: Agreement - **Status:** Open

Safety Recommendation PORT-2004-004: It is recommended that, as an interim safety measure, all Civil Aviation Authorities promulgate the circumstances of this fuel leak event to all air operators, aircraft manufacturers and flight crew training organizations.

Reply: The EASA believe that the event was widely publicised Official communications included the Airworthiness Directives and the Recommendation Bulletins issued to correct design issues highlighted by the event, as well as the official investigation report. The aircraft manufacturer has issued several documents following this event, including a Flight Operation Telex (FOT) detailing the event circumstances.

Classification: Partial agreement - **Status:** Closed

Safety Recommendation PORT-2004-005: It is recommended that Direction Générale de l'Aviation Civile of France, in consultation with Airbus review the automated, fuel-transfer systems on Airbus aircraft to ensure that the systems are able to detect abnormal fuel transfers, that systems exist and procedures are in place to inhibit abnormal transfers, and that the crews are notified, at an appropriate warning level, of abnormal fuel transfers.

Reply: The Direction Générale de l'Aviation Civile (DGAC) has satisfactorily reviewed the A330 and A340 Fuel System during a dedicated meeting.

It has been concluded by the DGAC of France, during Airworthiness Review Meetings, that the A300, A300-600 and A310 Fuel System is capable of providing adequate and readily identifiable warnings and indications to the crew such that they understand what is happening to the fuel system and can take the necessary steps to ensure continued flight safety of the aircraft its passengers.

A319, A320 and A321 fuel transfers and system operation during transfers have been satisfactorily reviewed by the DGAC during Airworthiness Review Meetings.

Classification: Agreement - **Status:** Closed

Safety Recommendation PORT-2004-006: It is recommended that DGAC-France and EASA review Airbus aircraft indication and warning systems and abnormal procedures to ensure that, in situations of major fuel imbalances, actioning of appropriate fuel leak procedures becomes a priority for flight crews; and consider merging the Airbus FUEL IMBALANCE and FUEL LEAK checklist procedures into one procedure, containing, at the top of the procedure, the conditions that would suggest the presence of a fuel leak.

Reply: The DGAC-France has reviewed the Airbus aircraft indication and warning systems and abnormal procedures during Airworthiness Review Meetings. It has been concluded that:

- The A300, A300-600 and A310 Fuel System is capable of providing adequate and readily identifiable warnings and indications to the crew such that they understand what is happening to the fuel system and can take necessary steps to ensure continued flight safety of the aircraft and passengers.
- The A319, A320 and A321 means to detect fuel leaks and current fuel procedures are adequate to safely treat a fuel leak, before the inclusion of any supplementary design enhancements. The existing procedures ensure that the crew had adequate means to timely detect and then treat any fuel leak, and safely complete the flight by performing, if



necessary, a diversion.

- The A330/A340 procedures are adequate. The existing Flight Manual, Flight Crew Operations Manual and Quick Reference Handbook procedures for fuel leak and fuel imbalance ensure that no unsafe condition exists. The subsequent introduction of a Fuel Used/Fuel On Board Discrepancy crew alert was accepted by the DGAC-France as being an enhancement.

The A330, A340 and A340-500/600 Flight Warning Computer improvement to add "IF NO LEAK", before all Electronic Centralised Aircraft Monitoring procedures requiring cross feeding, is implemented as part of the Fleet Standardisation Improvement Program.

The EASA agrees with these conclusions.

Classification: Agreement - **Status:** Closed

Safety Recommendation PORT-2004-007: It is also recommended that the civil aviation authorities of other aircraft manufacturing states, such as Canada, United States of America, and United Kingdom, as well as the European Aviation Safety Authority:

Review the adequacy of the fuel indications and warning systems, as well as procedures associated with fuel imbalance situations to ensure that the possibility of a fuel leak is adequately considered

Reply: A task has been added to the advance planning of the Agency's rulemaking programme. This is to be called "25055 - fuel system low level indication/fuel exhaustion". The plan is to set-up a working group and to publish a Notice of Proposed Amendment (NPA) by the 4th quarter of 2007. This is to be done with the aim of amending the certification specification CS-25 by the 1st quarter of 2009.

Classification: Agreement - **Status:** Open

Safety Recommendations PORT-2004-008, PORT-2004-009: It is recommended that Transport Canada and DGAC-France and EASA review the adequacy of applicable regulations, standards and aircraft manuals to ensure that necessary information and guidance is made available to the crews to properly safeguard on-board recordings following an occurrence (PORT-2004-008).

It is recommended that the CAAs of other states, as well as the EASA review the adequacy of their regulations related to the safeguarding of on-board aircraft recordings (PORT-2004-009).

Reply: The appropriate rule already exists (EU-OPS 1 160). However, taking into account App.1 to EU-OPS 1.1045 pt 11, EASA will consider possible improvement to the OPS regulatory framework.

Classification: Partial agreement - **Status:** Open

Safety Recommendations PORT-2004-011, PORT-2004-012: It is recommended that Transport Canada, DGAC-France, CAA-UK, as well as the EASA and CAAs of other states responsible for the manufacture of aircraft and major-components:

- review applicable airworthiness regulations and standards, as well as aircraft, engines and component maintenance manuals, to ensure that adequate defences exist in the preinstallation, maintenance planning process to detect major configuration differences and to establish the required support resources for technicians responsible for the work (PORT-2004-011).
- review the adequacy of the current standards for identifying the configuration and modification status of major components to ensure that differences between major components of similar part numbers can be easily identified (PORT-2004-012).

Direzione esecutiva – Dipartimento per l'analisi e la ricerca sulla sicurezza

© Agenzia europea per la sicurezza aerea, 2008. Tutti i diritti riservati. Documento di proprietà.

Eventuali copie cartacee devono intendersi non controllate. Verificare l'esistenza di eventuali modifiche sul sito Internet/Intranet dell'EASA.



Reply: The Agency partially agrees with this recommendation and the current regulation covers all those following aspects:

Operator responsibility:

Part M.A.402(a) and AMC M.A.402(a) already impose an independent duplicate inspection after any flight sensitive maintenance task (such as those affecting flight controls). They provide a description of what systems should be checked and the corresponding procedure. However, Appendix V to AMC M.A.704 doesn't call out for a specific procedure to be included in the Continuous Airworthiness Management Exposition in order to deal with these issues. Therefore, the Agency may consider clarifying such procedure as part of the task MDM-020.

Maintenance Organisation responsibility:

Regulation Part 145 A.65(b)(3) and AMC 145.A.65(b) impose special requirements regarding

- installation of identical components, that could be improperly installed, compromising more than one system,
- maintenance of critical systems,
- procedures for completion of paperwork in order to avoid omissions when performing maintenance.

Besides, Part 145.A.60(b) and AMC 145.A.60(b) also prescribe the need for an internal occurrence reporting system that identifies factors contributing to maintenance errors and ensures appropriate action is taken to avoid them.

Also, Human Factors training is an important tool in order to prevent maintenance errors, which is covered by 145.A.30(e).

AMC 145.A.70(a) calls out for the following specific procedures to be included in the corresponding Maintenance Organization Exposition:

223: Control of critical tasks.

225: Procedures to detect and rectify maintenance errors.

226: Shift/task handover procedures.

L-27: Line procedures for control of critical tasks.

313: Human Factors training.

Classification: Partial Agreement - **Status:** Open



SPAIN

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|--------------------------|---------------|------------|
| EC-IDF | Airbus A-340 | Madrid Airport, Spain | 07.09.2002 | Incident |

Synopsis of the event: An aircraft Airbus A340 landed on runway 33 of Madrid-Barajas Airport with a residual pressure of 800 psi on the alternate hydraulic system of the brakes of the left main landing gear leg. The crew had already detected the presence of that residual and had voluntarily moved the "antiskid & nose wheel steering" switch to the OFF position. At the beginning of the landing roll, the pilot in command applied reverse, did not press the brake pedals and used right rudder. The four wheels of the left main landing gear leg burst, the aircraft deviated initially to the right of the runway axis and then to the left until both crew members applied full right brake, and the pressure reached 2500 psi on the brakes of the four right wheels that locked and burst. Finally, the aircraft came to a stop. (from CIAIAC report)

Safety Recommendation SPAN-2004-009: It is recommended to the DGAC of France that, in collaboration with Airbus and Messier-Bugatti, conduct a deep evaluation of the characteristics of design, manufacture and maintenance of the master cylinders of the brake system of the A-340. This evaluation should have the goal of preventing that cylinders accepted by the different quality controls of the manufacturers at component manufacturer, final assembly, and flight testing, might produce residual pressure on the brake system under certain conditions of operation.

Reply: Airbus and Messier-Bugatti have performed a review of the design and manufacturing of the master cylinders. The conclusions were reviewed and accepted by DGAC France. Regarding quality issues, the main outcomes were:

Final Assembly Line Procedure (FAL) procedure has been updated to include a more detailed check of the master cylinder venting characteristics. Until the procedure was released, all alternate braking low pressure control circuit characteristic plots were being issued to Airbus for individual approval.

Airbus did review the Acceptance Test Procedures (ATP) application and took corrective actions when relevant, to avoid out-of-tolerances parts passing ATP (quality review). Messier Bugatti confirmed the following improvement to the ATP for A330-340 M/C P/N C24592020:

- The ATP ref. CMC24592020 issue 3 becomes issue 4 by adding the record of the length of the hole centre to centre distance.
- In advance of the ATP's up-issue, the length of the master cylinder was controlled and recorded on each delivered new unit, this change was implemented on 14 November 2002.
- The improvements to the ATP detailed above for A330/A340 will also be applied to the other Airbus aircraft when relevant.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|------------------------|---------------------------------|---------------|------------|
| EC-GAB | PZL M18A "Dromader" | Requena (Valencia), Spain | 04.09.2005 | Accident |

Synopsis of the event: On 4 September 2005, shortly after 15:51, a PZL M18A "Dromader" aircraft, registration EC-GAB, crashed into the ground moments after taking off from Requena Airport (Valencia) as it was executing a 180° turn to the left so as to proceed to the town of Montroy (Valencia) where a fire had been reported. The most likely cause of the accident is



considered to be a stall during the execution of the left turn after the takeoff with high lateral inclination and with a speed lower than that necessary to maintain the flight attitude. Additionally, the investigation revealed the need to ensure that pilots flying the PZL M18A aircraft under high operating weight conditions are highly qualified. (from CIAIAC report)

Safety Recommendation SPAN-2006-035: It is recommended that the EASA take the necessary action to ensure that the stall warning system of aircraft PZL M-18 and M18A equipped with the SF1 sensor system cannot be manually disconnected from the cockpit.

Reply: The EASA does not agree with this safety recommendation. Supplement 16 of the approved flight manual contains adequate provisions to protect the aircraft from mishandling at elevated take-off weight and Emergency Airworthiness Directive 2006-0229-E has standardised the various earlier limitations to those of Supplement 16. This Supplement also establishes minimum pilot qualifications for elevated maximum take-off weight operations; 2000 FH total experience, 1000 FH in agricultural and fire-fighting work plus 200 FH on the M-18A. Furthermore, there are other means to disconnect the stall warning system, and the pilot can still determine whether to receive stall warnings (including nuisance warnings) or not, at different stages of the flight.

Classification: Disagreement - **Status:** Closed

Safety Recommendation SPAN-2006-036: It is recommended that EASA review the conditions approved in the Supplementary Type Airworthiness Certificates issued by the DGAC in Spain, as well as those authorizing the basic design modifications to the PZL M18 and PZL M18A, which increase the MTOW to 5300 kg for firefighting operations and which are covered by the EASA A..056 Type Certificate.

Reply: Airworthiness Directive 2006-0229-E (related to PZL M-18 and M-18A aircraft) was issued on 27 July 2006.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-------------------|--------------|---------------|------------|
| SP-SUB | PZL Swidnik W-3AS | Tineo, Spain | 13.07.2005 | Accident |

Synopsis of the event: During the return flight from the site of the fire to the base at Tineo to refuel, aircraft SP-SUB was forced to make an emergency landing due to problems with the pressure in both hydraulic systems. As a result of the impact, the aircraft flipped over and came to rest on its left side. A fire broke out which resulted in the complete destruction of the aircraft. The two persons aboard, the pilot and the co-pilot, were able to get out under their own power. The co-pilot got out uninjured while the pilot suffered burns. The aircraft was completely destroyed. (from CIAIAC report)

Safety Recommendation SPAN-2007-003: Since no corrective or preventive actions were issued following the series of faults in the HS2 ground circuit which had taken place before the accident, including one at PZL's own facilities, it is recommended that EASA review the manufacturer's system for analyzing in-service faults so as to ensure they are adequately analyzed and that urgent actions are taken when appropriate.

Reply: EASA put an action on 27.10.2006 on the Swidnik Design Organization Approval Team Leader to review the case. A specific audit was done in November 2006, based on this request



and on other non-conformities discovered during the previous surveillance activities in the very same area.

Depending on the surveillance report, additional actions may be taken by the Civil Aviation Authority in charge of the oversight.

Classification: Agreement - **Status:** Closed

Safety Recommendation SPAN-2007-004: Given the history of faults in the ground circuit and this component's use only and exclusively in maintenance tasks, it is recommended that the manufacturer, PZL, study the design of the W-3AS hydraulic system ground circuits to evaluate the possibility of removing them or improving their current design.

Reply: This recommendation is not addressed to EASA. According to the investigations and statements of the manufacturer (PZL) the failure was related to a production fault to a specific production lot, which could be clearly determined. A batch of helicopters which were reconfigured from W-3 to W-3AS standard and one new built helicopter were affected by inappropriate installation of the hydraulic line in question.

All possibly affected hydraulic lines of the subject helicopters have initially been modified.

The installation process has been redefined by a SB to prevent further failures.

As these changes were not showing enough robustness against possibility of re-occurrence, PZL mandatory bulletin BO-37-07-192 has been issued requiring complete removal of the line section in question. EASA will consider issuing an AD to ensure that the fleet is modified accordingly.

Classification: Partial agreement - **Status:** Closed



SWEDEN

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|----------|---------------|------------|
| LN-RDL | DHC8-Q400 | Sweden | 24.11.2005 | Incident |

Synopsis of the event: The aircraft was carrying out a regular flight from Växjö to Stockholm. Soon after takeoff, the pilots received a warning that the autopilot should not be engaged. In spite of this the Pilot Flying (PF) tried to engage the autopilot. Shortly after, the PF ordered retraction of the wing flaps. As he did not receive any answer from the Pilot Not Flying (PNF), who was busy with adjustments and radio communication, he decided to do it himself. During this time the aircraft's rolled and the pitch went from "nose up" to "nose down". The PNF made the PF aware of this situation at the same time as an automatic warning was activated. The aircraft's attitude was corrected. (from SHK report)¹⁴

Safety Recommendation SWED-2006-001: EASA is recommended, when certifying new aircraft types, to ensure that there are systems that warn when the autopilot is not activated after an attempt to activate it.

Reply: The Agency has reviewed the request before issuing the NPA 18- 2006 on Flight Guidance Systems. It was considered that the intent of the recommendation is covered by the provisions included into the NPA, notably paragraph 8.1 auto-pilot engagement/disengagement and indications. This NPA was published on 11 January 2007 for comments.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-----------------|--------------------------------|---------------|------------|
| SE-GIT | Piper PA 31-310 | Umeå flygplats, AC län, Sweden | 13.03.2006 | Accident |

Synopsis of the event: When landing gear was selected down during the approach to Umeå airport no indication was received that the left main landing gear was down and locked. After some low passes it was confirmed, with help from ground observations, that the left landing gear was only half open and hanged out in an angle of approximately 45° from the underside of the wing. In spite of repeated efforts from the pilots, including emergency gear extension procedures, the situation remained unchanged. The commander decided to perform an emergency landing on the snow covered strip to the right of the runway. The landing was done with gear up and full flaps. After an initially straight sliding in the snow, the aircraft veered to the left and came to final stop a few meters from the asphalt edge of the runway. At the inspection it was established that the landing gear door had fatigue damages and had broken when the gear was extended. The actuating rod in the hydraulic cylinder that manoeuvres the gear door then got stuck in a position between half open and closed, blocking the landing gear from being extended. (from SAIB)

Safety Recommendation SWED-2007-001: It is recommended that EASA takes action so that the hinge assemblies of this particular type are inspected at suitable intervals in respect of crack generation.

¹⁴ EASA translation. English version of the report not available.



Reply: The EASA does not agree with this safety recommendation. In the accident report it is stated that after the installation of *"...the new hinge assemblies, the requirement for inspection of the door hinge assemblies terminated..."* and that the *"...SHK has not found any directive in respect of continued checks at prescribed intervals after the bulletin [SB 682] that was issued in 1980..."*

The EASA contacted the FAA and the aircraft manufacturer in order to gain information regarding similar occurrences. As informed by the FAA, no recent similar occurrences appear on the FAA files.

Furthermore, as far as the inspection of the new hinge assemblies is concerned, the FAA issued Airworthiness Directive 2000-25-01 in order to cover recurrent hinge inspections. This Airworthiness Directive, effective from 19-01-2001, enforces Piper SB 682 and supplements it, by requiring repetitive dye penetrant hinge inspections with a recurrent inspection interval of 2000 hours for the new hinge assemblies P/N 47529-32, which initially were released without any recurrent inspection requirements.

By virtue of the provisions of Commission Regulation (EC) 1702/2003 and the EASA ED Decision 2/2003, this FAA Airworthiness Directive is applicable to all affected aircrafts registered in an EASA member state.

Thus, taking all the above into account, it is assumed that no actual hinge inspections reports were found in the aircraft logs and that this Airworthiness Directive has not been accomplished on the accident aircraft.

Classification: Disagreement - **Status:** Closed



UNITED KINGDOM

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|----------------------------------|------------------------|---------------|------------|
| N90AG | Bombardier CL600-2B16 Series 604 | Birmingham Airport, UK | 04.01.2002 | Accident |

Synopsis of the event: Immediately after takeoff from Runway 15 at Birmingham International Airport the aircraft began a rapid left roll, which continued despite the prompt application of full opposite aileron and rudder. The left winglet contacted the runway shoulder, the outboard part of the left wing detached and the aircraft struck the ground inverted, structurally separating the forward fuselage. (from AAIB report)

Safety Recommendation UNKG-2003-056: It is recommended that the Civil Aviation Authority require the following specific statement within the limitations section of the flight manuals of aircraft with a significant susceptibility to ice contamination, 'Wings and tail surfaces must be completely clear of snow, ice and frost prior to takeoff', and communicate this recommendation to other civil airworthiness authorities responsible for the primary type certification of new aircraft types.

Reply: EU-OPS 1.345(b) (as well as JAR-OPS 1.345(b)/3.345(b)) states that "A commander shall not commence take-off unless external surfaces are clear of any deposit which might adversely affect the performance and/or controllability of the aeroplane except as permitted in the aeroplane flight manual". That provision covers the issue for commercial air transport. It is the intention of the EASA to propose the extension of this requirement to other kinds of operations as well.

Classification: Disagreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-----------------|-----------------------|---------------|------------|
| G-BWIR | Dornier 328-100 | Edinburgh Airport, UK | 06.03.2002 | Accident |

Synopsis of the event: Prior to the planned flight the forward passenger door was closed and locked. The flight crew confirmed the correct positioning of the door during their pre-start checks. During the take-off run, at about 100 kt, the door opened and the flight crew aborted the take off. The door and locking mechanism were undamaged, however, the hinge arms of the integral air stairs were so severely damaged that it is unlikely that the door and the integral stairs would have remained attached had the aircraft continued to accelerate and become airborne. It is concluded that the most probable way in which the door opened was that the door-handle was inadvertently operated during the take-off run. The ergonomic features of the cabin crew station would have contributed to the handle being inadvertently grasped during this phase of flight. (from AAIB report)

Safety Recommendation UNKG-2003-109: It is recommended that the EASA review the design characteristics of the door operating, attachment and restraint mechanisms of the Dornier 328 aircraft type, in order to minimise the possibility of inadvertent door operation and to ensure that there is sufficient residual strength in the door/airstair attachments to prevent separation of the door in the event of a door coming open during takeoff or initial climb.

Reply: Following this event, the manufacturer issued Mandatory Service Bulletins SB-328-11-454 and SB-328J-11-209 (as applicable to aircraft type), related to the installation of warning



placards to the inside of the passenger door and service doors of the aircraft. It has also issued Mandatory Service Bulletins SB-328-52-460 and SB-328J-52-213 (as applicable to aircraft type), related to the structural modification of the passenger door hinge supports.

The EASA has mandated these Mandatory Service Bulletins by issuing Airworthiness Directive 2007-0199 on 25-07-2007.

The EASA has also published NPA 02/2006 related to CS-25 design requirements related to doors, aiming at enhancing the safety level, by providing additional fail-safe requirements and detailed door design requirements.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|----------------------------|----------------------------------|--|----------------------------|------------|
| G-DOCH and other aircrafts | Boeing & 373-436 and other types | Near Clacton, Essex and other places, UK | 08.11.2002 and other dates | Incident |

Synopsis of the event: Whilst climbing through FL240 the flight crew noticed a small amount of smoke appear on the flight deck, accompanied by a smell of electrical burning. Fire damage had occurred to electrical wiring in the area of the 'drop-down' ceiling panel immediately aft of the flight deck door. A braided steel water supply hose to the forward galley had been attached by means of a simple electrical 'tie-wrap' to a wiring loom, and there was evidence of abrasion and arcing between the wires and the hose. (from AAIB report)

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: The Agency continues to be an active participant in the ageing systems rulemaking process. Publication of a Notice of Proposed Amendment (NPA) is expected by the end of 2005. It is estimated that publication of final text will be by the end of 2006. This final text should require a Type Certificate holder to provide enhanced Instructions for Continued Airworthiness (ICAW), by mid 2008 and aircraft operators implementation by mid 2009.

Updated Reply: Continuing its participation to the ageing systems rulemaking process, the EASA published NPA No 2007-01 on 19-03-2007, in which the issue of ageing wiring has been included.

Classification: Partial Agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|------------------------|---|---------------|------------|
| N7205R | Beechcraft Bonanza A36 | Ballyneale Stud, Ballingarry, Co Limerick, UK | 09.08.2002 | Accident |



Synopsis of the event: Following take-off from a private grass airstrip, the aircraft did not achieve sufficient fly-away airspeed and stalled. It struck a solid hedgerow and came to rest in an open field adjacent to the airstrip. The aircraft was a write-off as a result of the accident, and a passenger subsequently died as a consequence of injuries received in the accident. The pilot and the other passenger also suffered injuries. (from AAIU report)

Safety Recommendation UNKG-2004-033: The EASA (as successor to the JAA) should finalise and implement its proposals with regards to JAR-OPS 2 and corporate aviation as a matter of urgency.

Reply: The EASA has not yet got competence in the field of operations. As soon as the relevant regulation is promulgated, the EASA will publish its opinion for the corresponding implementing rule.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-------------------------|-------------------------------|---------------|------------|
| G-FTIL | Robin DR 400-180 Regent | Little Staughton Airfield, UK | 26.09.2003 | Accident |

Synopsis of the event: The aircraft was being flown to Little Staughton Airfield for some pre-arranged scheduled maintenance. The weather at Little Staughton was CAVOK with a surface wind from 250° at 10 kt. Shortly after a normal landing on Runway 25 the aircraft veered violently to the left and the nose landing gear (NLG) collapsed. The propeller contacted the ground, the engine stopped and the aircraft slid approximately 20 metres before coming to rest 5 metres from the edge of the runway. (from AIB report)

Safety Recommendation UNKG-2004-087: It is recommended that the Director Generale de L'Aviation Civile (DGAC), France as lead agency for the EASA, re-issue AD No. 83-206(A) to include the inspection of the Upper Support Plate in the same areas as those specified on the Lower Support Plate.

Reply: The Agency accepts this recommendation. The Type Certificate holder Apex, has published the Service Bulletin SB n°101 rev 4 and the related EASA Proposed Airworthiness Directive 07-009 is published.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|--------------------------|---------------|------------|
| G-BXDO | Cozy | near Gloucestershire, UK | 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. After touchdown, the aircraft's nosewheel sank into soft ground and the nose landing gear collapsed. 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. (from AAIB report)

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: Task VLA.004, which has as objective the review of the design of exit, with a view to ensuring that rapid escape is possible from such aircraft in any normal and crash attitude, including the case of turnover, has been included in the 2008 rulemaking programme.

Classification: Agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-------------------------|----------------------------------|---------------|------------|
| G-BGED | Cessna U206F STATIONAIR | Beacon Village, near Honiton, UK | 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. (from AAIB report)

Safety Recommendation UNKG-2005-061: It is recommended that the British Parachute Association, in consultation with the Civil Aviation Authority and the European Aviation Safety Agency, conduct a review of cabin interiors on aircraft engaged in parachuting operations with regard to improving their crashworthiness.

Reply: The EASA will cooperate with the British Parachute Association as required.

Classification: Agreement - **Status:** Closed

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: Today no suitable standards for appropriate recording equipment exist. EASA has proposed to EUROCAE to consider including this task in the coming agenda.

Classification: Agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|---------------|---------------|------------|
| N481EV | Boeing B747- | Airborne near | 24.04.2004 | Incident |



| | | | | |
|--|-----|----------------------------|--|--|
| | 132 | the Compton VOR beacon, UK | | |
|--|-----|----------------------------|--|--|

Synopsis of the event: The aircraft was carrying out a cargo flight from Ramstein in Germany to Wright Field in New York State. Shortly after reaching a cruising level of FL360, the left outboard engine ran down and could not be restarted. It was decided to return to Ramstein and the aircraft descended to FL210 and took up an easterly heading. The crew determined that the three remaining engines were not producing the selected thrust and declared an emergency requesting a diversion to London Heathrow Airport. The aircraft was radar vectored onto the final approach track for Runway 27R and the commander completed a successful approach to a safe landing. Significant thrust was available and used during the final stages of the approach and the aircraft was taxied under its own power. (from AAIB report)

Safety Recommendation UNKG-2005-070: The FAA of the USA and the EASA should require that aircraft Flight Manuals contain guidance relevant to the aircraft's gliding characteristics in the optimum and approach configurations.

Reply: It is considered that the calculation of the aircraft flight path based on airspeed and rate-of-descent is a basic airmanship skill. The provision of any Aircraft Flight Manual glide performance data may not be beneficial as it could lead to a distraction if the crew try to find this rarely used data at a time when priority should be given to flying the aircraft. Furthermore, the probability of losing power on all four engines simultaneously, even though it was speculated to have occurred in this incident, is considered a catastrophic event and is extremely improbable.

Classification: Disagreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|----------------------------|------------------|---------------|------------|
| G-BEVT | BN2A Mk III-2 "Trislander" | Guernsey Airport | 23.07.2004 | Accident |

Synopsis of the event: Shortly after takeoff from Guernsey Airport, a loud crack or bang was heard in the aircraft's cabin. The aircraft commander was told by a colleague in the cabin that one or more passengers had been injured and that a cabin window was broken. He decided to return to Guernsey Airport having been airborne for approximately four minutes. After the passengers disembarked the pilot noticed that a de-icer boot had separated from the left hand propeller and was now on the seat inside the cabin, adjacent to the broken window. (from AAIB report)

Safety Recommendation UNKG-2005-078: The UK CAA and the EASA should work closely together to develop further the valuable progress already made in human factors in aircraft maintenance, focusing on the underlying reasons for both errors and violations, with a view to reducing the potential for system-induced errors and violations, and therefore the risk of maintenance related accidents.

Reply: The Agency agrees with this recommendation and notes that the current regulation covers all those following aspects:

- Maintenance Organisation responsibility:
Regulation Part 145.A.60(b) and AMC 145.A.60(b) prescribe the need for an internal occurrence reporting system that identifies factors contributing to maintenance errors and ensures appropriate action is taken to avoid them
- Human Factors



Also, Human Factors training is an important tool in order to prevent maintenance errors, which is covered by 145.A.30(e). AMC 145 A.70(a) calls out for the following specific procedures to be included in the corresponding Maintenance Organization Exposition:

2.23: Control of critical tasks.

2.25: Procedures to detect and rectify maintenance errors.

2.26: Shift/task handover procedures.

L-2.7: Line procedures for control of critical tasks.

3.13: Human Factors training.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|---------------------------------------|---------------|------------|
| G-RJXG | Embraer 145 | On approach to Manchester Airport, UK | 25.09.2001 | Incident |

Synopsis of the event: The aircraft was carrying out a scheduled flight from Aberdeen to Manchester. The commander, who was the handling pilot, reported that during the flight the weather radar was displaying weak returns of cumulonimbus cloud activity, but he manoeuvred the aircraft in order to avoid the affected areas, primarily by visual means. He accepted radar vectors to position the aircraft downwind for the landing runway. Just as the aircraft entered cloud, a lightning strike occurred. The commander subsequently reported that there was neither turbulence nor significant precipitation at that time. Recorded data indicated that the aircraft was close to FL70 at the time with a low thrust setting. The first officer informed the commander that he had observed a left engine over-temperature indication. Within 5 to 10 seconds of the strike, both crew members noted that the left engine operating parameters were decreasing rapidly. An uneventful single engine landing then took place at 1415 hrs. (from AAIB report)

Safety Recommendation UNKG-2005-094: It is recommended that, in order to minimise the risk of uncommanded shut-downs, EASA, FAA and the Centro Tecnico Aeroespacial (CTA) of Brazil in conjunction with aircraft and engine manufacturers should review and, if necessary, initiate appropriate research into the aero-thermal disruption of intake flow and other effects of lightning strikes on fuselage mounted turbine engines in order to establish whether there is a safety of flight issue that should be addressed by appropriate future rulemaking. They should also consider the application of any proposed rules to types currently in service.

Reply: The EASA, in cooperation with the manufacturer and the Agência Nacional de Aviação Civil-Brazil have reviewed this issue. During the review it was found that the susceptibility of the EMB-145 for lightning strikes is not dissimilar to the world fleet.

Furthermore, the statistical data on lightning strike damage has shown that, so far, there have been reported only 3 cases where a lightning strike and the resulting high temperature at the engine inlet caused an engine in-flight shut-down (IFSD). In these cases, according to the aircraft flight manual, the engine could have been re-started by the crew, in case of need. The review did not show any dual engine IFSD occurrence in EMB-145 aircraft or any other aircraft type with similar fuselage diameter, while it was also found that only smaller fuselage diameter are susceptible to dual engine In Flight Shut Down.

Based on these, the probability of an IFSD caused by a lightning strike was found to be well below the safety target for an IFSD, which is considered to be a minor event.

Moreover, the FADEC Engine control reacts exactly according to design and shuts down the engine in case of an Inter Turbine Temperature increase above limit. Any modification to this behaviour increases the risk of an engine not being shut down when needed (e.g. serious mechanical failure).



Nevertheless, the manufacturer is continuously monitoring the lighting strike data in order to improve the comprehension of this phenomenon.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|--------------------------|----------------------------|---------------|------------|
| G-BXLI | Bell 206B Jet Ranger III | near Taunton, Somerset, UK | 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 as the pilot 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. (from AAIB report)

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 proposed to EUROCAE to consider including this task in the coming agenda.

Classification: Agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|----------------|----------------|------------------------------------|------------|
| G-CFAC | Avro 146-RJ100 | Various places | Various dates during winter 2004-5 | Incidents |

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. Many of these events were found to be associated with residues of 'thickened' de-icing fluids, that had accumulated in the aerodynamically 'quiet' areas of the elevator and aileron controls. These residues rehydrate on exposure to precipitation and can freeze at altitude, with the potential for restricting control movement. In most of these incidents, the control forces returned to normal after the aircraft had descended into warmer conditions. Despite recent industry efforts at addressing the problems posed by such residues, an effective solution remains to be found. (from AAIB report)

Safety Recommendations UNKG-2005-135, UNKG-2005-136, UNKG-2005-137, UNKG-2005-148: 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 (UNKG-2005-135).

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 (UNKG-2005-136).

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 (UNKG-2005-137).

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 (UNKG-2005-148).

Reply: The Agency agrees that this is a safety issue and has already taken the following actions:

- An EASA internal working group has been set-up comprising representatives of the certification and rulemaking directorates. This EASA internal group is coordinating its work with the corresponding JAA Working group and also liaising with SAE in particular the residue Working Group and the Group developing the standard for the Remote On-Ground Ice detection System. One first result of those contacts with SAE was their agreement to add a warning about the problem of residues in their revised standards for fluids type II to IV. EUROCAE has also been informed of those activities. Last but not least contacts with Transport Canada in this area are planned.
- The Safety Information Notice 2006-09 called "Ground De- / Anti-Icing of Aeroplanes; Intake / Fan blade Icing and effects of fluid residues on flight controls" is published on the EASA web-site. This notice draws the attention to the importance of eradicating frozen residues and provides guidance to that effect. It has been established in consultation with the JAA and builds on their Safety Information Communication by adding further guidance on the maintenance aspects.
- The Agency also started to draft an Advance-Notice of Proposed Amendment (A-NPA). It presents the background of the issue (explains the problem, makes reference to accident investigation bodies recommendations, describes other activities such as those of ERA, JAA, SAE, etc and emphasises the need for coordination and multi-disciplinary approach). It presents several options to address design, continuing airworthiness, operations and airport issues. Proposed actions will be categorised as follows: action to address the immediate situation, future provisions, advancement in fluid technologies, future aircraft design issues. The A-NPA should be published for comments in the second quarter of 2007.

Updated Reply: The EASA 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 used in order to define an EASA action plan to address this issue.

Classification: Agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-----------------|----------------------|---------------|------------|
| G-OSFA | Diamond HK36 TC | Enstone Airfield, UK | 12.06.2006 | Accident |



Synopsis of the event: Following a normal approach and touch-down a loud scraping noise was heard from the front of the aircraft which was followed by the nose wheel detaching from the nose leg. The metallurgical examination revealed that both the nose landing gear wheel fork arms had failed in overload and that the materials were of the correct specification. (from AAIB report)

Safety Recommendation UNKG-2006-115: It is recommended that the European Aviation Safety Agency (EASA) review the design, manufacturing and material specifications for Diamond HK36-TC nose landing gear wheel fork arms for their suitability for continued airworthiness.

Reply: The EASA/ACG Project Certification Manager has reviewed the existing in-service data as well as the design specific drawings. Design change no. AM 140, issued in 1998 improved the initially certified design in the cracked area. All forks cracked at that time were identified as overload failures under rough operating conditions. Any failure does not lead to an unsafe condition, and initial cracks are normally identified by preventive maintenance activities which are already prescribed in the Airplane Maintenance Manual. Crack development is in most cases promoted by nose wheel "shimmy" due to improper friction adjustment of the nose landing gear fork damper. The structural design is within the design values of JAR-22. In EASA's and the manufacturer's opinion, a nose landing gear pivot friction below tolerance, leading to "shimmy" on landing, and/or hard landing, is likely to have been a contributing factor.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|----------------|---------------|------------|
| G-EKMW | Mooney M20J | Jersey Airport | 16.10.2004 | Accident |

Synopsis of the event: Shortly after takeoff, the aircraft suffered an engine malfunction and the pilot attempted to return to the airfield. During the turn, the aircraft appeared to stall and impacted the ground in a nose low attitude, fatally injuring the pilot. A defect was discovered within the engine's dual magneto, which had recently been refitted following a 500 hr inspection, affecting both ignition systems. This led to a loss of power, accompanied by misfiring, that was consistent with aural evidence from witnesses. Issues concerning quality control of maintenance activities and maintenance data were identified during the investigation. (from AAIB report)

Safety Recommendation UNKG-2006-030: It is recommended that the European Aviation Safety Agency (EASA) should amend the EASA Part 145 Regulation to require that EASA Part 145 approved maintenance and component overhaul organisations use pre-planned work/process sheets when carrying out work on safety critical components.

Reply: The Agency partially agrees with this recommendation keeping in mind that the current regulation already covers the following aspects:

Operator responsibility:

Part M.A.402(a) and AMC M.A.402(a) already impose an independent duplicate inspection after any flight sensitive maintenance task (such as those affecting flight controls). They provide a description of what systems should be checked and the corresponding procedure. However, APPENDIX V to AMC M.A.704 doesn't call out for a specific procedure to be included in the Continuous Airworthiness Maintenance Exposition in order to deal with these issues. Therefore, the Agency may consider clarifying such procedure as part of the task referenced MDM-020. Moreover, the Maintenance Organisation responsibility:

145.A.65(b)(3) and AMC 145.A.65(b) also impose special requirements regarding:



- Installation of identical components, that could be improperly installed, compromising more than one system.
- Maintenance of critical systems.
- Procedures for completion of paperwork in order to avoid omissions when performing maintenance.

Besides, 145.A.60(b) and AMC 145.A.60(b) also prescribe the need for an internal occurrence reporting system that identifies factors contributing to maintenance errors and ensures appropriate action is taken to avoid them.

Also, Human Factors training is an important tool in order to prevent maintenance errors, which is covered by 145.A.30(e).

AMC 145.A.70(a) calls out for the following specific procedures to be included in the corresponding MOE:

2.23: Control of critical tasks.

2.25: Procedures to detect and rectify maintenance errors.

2.26: Shift/task handover procedures.

L-2.7: Line procedures for control of critical tasks.

3.13: Human Factors training.

Classification: Partial agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|----------------------------------|---------------|------------|
| G-OMAC | Cessna FR172 | Bracklesham Bay, West Sussex, UK | 07.08.2005 | Accident |

Synopsis of the event: The pilot and aircraft had been involved in two consecutive days of banner-towing operations. The accident occurred on a positioning flight towards the end of the second day. Shortly after takeoff the aircraft was seen to turn left, with an increasing angle of bank, until it stalled and impacted the ground after turning through approximately 310°. Although the banner hook installation showed evidence of interference with the rudder, it was considered that this was not a factor in the accident. The most likely cause was a stall following the turn to the left with an increasing bank angle. This may have resulted from an attempt to maintain visual contact with a point on the ground, and would have been exacerbated by an increasing tailwind. It was also considered that the pilot may have been affected by fatigue after the two intensive days of banner-towing. (from AAIB report)

Safety Recommendation UNKG-2006-042: It is recommended that the EASA review the design of tow hooks fitted to banner towing aircraft with particular regard to eliminating any possibility of the hook interfering with the aircraft's primary flying control surfaces.

Reply: The EASA does not agree with this recommendation. There is no evidence in the report supporting the view that the banner-towing hook had had any bearing on the accident. Also, banner towing and the equipment used entail operational aspects for which sufficient guidance material for pilots and other personnel involved are already available.

Classification: Disagreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-------------------------|------------------------------|---------------|------------|
| G-BYLE | Piper PA38-112 Tomahawk | near Biggin Hill airport, UK | 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. (from AAIB report)

Safety Recommendation UNKG-2006-109: The EASA should instigate 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 available US accident and incident data associated with water contamination and fuel cap deficiency related causes. This review has shown only 3 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 intends to issue a relevant Safety Information Notice to emphasise the importance of the relevant inspections during scheduled maintenance

Classification: Partial agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|------------------------|--------------------------------------|---------------|------------|
| G-JECE | Bombardier DHC8-400 | Near Leeds, West Yorkshire, UK | 04.08.2005 | Incident |

Synopsis of the event: Shortly after initiating a descent, an oily smell was noticed on the flight deck, almost immediately followed by a smoke build-up in the flight deck and cabin. The flight crew carried out the initial part of the smoke checklist procedure, declared an emergency and carried out a diversion. The cabin crew members donned smoke hoods, which caused appreciable communication difficulties, and prepared the cabin for an emergency landing. After landing, an emergency evacuation was carried out, without injury. The smoke was found to be the result of fatigue cracking of a compressor support member of the No 2 engine. This had led to damage to an oil seal, allowing oil to leak into the bleed air supplying one of the air conditioning units. (from AAIB report)

Safety Recommendation UNKG-2007-006: It is recommended that the UK CAA and the EASA review the current training requirements for cabin crew members in the use of smoke hoods to mitigate the communications difficulties which may be encountered and to improve the ability of all the crew members to communicate while wearing smoke hoods.

Reply: EU-OPS insists already on the necessary communication training for cabin crew, including when wearing smoke hoods during initial, conversion and recurrent training. Appendix 1 to OPS 1.1005 (f), dealing with cabin crew initial training, specifies that "emphasis shall be placed on effective communication between cabin crew and flight crew including technique, common language and terminology".

Table 1 in Appendix 2 to OPS 1.1005/1.1010/1.1015 specifies that an in-depth training on "Effective coordination and communication between all crew members including the flight crew as well as inexperienced cabin crew members" shall be included in the operator's CRM training,

Direzione esecutiva – Dipartimento per l'analisi e la ricerca sulla sicurezza

© Agenzia europea per la sicurezza aerea, 2008. Tutti i diritti riservati. Documento di proprietà.

Eventuali copie cartacee devono intendersi non controllate. Verificare l'esistenza di eventuali modifiche sul sito Internet/Intranet dell'EASA.



a relevant training on that item for the type-specific CRM and a relevant reinforcement for the senior cabin crew training.

Appendix 1 to OPS 1.965, dealing with pilots' recurrent training, specifies that "the effects of smoke on an enclosed area and actual use of all relevant equipment" ((a)(3)(III)) shall be included in the recurrent training every three years. It specifies also that "communication and coordination inside and outside the cockpit" ((4)(ii)(F)) shall be part of the CRM training. EU-OPS 1.180 provides that the AOC is subject to compliance with the required training program.

Moreover, OPS 1.780 (e) provides that "[Protective breathing equipment] must not prevent communication".

The review of the requirements is therefore considered completed with satisfactory results.

Classification: Agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-----------------|---|---------------|------------|
| G-BNLG | Boeing B747-436 | en route from Los Angeles Airport to Heathrow Airport | 20.02.2005 | Incident |

Synopsis of the event: Immediately after the aircraft took off on a night flight from Los Angeles to London, a banging sound was heard and passengers and ATC reported seeing flames from the No 2 engine. The symptoms and resultant turbine over-temperature were consistent with an engine surge; the crew completed the appropriate checklist, which led to the engine being shut down. After assessing the situation, and in accordance with approved policy, the commander decided to continue the flight as planned rather than jettison fuel and return to Los Angeles. Having reached the east coast of the USA with no indications of further abnormality and with adequate predicted arrival fuel, the crew decided to continue to the UK. The winds and available flight levels were subsequently less favourable than anticipated and, nearing the UK, the crew decided to divert to Manchester in order to maintain the required arrival fuel reserve. (from AAIB report)

Safety Recommendation UNKG-2007-027: It is recommended that the FAA, EASA and the UK-CAA should require that, as part of any flight recorder readout procedure mandated by regulation, an assessment is conducted to ensure that the quantity and quality of all data recovered from the FDR is correct for the data rate of the system and the recorder part number concerned.

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

Classification: Agreement - **Status:** Open

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-----------------------|---------------------------------------|---------------|------------|
| G-ATXZ | Bolkow BO 208C Junior | Tatenhill Airfield, Staffordshire, UK | 23.09.2006 | Accident |



Synopsis of the event: After conducting a short local flight the pilot flew the aircraft back to the departure airfield to carry out some 'touch-and-go' landings. During the climb out from the second takeoff, following a normal touchdown and landing roll, the nose landing gear fell away from the aircraft. A metallurgical examination revealed fatigue crack growth in the nose landing gear outer tube. It was not possible to establish the length of time that the fatigue cracking had been present prior to the final failure. The nose landing gear had been fitted to the aircraft as a replacement item some 51 airframe hours prior to this accident. (from AAIB report)

Safety Recommendation UNKG-2007-038: It is recommended that the European Aviation Safety Agency (EASA) review the inspection requirements of Airworthiness Directive 72-92 to ensure the continued airworthiness of Bolkow BO 208 nose landing gears.

Reply: The EASA has reviewed the inspection requirements of Airworthiness Directive 72-92 and believes that there is no reason to alter the content or schedule of regular inspections. Comparing the photographs with the aircraft drawings, it appears that the fractured outer tube of the nose leg is not an original Bolkow part, as the holes are in the incorrect position. However, both the EASA and the manufacturer believe that the inspection specified in the LBA AD No. 72-92 should be carried out following all heavy landings (when other heavy landings checks are performed) or when damage has occurred to the nose landing gear, as provided for in the Service Bulletin SB 208-09/07 issued by the manufacturer in September 2007.

Classification: Partial agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|-----------------------|----------------------------------|---------------|------------|
| G-EHMS | MD Helicopters MD 900 | London, Borough of Southwark, UK | 04.06.2006 | Accident |

Synopsis of the event: The helicopter was attending a road traffic accident (RTA) in which a pedestrian had suffered potentially life-threatening injuries. While landing on a garage forecourt, close to the RTA, a metal sign became detached from the wall of the garage and was blown into the main rotor disc. The commander was able to make a controlled landing on the forecourt and no-one within or outside the helicopter was injured by the flying metal debris from the sign. (from AAIB report)

Safety Recommendation UNKG-2007-057: It is recommended that the European Aviation Safety Agency perform a risk assessment of the policies and procedures in JAR-OPS 3 associated with Helicopter Emergency Medical Services (HEMS) operating into improvised confined areas.

Reply: The philosophy of HEMS operations in JAR-OPS 3 aims at letting the operators performing a case-by-case risk assessment as it is almost impossible to envisage all possible cases, given this specific type of operations. A risk assessment on those operations has been performed previously and led to guidance on criteria for unsurveyed sites.

Classification: Partial agreement - **Status:** Closed

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|----------|---------------|------------|
|--------------|---------------|----------|---------------|------------|



| | | | | |
|--------|-----------------------------|---|------------|----------|
| F-GJSL | Eurocopter SA342 Gazelle | Ockington Farm Strip near Dymock, UK | 08.05.2005 | Accident |
|--------|-----------------------------|---|------------|----------|

Synopsis of the event: After making an approach to hover at a private landing site, the pilot initiated a spot turn to the left. After turning through 90° the rate of yaw increased and the pilot, believing he had lost control of the helicopter due to a strong gust of wind, increased collective pitch. The pilot then became disorientated and reduced collective pitch. The helicopter hit the roof of an adjacent building, the tail boom detached and the main body of the helicopter fell to the ground. (from AAIB report)

Safety Recommendation UNKG-2007-066: It is recommended that the European Aviation Safety Agency introduce requirements to ensure that upper torso restraints, in addition to lap straps, are installed on all front seats in helicopters for which they have airworthiness responsibility, where such a modification is available from the manufacturer.

Reply: The EASA disagrees with the recommendations as certification specifications VLR/27/29.85, all contain requirements for shoulder harnesses (upper torso restraint).

Classification: Disagreement - **Status:** Closed



USA

| Registration | Aircraft Type | Location | Date of event | Event Type |
|--------------|---------------|--|---------------|------------|
| N609JW | Extra EA-300L | Near Boise Air Terminal / Gowen Field, Boise, Idaho, USA | 08.07.2004 | Accident |

Synopsis of the event: The pilot was performing aerobatic manoeuvres in a low level aerobatic box over flat desert terrain. The pilot initiated a loop manoeuvre by pulling the nose of the airplane up into a vertical climb attitude and continuing to the top of the manoeuvre until in an inverted position. The pilot continued the manoeuvre by descending on the back side of the loop. As the aircraft was approaching the bottom of the manoeuvre in an approximately 20 degree nose down, wings level attitude at an altitude of less than 100 feet above ground level, the airplane was observed to make a quick shallow left bank, followed immediately by a second shallow bank to the right. The airplane's wings then momentarily returned to a level attitude before impacting flat open terrain with its right main landing gear and right wing tip. (from NTSB report)

Safety Recommendation UNST-2005-001: It is recommended that the rear seat shoulder harness attachment point be relocated to a cabin structural location similarly as the seat belt to where it will not lose its integrity as it did with the tail section.

Reply: EASA does not accept this recommendation. Extra Flugzeugproduktions-und Vertriebs-GmbH addressed this issue in letter to FAA dated 30 March 2005 in which the TC holder states that it is not clear whether the aircraft involved in the accident had been modified in an unapproved manner. Notwithstanding this, the type design requires the shoulder harness to be attached to the upper horizontal tube of the crash bar located behind the seat. The upward angle of the belt conforms to SAE recommended practise, the installation conforms to the certification code and the structure complies with the emergency landing dynamic conditions. In addition, the severity of the impact was such that major structural failure occurred and this must be regarded as an exceptionally unlikely occurrence outside the scope of the airworthiness code.

Classification: Disagreement - **Status:** Closed



6 Annex B: DEFINITIONS

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;

(definition given in Directive 94/56/EC of 21 November 1994)

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.

Final safety recommendation: safety recommendation which has taken its final form, usually contained in a final 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.

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.