Air Accidents Investigation Branch

Progress Report 2009

Responses to Air Accidents Investigation Branch (AAIB) Safety Recommendations

Responses recieved to AAIB recommendations made up to 31 December 2008, presented to the Secretary of State for Transport

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Foreword

The Air Accidents Investigation Branch is the part of the Department for Transport responsible for the investigation of all civil aircraft accidents and serious incidents (collectively referred to as 'accidents' in this document) occurring in or over the United Kingdom, its Overseas Territories and Crown Dependencies. Its authority is enshrined in the Civil Aviation (Investigation of Air Accidents and incidents) Regulations 1996 and its purpose is 'to improve aviation safety by determining the causes of air accidents and serious incidents and making Safety Recommendations intended to prevent recurrence'. The AAIB reports directly to the Secretary of State for Transport on safety matters.

The Civil Aviation Authority (CAA) Safety Regulation Group (SRG) is established to develop the UK's aviation safety environment, in partnership with industry, through continuous improvements in aviation safety in the UK and, in partnership with the European Aviation Safety Agency (EASA), across Europe.

The European Community established EASA in 2003 with the legal competence to be the rulemaking and standard setting organisation for all aviation safety regulation on behalf of its member states. The EASA now actively undertakes the tasks of aircraft and product certification, and has responsibility for the rules related to the design and maintenance of aircraft products and parts, plus setting standards for those organisations involved in design, production and maintenance of these products and parts. The Agency's rulemaking role is expanding and the detailed Implementing Rules for aircraft operations and flight crew licensing are expected to be completed during 2009. Similarly, work has begun on developing draft (high level) Essential Requirements to cover air traffic management and aerodrome activities. This is expected to be the third and final major phase of the transition to a coherent European rulemaking body for aviation safety regulation.

As a National Aviation Authority however, the CAA SRG retains a statutory duty to exercise full rulemaking and oversight responsibility for all those aspects not being adopted by EASA. Moreover, as a Competent Authority within the new European framework, CAA SRG is required to deliver safety oversight of UK industry against EASA's pan-European rules and standards. The developing European framework for the regulation of aviation safety has at its heart '2 pillars' – EASA and the National Aviation Authorities of the Community member states. Collectively, therefore, a maturing European regulatory system will continue to be focused on seeing that aircraft are properly designed, manufactured and operated and maintained; that airlines operate safely; that flight crews, air traffic controllers and aircraft maintenance engineers are suitably skilled; that licensed aerodromes are safe to use and that air traffic control services and general aviation activities meet the required safety standards.

Accident investigation and safety regulation are clearly different and the two functions are deliberately kept independent from each other. However, the evaluation of the findings of an accident investigation and the determination of the need for, and the initiation of, appropriate action to maintain and enhance safety is an important part of safety regulation. Thus a good working relationship between the AAIB, the CAA and the EASA is essential, while in no way jeopardising the independence of accident investigation.

Effective liaison has been maintained between the AAIB, the CAA and the EASA, which has been particularly useful in the immediate aftermath of any accident. However, the formal procedure by which the AAIB identifies and conveys to the CAA, the EASA or other bodies, matters which it believes require action is by means of Safety Recommendations.

Safety Recommendations can be made at any stage as the AAIB investigation progresses. Both the CAA and the EASA have formal procedures for the receipt and evaluation of such recommendations and initiation of necessary action.

The CAA is informed of all AAIB Safety Recommendations and has, until now, responded to the AAIB, in the form of a Follow-up Action on Occurrence Report (FACTOR), on all Safety Recommendations, regardless of whether they were the action addressee. In future, however, the CAA will only formally respond to the AAIB with a FACTOR if a Safety Recommendation is specifically addressed to them. They have assured the AAIB, however, that they will continue to react appropriately to any Safety Recommendation if they believe it is in the interests of UK aviation safety.

Until September 2004, responses to the Air Accidents Investigation Branch's recommendations were published by the Civil Aviation Authority in their annual Progress Report on AAIB recommendations under the cover of a Civil Aviation Publication (CAP). With the shift of responsibilities, however, it has become more appropriate for the AAIB to take responsibility for reporting on the responses to its recommendations regardless of the target authority or organisation. The first AAIB progress report was published in March 2006. This fifth report details the responses received to AAIB Safety Recommendations made up to and including 31 December 2008.

The Report

This is the fifth annual Progress Report on Safety Recommendations submitted to the Secretary of State by the Air Accidents Investigation Branch (AAIB). It contains all the recommendations made by the AAIB in 2008 including the responses to those recommendations received up to and including 30 June 2009 and those recommendations categorised as open from previous years where significant additional information has been received.

The recommendations are grouped into eight sections:

1. Aeroplanes 5,700kg MTWA and above
2. Aeroplanes above 2,250kg and below 5,700kg MTWA
3. Aeroplanes 2,500kg MTWA and below
4. Microlights
5. Rotorcraft 5,700kg MTWA and above
6. Rotorcraft above 2,250kg and below 5,700kg MTWA
7. Rotorcraft 2,500kg MTWA and below
8. Others

Within each section the accidents are listed by event date in reverse chronological order. This date should be taken as the date the recommendation was made.

The Status of responses to Safety Recommendations, as determined by the AAIB, have been divided into 6 categories.

1. Accepted - CLOSED (appropriate action implemented or planned but not yet implemented)
2. Rejected - OPEN (further action required)
3. Rejected - Rejected for acceptable reasons not known at the time of publication (no further AAIB action)
4. Partially accepted - OPEN
5. Response awaited - OPEN
6. Superceded - CLOSED

Statistics

Recommendations made in 2008 and status:

Number	Status Category					
	1 Accepted CLOSED	2 Rejected OPEN	3 Rejected	4 Partially accepted OPEN	5 Response awaited OPEN	6 Superceded CLOSED
70	24	0	2	0	44	0
% of total	34	0	3	0	63	0

92% of recommendations receiving a response have been accepted.

Note: 23 Safety Recommendations were allocated with recommendation numbers of which 19 were withdrawn and 4 were no longer applicable before issue

Recommendations made in 2008 by Addressee:

Addressee	Number
Airbus	5
ATR	2
British Microlight Aircraft Association (BMAA)	1
Boeing	1
Bombardier Aerospace (Shorts)	2
CHC Scotia	2
CityJet	2
Civil Aviation Authority (CAA)	8
Direccion Nacional De Aeronavegabilidad	2
Direction Generale de l'Aviation Civile (DGAC)	1
Dyn Aero	1
European Aviation Safety Agency (EASA)	24
Eurocopter	2
Federal Aviation Administration (FAA)	12
Greek Civil Aviation Authority	2
Hamilton Sundstrand	1
Isle of Wight/Sandown Airport	1
Kingdom of Belgium CAA	1
Lavia SA	2
Light Aircraft Association (LAA)	1
Manchester Airport Ltd	1
MyTravel Airways	2
New Piper Aircraft Company	1
Popular Flying Association (PFA)	1
Rolls-Royce	1
Rotax	1
Slingsby Advanced Composites Ltd	1
Transport Canada	1

Note: Please note that a number of Safety Recommendations are made to more than one Addressee

Aeroplanes > 5,700kg MTWA or above

Airbus A321-231	**Approach to Runway 36 Khartoum, Sudan**	**11 March 2005**	**Incident**

AAIB Bulletin: 5/2007
FACTOR: F36/2007

Synopsis

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

On the pilot's approach chart, which was also commercially supplied but from a different supplier, the final descent point was depicted at 5 nm from the threshold of Runway 36 whereas the FMGC's navigational database had been correctly updated with a recent change to this position published by the Sudanese CAA which placed it at 4.4 nm from the threshold. The discrepancy amounted to a difference in descent point of 0.6 nm from the Khartoum VOR/DME beacon, the primary navigation aid for the non-precision approach.

The pilots commenced the approach with the autopilot engaged in managed modes (ie the approach profile being determined by the FMGC instead of pilot selections). The aircraft began its final descent 0.6 nm later than the pilots were expecting. Believing the aircraft was high on the approach, the handling pilot changed the autopilot mode in order to select an increased rate of descent. The approach became unstable and the aircraft descended through 1,000 ft agl at an abnormally high rate. The aircraft then passed through its Minimum Descent Altitude (equivalent to a height of 390 ft agl) with neither pilot having established the required visual references for landing. Instead each pilot believed, mistakenly, that the other pilot was in visual contact with the runway approach lights.

When the confusion between the two pilots became apparent, the aircraft had descended to approximately 180 ft agl and the handling pilot commenced a go-around. Between 3.4 and 5.1 seconds later, with the aircraft at a radio altitude of approximately 125 ft agl, in a position approximately 1.5 nm short of the runway, the Enhanced Ground Proximity Warning System (EGPWS) "TERRAIN AHEAD, PULL UP" audio warning was triggered. The correct emergency pull-up procedure was not followed in full, partly because the handling pilot had already initiated a go-around. The minimum recorded terrain clearance achieved during the recovery manoeuvre was 121 ft.

One further non-precision approaches to Runway 36 was attempted using selected autopilot modes. The crew were attempting a third approach when they received visibility information from ATC that was below the minimum required for the approach. The aircraft then diverted to Port Sudan where it landed without further incident.

SAFETY RECOMMENDATION - 2007-044

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

Response

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

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

Status - Accepted - Closed

Airbus A319-131	Near London Heathrow	22 October 2005	Incident

AAIB Bulletin: 2/2008
FACTOR: N/A

Synopsis

As the aircraft climbed to Flight Level (FL) 200 in night VMC, there was a major electrical failure. The crew reported that both the commander's and co-pilot's Primary Flight Displays (PFD) and Navigation Displays (ND) went blank, as did the upper ECAM display. The autopilot and autothrust systems disconnected, the VHF radio and intercom were inoperative and most of the cockpit lighting went off.

The commander maintained control of the aircraft, flying by reference to the visible night horizon and the standby instruments, which were difficult to see in the poor light. The co-pilot carried out the abnormal checklist actions which appeared on the lower ECAM display; the only available electronic flight display. Most of the affected systems were restored after approximately 90 seconds, when the co-pilot selected the AC Essential Feed switch to Alternate ('ALTN').

Preliminary information on the progress of the investigation was published in AAIB Special Bulletins S2/2005 and S3/2006, in November 2005 and April 2006. Four Safety Recommendations were made in Special Bulletin S3/2006.

It was not possible to determine the cause of the incident due to a lack of available evidence, however, ten additional Safety Recommendations are made in this report.

SAFETY RECOMMENDATION - 2007-064

The European Aviation Safety Agency should mandate the provision of a back-up power supply for the standby horizon which is independent of the aircraft's normal electrical power generation systems, on A320 family aircraft.

Response

Modifications 37329 or 37330 (Service Bulletin A320-33-1057) introduce improvements to the emergency lighting for the standby instruments. A review of these modifications has established that the method employed to introduce the power supply to the emergency lighting of the standby instruments also ensures that all standards of classic standby horizon would be provided with a back-up power supply from the BATT HOT BUS.

The installation of modifications 37329/37330 is mandated under the cover of EASA Airworthiness Directive 2007-0289 with a compliance time of no later than the 27th May 2011.

As such the intent of this Safety Recommendation is addressed by AD 2007-0286.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2007-066

The European Aviation Safety Agency should mandate the provision of a power supply for the standby instrument integral lighting which is independent of the aircraft's normal electrical power generating systems, on A320 family aircraft.

Response

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

The installation of modifications 37329/37330 is mandated under the cover of EASA Airworthiness Directive 2007-0286 with a compliance time of no later than 27th May 2011.

As such the intent of this Safety Recommendation is addressed by AD 2007-0286

Status - Accepted - closed

SAFETY RECOMMENDATION - 2007-069

Airbus, in conjunction with the Generator Control Unit (GCU) manufacturer Hamilton Sundstrand, should modify the A320 family GCUs to provide the capability to record intermittent faults and to reduce their susceptibility to false differential protection trips.

Response

AIRBUS issued Mod 31317 (MSB A320-34-1120) to perform an automatic reconfiguration in case of loss of ESS BUS to solve the consequences of such an event. Since aircraft MSN 2374, standard Mod 27140 (MSB A320-24-1109) installs a new GCU standard with reduced susceptibility to false differential protection trip.

Currently, the GCUs are sent to Hamilton Standard for analysis at each event of bus loss to study the root cause. No modification is planned for the moment but analysis continuing.

Above mentioned improvements have been found sufficient to AIRBUS position the AAIB SR's.

Status - Accepted - closed

Challenger 604	**8nm west of Midhurst VOR, West Sussex**	**11 November 2005**	**Incident**

AAIB Bulletin: 1/2008
FACTOR: N/A

Synopsis

At FL400, approximately four and a half hours after departure from Lagos on an intended flight to Farnborough, the crew received an 'AUTO PILOT PITCH TRIM' caution. Approximately 30 minutes later the 'STAB TRIM' and 'MACH TRIM' cautions illuminated. Stabiliser and mach trim modes were temporarily restored by re-engaging stabiliser command trim channel 1 only but, shortly afterwards, the 'STAB TRIM' and 'MACH TRIM' cautions illuminated again.

While descending towards Farnborough, several further attempts at re-engagement resulted in disconnection of the autopilot and indications of intermittent engagement of stabiliser trim

channel 2. Application of nose-up stabiliser trim commands, using the yoke mounted switches, resulted in nose-down trimming of the horizontal stabiliser and the crew elected not to attempt further stabiliser trim re-engagements. The autopilot was re-engaged, but not before almost full nose down trim had been applied, which could not be corrected for the remainder of the flight.

The crew were concerned at the physical effort required to fly the aircraft manually and elected to make a flapless approach and landing in order to avoid increasing the already considerable nose-down pitching moment. The aircraft diverted to London Heathrow Airport, where a successful flapless landing was achieved by the co-ordinated efforts of the commander and co-pilot operating the primary flight controls and an off-duty pilot operating the thrust levers.

The operator has reported two previous events involving the stabiliser trim system on this aircraft.

SAFETY RECOMMENDATION - 2005-147

It is recommended that Transport Canada ensure that Bombardier Aerospace eliminate the risk of contamination affecting the operation of the horizontal stabiliser trim control system fitted in the Challenger 604 and other Bombardier aircraft with similar trim systems.

Response

In response to Recommendation 2005-147, aimed at eliminating the risk of contamination affecting the operation of the horizontal stabiliser trim control system, Transport Canada informed the AAIB in early 2006 of their direct work with the manufacturer, regarding this service difficulty, and that it was awaiting Bombardier's corrective action plan.

Status - Partially Accepted- open

SAFETY RECOMMENDATION - 2007-061

It is recommended that the EASA, in collaboration with other airworthiness authorities, including the FAA and Transport Canada, amend their requirements relating to the design and installation of electronic components in aircraft, so that fluid and moisture contamination, as a source of common cause failures, is specifically taken into account and adequate measures take place to minimise the risk.

Response

The Agency considers Certification Specifications CS25.1431 and CS25.1309 (a) and (b) already adequately address this issue. CS25.1431 requires that "In showing compliance with CS25.1309 (a) and (b) with respect to radio and electronic equipment and their installations, critical environmental conditions must be considered" and CS25.1309 (a) and (b) requires that equipment and systems are designed and installed in such a manner that those required for type certification perform as intended under all operating and environmental conditions and that "any catastrophic failure condition (i) is extremely improbable; and (ii) does not result from a single failure".

Status - Rejected

Boeing 737	R/W 33 Birmingham Airport	15 June 2006	Accident

AAIB Bulletin: 5/2008
FACTOR: N/A

Synopsis

On a scheduled cargo flight from Liège Airport to London Stansted Airport the crew diverted to Nottingham East Midlands Airport due to unforecast poor weather conditions at Stansted. The weather conditions at EMA required a Cat IIIA approach and landing. On approach, at

approximately 500 feet agl, the crew were passed a message by ATC advising them of a company request to divert to Liverpool Airport. Within the cockpit, the commander inadvertently disconnected the autopilot whilst attempting to reply to ATC. He then attempted to re-engage the autopilot in order to continue the approach.

The aircraft diverged to the left of the runway centre-line and the commander commenced a go-around but, too late to prevent the aircraft contacting the grass some 90 m to the left of the runway centreline. The aircraft got airborne again but, during the ground contact, the right main landing gear had broken off.

The crew subsequently made an emergency landing at Birmingham Airport.

SAFETY RECOMMENDATION - 2008-010

It is recommended that the Kingdom of Belgium Civil Aviation Authority require TNT Airlines in Belgium to carry out a review of their standard operating procedures to ensure that it is clear to all pilots when go-around action is required.

Status - Response Awaited - open

Dornier 328-100	Aberdeen Airport	22 June 2006	Incident

AAIB Bulletin: 1/2008
FACTOR: N/A

Synopsis

During the landing roll, the crew were unable to decelerate the aircraft sufficiently because they were unable, repeatedly, to select the power levers into the beta range. The aircraft overran the runway and the Runway End Safety Area, coming to rest some 350 metres beyond the end of the runway. There were no injuries. Three Safety Recommendations are made.

SAFETY RECOMMENDATION - 2007-103

The Luftfahrt-Bundesamt should ensure that a training programme, fully alerting Dornier 328 crews to the potential for restricted movement and the optimum operation of the lever/latch combination, and detailing appropriate operational procedures, be developed and mandated for all operators in Europe, and through liaison with all relevant National Aviation Authorities, make this information available to all operators of the Dornier 328 worldwide.

Response

This Safety Recommendation is not addressed to EASA, however, EASA acknowledges the issuance by LBA of LTA Nr. D-2008-140, which was published in German language, in response to this Safety Recommendation.

Upon request of EASA, the LBA provided a courtesy translation which was published on the LBA website.

After publication of the German AD, the TC-holder highlighted the concerned procedures and operational guidance material again to all customers and assured the availability to all operators worldwide.

EASA publication was not deemed required due to the fact that the German LTA is of operational nature, and the information highlights existing training material, operational procedures, and guidance.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2007-104

The European Aviation Safety Authority should require the Dornier 328 Type Certificate holder to re-design the power lever/beta/reverse latch system to improve the present arrangement.

Response

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

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

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

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

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

Status - Accepted - closed

HS.748 Series 2A	Guernsey	8 March 2006	Serious Incident

AAIB Formal Report: 6/2008
FACTOR: F10/2008

Synopsis

The aircraft was landing at Guernsey at the end of a two-sector cargo service from Coventry and Jersey. The Category I ILS approach on Runway 27 at Guernsey was flown in weather conditions that were poor but acceptable for making the approach and there was ample fuel on board for a diversion. The aircraft was seen to touch down between 400 and 550 metres from the 'stop' end of the runway and overran by some 145 metres onto the grass beyond the paved surface. There were no injuries.

Investigation by the AAIB revealed no aircraft or runway deficiencies to account for the overrun. During the final approach and landing there were substantial divergences from the company Operations Manual.

This operator had previously been the subject of close monitoring by the CAA over a sustained period and its Air Operator's Certificate (AOC) was later suspended.

The investigation identified the following causal factors:

(i) The flight crew did not comply with the Standard Operating Procedures for a Category I ILS.

(ii) The commander's decision to land or go around was delayed significantly beyond the intersection of the Decision Altitude and the ILS glideslope.

(iii) After landing, the crew did not immediately apply maximum braking or withdraw the flight fine pitch stops, as advised in the Operations Manual.

(iv) The operator's training staff lacked knowledge of the Standard Operating Procedures.

The investigation identified the following contributory factor:

(i) Close monitoring by the CAA had not revealed the depth of the lack of knowledge of Standard Operating Procedures within the operator's flight operations department until after this incident.

SAFETY RECOMMENDATION - 2008-026

It is recommended that the Civil Aviation Authority implement a more robust process of graduated measures for addressing identified safety-related shortcomings in an AOC Holder's operations, within an appropriate timescale, to ensure that the AOC Holder meets and maintains the required standard.

Response

The CAA accepts this Recommendation and has modified its system in order to produce a more robust process of graduated measures for addressing identified safety-related shortcomings in AOC holders' operations, within an appropriate timescale, and so ensure that the AOC Holder meets and maintains the required standard.

Should an AOC Holder have an identified significant non-compliance or non-compliances which lowers safety to the point where there is a serious hazard to flight safety, the CAA normally takes regulatory action such as the suspension of an approval or the prevention of an aircraft from flying.

However, should an AOC Holder's safety management performance, though above minimum acceptable levels, show a trend which, unless corrected, would soon result in unacceptable safety levels, then the CAA's newly introduced "On Notice" procedure is applied. The operator is advised that it is "On Notice" and that unless action is taken in accordance with a plan acceptable to the CAA, further regulatory action will be taken such as the suspension of approvals related to identified non-conformities, or, in some cases, the suspension of the AOC.

These measures have already been used effectively on several occasions. The CAA believes that these measures, together with the existing oversight system, provides the graduated system needed to ensure that operators maintain the required standards.

Status - Accepted - closed

Airbus A319-111	**Overhead Brest, France**	**15 September 2006**	**Serious Incident**

AAIB Formal Report: 4/2009
FACTOR: F6/2007

Synopsis

The aircraft was dispatched under the provisions of the operator's Minimum Equipment List with the Auxiliary Power Unit (APU) generator on line, substituting for the No 1 main generator which had been selected off after a fault on the previous flight had caused it to trip off line. During the cruise, the APU generator disconnected from the system, probably because of a recurrence of the original fault. This caused the loss of a substantial number of aircraft services, including some flight instruments and all means of radio telephony (RTF) communication. Manual reconfiguration of the electrical system should have recovered many of the services but the flight crew was not able to achieve this. Since they were without RTF communications, the crew considered that the best option was to select the emergency transponder code and continue the flight in accordance with the flight plan.

SAFETY RECOMMENDATION - 2006-142

It is recommended that Airbus should revise, for the A320 aircraft series, the fault monitoring logic of the Generator Control Unit to prevent the monitoring system from incorrectly interpreting a fault within the GCU as an external system fault.

Response

The origin of this event is a lack of robustness in the differential protection trip implemented in the GCU EMM, which has caused the loss of AC ESS bus bar. Such failure mode can not occur on GCU non EMM. Affected aircraft are with GCU PN 767584x (where x could be A to I).

To address this AAIB SR, AIRBUS has developed a new GCU standard.

The main objective of this new GCU is to improve the robustness of the differential protection trip related to the 'GLC welded' failure mode.

This standard will be used to implement other corrections and improvements such as the management of the FIRE trip protection reset logic, the PW bypass valve failure BITIE message and other specific improvements for Long Range aircraft (this GCU is common between SA and LR fleet).

The standard GCU EMM 5.2 will be available for all SA A/C models with GCU EMM and will be proposed as standard in production for A320 family. Through a MSCN. An AIRBUS SB will be issued to cover this modification.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-143

It is recommended that Airbus should introduce, for Airbus A320 series aircraft, a modification to automatically transfer the electrical feed to the AC Essential busbar in the event of the loss of the No 1 Main AC busbar.

Response

Modification 37317 has been certified on January 10th 2007: AC Essential, generator switching. Install auto switching system for AC and DV ESS bus. It is standard for A320 family from March 2007. Refer to ARS SA24.0028 for in-service actions.

This SR is also addressed by AAIB SR 2007-067. In response to this Safety Recommendation, while it was at the draft stage Airbus issued Service Bulletin SB A320-24-1120 in May 2007. This introduced Modification 37317 which provides automatic reconfiguration of the power supply to the AC ESS Bus in the event of AC BUS 1 failure.

Associated SB 24-1120 has been issued on May 31, 2007. EASA will mandate this SB and an AD is to be issued.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-144

It is recommended that Airbus should advise all operators of A320 series aircraft with Radio Telephony (RTF) communications reliant upon a single busbar of the consequent possibility of loss of all RTF communications.

Response

Such an event could only occur on aircraft fitted with the digital Audio Management Unit (AMU).

Digital AMUs have PN 4031zz0x010x where zz can be SA or SB (non SATCOM option) or LA or LB (SATCOM option) and x from 1 to 4.

AIRBUS issued FCOM TR 74 (issue 1 on March 2007, issue 2 on February 2008) to advise operators of the loss of the VHF radios in the event of a DC ESS BUS FAULT.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-145

It is recommended that, for A320 series aircraft with digital Audio Management Units, Airbus should take modification action aimed at ensuring that electrical power supplies required for Radio Telephony communications have an improved level of segregation.

Response

Such an event could only occur on aircraft fitted with the digital Audio Management Unit (AMU).

Digital AMUs have PN 4031zz0x010x where zz can be SA or SB (non SATCOM option) or LA or LB (SATCOM option) and x from 1 to 4.

AIRBUS has developed modification 37782 that consists of an improvement of the AMU power supply logic in order to keep the digital AMU audio functions in case of DC essential bus loss, as already provided with an analogue AMU.

This modification is standard for production aircraft from MSN 3153.

Associated AIRBUS A320-23-1333 has been issued on May 9, 2007 and is currently at revision 2 dated February 18, 2008.

Note that due to the automatic reconfiguration mandated in the few next months, SB A320-33-1333 becomes a nice to have in this failure scenario.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-081

It is recommended that the EASA require modification of Airbus A320-series aircraft to provide changeover of the electrical power feed to the AC Essential busbar in the event of de-energisation of the AC BUS 1 busbar.

Response

After review of the potential issues and concerns resulting from the consequence of the various system losses as a result of the loss of power supply to alternating current (AC) BUS 1 and the in-service experience in respect of the necessary corrective actions EASA will mandate the installation of Airbus modification 37317 (SB A320-24-1120) by the issuance of an Airworthiness Directive.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-082

It is recommended that Airbus review the adequacy of flight deck push-button selectors and make changes as required to ensure that an immediate and unmistakable indication of the selected position is always provided to the flight crew.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-083

It is recommended that the EASA and the FAA introduce certification requirements aimed at ensuring the flight deck control selectors are designed such that an immediate and unmistakable indication of the selected position is always provided to the flight crew. The indication should not rely solely on the illumination of a caption, as this may not be visible in some ambient conditions and may fail to function in some failure situations.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-084

It is recommended that the EASA require modification of Airbus A320-series and other applicable public transport aircraft to ensure that all RTF communication systems are not reliant on a single busbar for their electrical power.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-085

It is recommended that the EASA and the FAA re-categorise the loss of all RTF communications for public transport aircraft as 'Hazardous'.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-086

It is recommended that the EASA require Airbus to modify the Airbus A320-series Master Minimum Equipment List (MMEL) to require an operator, prior to dispatch, to attempt to identify the fault that rendered an Integrated Drive Generator (IDG) inoperative and to prohibit dispatch with an IDG inoperative for those faults whose recurrence could result in significant disruption of aircraft systems.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-087

It is recommended that the EASA require Airbus to revise the A320-series Master Minimum Equipment List to include a requirement to check for correct operation of the AC ESS FEED changeover function prior to dispatch with a main generator inoperative.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-088

It is recommended that Hamilton Sundstrand modifies its repair and overhaul procedures as necessary, to ensure that a unit with an excessive service rejection rate or a recurrent fault is not repeatedly released back to service.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-089

It is recommended that the EASA and the FAA review their measures for monitoring and approving component repair organisations to ensure they have systems in place to identify units with an excessive service rejection rate of recurrent faults.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-090

It is recommended that the EASA require improvements to the fault monitoring logic of the type of Generator Control Unit (GCU) used on A320-series aircraft with the aim of preventing the monitoring system from incorrectly interpreting a fault within the GCU as an external system fault. It is recommended that incorporation of the improvements on in-service aircraft be mandated, on a timescale commensurate with the safety risk.

Status - Response Awaited – open

SAFETY RECOMMENDATION - 2008-091

It is recommended that Airbus re-evaluate its systems for achieving adequate design quality for aircraft systems to include the possibility that flight crews may not always perform the required corrective actions and to ensure that the initial failure probability and/or hazard assessments are revised in the light of in-service experience.

Status - Response Awaited - open

Embraer 145EU ATR72-202 Boeing 737	**Bristol Airport**	**29 December 2006**	**Incident**

AAIB Formal Report: 1/2009
FACTOR: F1/2009

Synopsis

Resurfacing and re-profiling work was taking place on parts of the runway at Bristol International Airport as part of a major project to resurface the manoeuvring area pavements, and sections of the runway surface were ungrooved 'base course' asphalt. From 14 November 2006, there were reports from flight crew of a variety of problems related to the friction characteristics of the temporary runway surface, though no serious incidents occurred until 29 December 2006. On that day, the flight crew of G-XLAC experienced poor stopping performance during landing. Later that day, the flight crew of G-BWDA experienced stopping and lateral control difficulties during landing, and the aircraft departed the runway surface and came to rest on the grass area at the side of the runway. Later still, the flight crew of G-EMBO experienced lateral control difficulties during landing, and the aircraft partially left and then regained the runway. On 3 January 2007, another flight crew, also operating G-XLAC, experienced poor stopping performance. The airport was subsequently closed whilst grooves were cut in the base course. After it re-opened there were no further incidents.

SAFETY RECOMMENDATION - 2008-075

The Civil Aviation Authority should inform airport operators about the potential hazards of operating aircraft on sections of ungrooved Marshall Asphalt base course during wet and windy conditions and require that these hazards be controlled during any runway resurfacing programme.

Response

The CAA accepts this recommendation. CAP 781 Runway Rehabilitation was published in June 2008 and provides advice to aerodrome operators. In particular, Section 3 paragraph 2.3.1 deals with adverse weather and aircraft performance, whilst paragraph 3.1.5 gives advice about temporary total ungrooved runway length (TTURL).

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-076

The European Aviation Safety Agency should require operators to ensure that flight crews are provided with guidance material on aircraft performance when operating on a runway that is notified as 'may be slippery when wet', or has sections thereof notified as 'may be slippery when wet'

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-077

The Civil Aviation Authority should review the manner in which it transmits FODCOM information to ensure that safety critical information is effectively transmitted to private and commercial operators flying in the UK and that it is acted upon.

Response

The CAA accepts this Recommendation. The CAA will review, in conjunction with industry, the means by which safety critical information is promulgated to ensure that it is effectively transmitted to private and commercial operators flying in the UK, and that it is acted upon. This Review will be completed by July 2009.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-078

The Civil Aviation Authority should clarify, to airport authorities, pilots, aircraft operators and air navigation service providers, that Continuous Friction Measuring Equipment must not be used to assess braking action on runways which are wet, although it may be used in the wet for assessing the relative friction of different runway sections for maintenance purposes.

Response

The CAA accepts this recommendation and has published a revised version of CAP 683 now titled 'The Assessment of Runway Surface Friction Characteristics'. Chapter 1 paragraph 3.3 warns aerodrome licence holders not to promulgate friction readings in periods of runway contamination, whilst Paragraph 4 explains the limitations of operational use of Continuous Friction Measuring Equipment.

Air Traffic Standards Division will issue an Air Traffic Standards Information Notice (ATSIN) to Air Navigation Service Providers (ANSPs) to draw their attention to the publication of the revised version of CAP 683. The Flight Operations Division proposes to issue a FODCOM drawing the attention of AOC holders to the contents of CAP 683 and CAP 781, however, as part of their normal remit, all AOC holders are required to consider material in CAPs that may affect their intended operations. The ATSIN and FODCOM will be published by March 2009.

CAA Action

ATSIN 151 was issued on 13 February 2009 to draw attention to the publication of the revised version of CAP 683.

FODCOM 06/2009 Runway Surface Friction and Runway Rehabilitation - Revision to Guidance Material was published on 26 February 2009. The purpose of the FODCOM was to alert AOC holders and General Aviation pilots to the revision of CAP 781 and CAP 683.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-079

The European Aviation Safety Agency should research the technical and operational feasibility of developing equipment and procedures to measure aircraft braking friction with respect to runway position, using on-board aircraft data from landings. As part of this research the European Aviation Safety Agency should develop appropriate standards of recording and methods for sharing this information, and its tolerances, in a timely manner, with interested parties.

Status - Response Awaited - open

ATR42-300	London Stansted Airport	18 January 2007	Incident

AAIB Bulletin: 8/2008
FACTOR: N/A

Synopsis

Soon after takeoff from London Stansted Airport the aircraft developed a yawing motion which persisted as a yawing/rolling motion of varying severity. The yaw damper could not be engaged. An emergency was declared and the aircraft returned to Stansted. No mechanical fault was found which would have caused the motion, although an undetected and intermittent fault affecting components within the rudder control system could have degraded the aircraft's handling characteristics with the yaw damper not engaged, as could a takeoff with the rudder control system incorrectly configured. The nature of the motion and observed control deflections were such that an inadvertent and inappropriate rudder input by a pilot would have been required for the oscillations to persist. Four Safety Recommendations were made, concerning operational advice to flight crews and ongoing serviceability checks for Flight Data Recorders (FDRs).

SAFETY RECOMMENDATION - 2008-017

ATR should amend the ATR 42 Quick Reference Handbook (and that of other ATR types if similarly affected), to include in the Releasable Centring Unit failure actions the requirement that pilots must prevent unwanted rudder pedal movement. The revised RCU failure actions should be incorporated (or referred to) in the QRH actions concerned with abnormal flight characteristics of the aircraft.

Status - Response awaited - open

SAFETY RECOMMENDATION - 2008-018

ATR should amend the ATR 42 Master Minimum Equipment List (and that of other ATR types if similarly affected), for dispatch with both RCU and yaw damper inoperative, to more accurately describe the pilot action required to positively prevent unwanted rudder pedal movement.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-019

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

Response

In response to this recommendation, related provisions GM OPS.GEN.505 c) and d) were included in MPA (Notice of Proposed Amendment) 2009-002, dealing with Implementing Rules for Air Operations of Community Operator.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-020

The European Aviation Safety Agency should require that, prior to the first flight of the day, the built-in test features on the flight deck for the Cockpit voice recorder, Flight Data Recorder and Flight Data Acquisition Unit, when installed, should be monitored to ensure correct operation.

Status - Response Awaited - open

Mystere Falcon 900	**Approximately 7 nm south-west of Worthing, Sussex**	**20 January 2007**	**Accident**

AAIB Bulletin: 7/2008
FACTOR: N/A

Synopsis

As the aircraft was climbing through FL 130 after takeoff from Farnborough there was a loud bang and the No 3 Engine Bay fire warning activated. The crew shut down the engine and fired the extinguisher first shot; the fire warning ceased. The aircraft diverted to Gatwick and landed without further incident.

It was found that the No 3 Engine low pressure (LP) turbine assembly had suffered major disruption. Debris from the turbine assembly ruptured the engine casing, penetrated the cowling and caused slight damage to the horizontal stabiliser. Many of the fractured parts were lost overboard but the available evidence indicated that the failure had probably resulted from the fracturing of an LP turbine blade, leading to the loss of rotational restraint for the turbine stators and the spin-up and non-contained rupture of the stators.

One of the Stage 2 blades had signs of a casting defect and fracturing of this blade probably initiated the turbine assembly break-up. However, there had also been a substantial number of previous cases of Stage 3 blade fracture and it was possible that such a failure caused the turbine assembly damage. The engine manufacturer has taken measures aimed at preventing turbine blade failure. However, the possibility that casting defects could be present in Stage 2 blades produced prior to these measures and remaining in service could not be dismissed. The turbine casing had been ruptured in some of the previous cases of blade failure, but not where the newer of two available standards of casing had been fitted. The engine manufacturer issued Service Bulletins in the latter part of 2007 recommending replacement of the casing with the later standard but this modification had not been mandated.

SAFETY RECOMMENDATION - 2008-013

It is recommended that the FAA comprehensively review the measures already proposed by the manufacturer aimed at preventing non-contained LP Turbine assembly failures of Honeywell TFE 731 engines, including the proposed timescales for incorporation of the measures across the fleet, with the aim of ensuring an adequate standard of airworthiness.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-014

It is recommended that the FAA require the timely incorporation of Honeywell Service Bulletins (Nos TFE 731 72 3727 and TFE 731 72 3728) for the fitment of an upgraded standard of Inter-Turbine Transition Duct to Honeywell TFE 731 engines, in order to ensure that the modification is embodied across the engine fleet within a reasonable timescale with the aim of eliminating the non-containment hazard posed by an LP turbine blade failure.

Status - Response Awaited – open

BAe 146-200	London City Airport	20 February 2007	Incident

AAIB Formal Report: 5/2009
FACTOR: N/A

Synopsis

During landing at London City Airport, all four main gear tyres burst towards the end of the landing run. The aircraft overran the landing distance available but remained on the paved surface, coming to rest 163 metres from the edge of the dock. The flight crew reported that a total failure of the aircraft braking systems had occurred, which led them to select the emergency braking system. This system does not provide anti-skid protection. The investigation identified that the lift spoilers had not deployed after touchdown, and that there were no faults within this system, or the wheel braking systems. Three Safety Recommendations are made, one relating to the operating characteristics of the airbrake/lift spoiler selector lever.

SAFETY RECOMMENDATION - 2008-062 (Made on 07 September 2009)

It is recommended that the European Aviation Safety Agency should mandate BAe Systems Service Bulletin 27-73-00889 for the BAe 146 series of aircraft, which increases the operating force in the forward direction from zero to 12 lb, of the lift spoiler/airbrake selector lever, to prevent the lever moving forward under the influence of vibration or being inadvertently nudged forward during the landing roll.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-063 (Made on 07 September 2009)

It is recommended that Cityjet should incorporate in their Operations Manual allowable heading, pitch attitude and speed deviation criteria with respect to steep path angle ILS approaches.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-064 (Made on 07 September 2009)

It is recommended that Cityjet should remind their flight crews of the necessity to preserve recorded data on Flight Data Recorders and Cockpit Voice Recorders following an incident or accident, by isolating the electrical power to the recorders as soon as practical after any such event.

Status - Response Awaited - open

Airbus A319-131	Amsterdam	18 April 2007	Incident

AAIB Bulletin: 8/2008 + 12/2008
FACTOR: N/A

Synopsis

The Dutch Safety Board delegated the investigation to the UK AAIB.

The aircraft was departing Amsterdam, in good weather and light winds, on a flight to London. During the latter stages of the takeoff roll the aircraft yawed rapidly to the right and took off over the side of the runway on a heading that was 18° to the right of the runway centreline. It lifted off at a speed 5kt below VR before reaching the edge of the runway. It was then manoeuvred back onto the runway centreline and it continued on its assigned Standard Instrument Departure (SID) as it slowly accelerated.

Recorded data showed that the rapid yaw during the ground roll had been caused by a deflection of the rudder. The evidence indicated that there had been no malfunction of the aircraft, nor significant wake vortex effects from the preceding heavy aircraft, and that the rudder deflection had been in response to rudder pedal movements.

The reasons for the right rudder pedal inputs could not be positively determined. The speed at which the aircraft began its uncontrolled heading deviation to the right was such that it would have been an option to abort the takeoff, albeit at a speed approaching V_1. It was possible that under-arousal, in the benign operating conditions that prevailed, may have affected the performance of both flight crew.

As a result of miscommunication, the aircraft remained in service for a period after the incident without comprehensive checks being carried out to determine if an aircraft malfunction might have been responsible for the rapid yaw.

One Safety Recommendation is made.

SAFETY RECOMMENDATION - 2008-028

It is recommended that Airbus revise Flight Crew Operating Manual Bulletin No 829/1 to include a quantitative indication of the typical range of aircraft heading and lateral acceleration deviations which may be observed due to gusts occurring during the takeoff ground roll.

Response

Although Airbus understands the rationale to indicate in the FCOM Bulletin No 829/1 typical range of aircraft heading and lateral deviations that may be observed due to gusts occurring during take-off ground roll, Airbus wish to highlight that this may not help in differentiating such deviation from either gusts or pedal inputs.

Indeed, there might be pedal inputs during takeoff ground roll that could lead to aircraft heading and lateral acceleration deviations in the same range that what could result from gusts.

Furthermore, even if Airbus has encountered lateral jerk in-service, we cannot however be sure that our in-service records cover the range of all possible gusts that could lead to lateral deviation on the ground.

Status - Rejected

Airbus A320-214	Kos Airport	5 July 2007	Incident

AAIB Bulletin: 12/2008
FACTOR: N/A

Synopsis

The aircraft landed heavily on Runway 32 at Kos Airport, causing substantial damage to the aircraft's main landing gear. Various causal and contributory factors were identified during the investigation. The aircraft touched down with a high rate of descent, the flare was initiated too late, the ability of the pilot under training to land the aircraft consistently and correctly was poor, and the training pilot (commander) was not able to feel the control inputs made by the pilot under training because of an absence of interconnection between the sidesticks. Three Safety Recommendations are made.

SAFETY RECOMMENDATION - 2008-021

It is recommended that the Greek Civil Aviation Authority should review the performance of the PAPI installation of Runway 32 at Kos, to ensure that flight crews are able to acquire them visually in time to stabilise their aircraft on the correct glideslope before landing.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-022

MyTravel Airways Limited should revise its airfield brief for Kos Airport to include specific reference to the visual aiming point, the influence of the rising terrain on the visual perspective, and acceptable levels of vertical speed prior to touchdown.

Response

The Ops Manual Part D has been amended. This will enhance the training of training captains and improve the control of standards. Appendix D (Airbus) will include guidance on the functionality of the Take-off Configuration Warning System during a Balked Landing manoeuvre.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-023

It is recommended that the Greek Civil Aviation Authority carry out a risk assessment at airfields, particularly at Kos, where the local terrain may give aircrews misleading visual cues, with a view to assessing the requirement for the installation of precision approach aids.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-024

It is recommended that MyTravel Airways Limited should introduce training for all training captains, which allows them to rehearse the balked landing recovery manoeuvre in the simulator during recurrent training, and involving a take-over of control from the co-pilot. The training should highlight the possibility that a takeoff configuration warning will occur during the manoeuvre.

Response

Ops Manual Part D has been amended to enhance the training of training captains and improve the control of standards. Appendix D (Airbus) will include guidance on the functionality of the Take-off Configuration Warning System during a Balked Landing manoeuvre.

Status - Accepted - closed

Boeing 757-3CQ	Stand 32, Manchester Airport	12 December 2007	Accident

AAIB Bulletin: 9/2008
FACTOR: N/A

Synopsis

Whilst approaching its allocated parking position, the aircraft sustained damage to the port engine when it struck a stationary airbridge that was parked incorrectly. An AAIB investigation into a similar occurrence in 2003 resulted in Safety Recommendations concerning the remote activation of stand entry docking guidance by Apron Control. The airport operator accepted these recommendations and proposed safety action but this appears to have been ineffective therefore one further Safety Recommendation is made to address the same issue.

SAFETY RECOMMENDATION - 2008-025

It is recommended that Manchester Airport Plc review its response to Safety Recommendation 2003–131:

> 'Manchester Airport plc should ensure that Stand Entry Docking Guidance lighting is not activated by Apron Control until a positive communication has taken place with staff at the stand confirming that the stand is clear. Until the aircraft has parked and shut down its

engines, those staff should remain available at the stand to inform Apron Control if the stand subsequently becomes obstructed.'

and Safety Recommendation 2003–132:

'For the airbridges and stands serving Terminals 1 and 3, Manchester Airport plc should, within a reasonable timescale, fund and develop Stand Entry Docking Guidance lighting controls and associated procedures that comply with the advice and guidance contained in Civil Aviation Publication (CAP) 642.'

Response

It is Manchester Airport Plc's opinion that the chief causal factors in the incident involving G-JMAB were not related to the method of switching the stand docking guidance. The root causes were a combination of inadequate controls on the process for closing and opening the stands where maintenance has taken place and the failure of the dispatcher to check the stand correctly before the aircraft arrival. Manchester Airport plc note that the report agrees that their subsequent actions have addressed these causes.

Notwithstanding the above comment, Manchester Airport plc are in the process of planning for the replacement of the existing docking guidance equipment and commenced the feasibility stage of the project in late 2007. Manchester Airport plc are about to commence a trial with 3 preferred solutions in early 2009, following which they will enter design stage for project implementation. The equipment is proposed to be installed in stages over a 3 year programme once the expenditure has been approved.

Manchester Airport plc originally anticipated making all the necessary changes to the switching for the docking guidance at the time that the replacement equipment is installed. On receipt of the AAIB report, Manchester Airport plc have instigated a separate advance project and as soon as it can practicably be done. A technical proposal will be put forward for approval early in 2009.

On completion of the above major project, Manchester Airport plc will have completely addressed the subject of Recommendations 2003-131 and 2003-132.

Status - Accepted - closed

Boeing 777-236	**Short of threshold to RWY 27L, London Heathrow Airport**	**17 January 2008**	**Accident**

AAIB Interim Report: 2008
FACTOR: N/A

Synopsis

Whilst on approach to London (Heathrow) from Beijing, China, at 720 feet agl, the right engine of G-YMMM ceased responding to autothrottle commands for increased power and instead the thrust reduced to 1.03 Engine Pressure Ratio (EPR). Seven seconds later the left engine thrust reduced to 1.02 EPR. This reduction in thrust led to a loss of airspeed and the aircraft touching down some 330 m short of the paved surface of Runway 27L at London Heathrow The investigation identified that the reduction in thrust was due to restricted fuel flow to both engines.

It was determined that this restriction occurred on the right engine at its Fuel Oil Heat Exchanger (FOHE), during the latter stages of the approach. For the left engine, it was not possible totally to eliminate the possibility of a restriction elsewhere in the fuel system, although the testing and data mining activity carried out for this investigation suggested that this was very unlikely. Further, the likelihood of a separate restriction mechanism occurring within seven seconds of that for the right engine was determined to be statistically insignificant.

The investigation identified the following probable causal factors that led to the fuel flow restrictions:

1) Accreted ice from within the aircraft fuel system released, causing a restriction to the engine fuel flow at the face of the Fuel Oil Heat Exchanger (FOHE), on both the engines.

2) Ice had formed within the aircraft fuel system, from water that occurred naturally in the fuel, whilst the aircraft operated with low fuel flows over a long period and the localised fuel temperatures were in an area later described as the 'sticky range'.

3) The FOHE, although compliant with the applicable certification requirements, was shown to be susceptible to restriction when presented with soft ice in a high concentration, with a fuel temperature below -10°C and a fuel flow above flight idle.

4) Certification requirements, with which the aircraft and engine fuel systems had to comply, did not take account of this phenomenon as the risk was unrecognised at that time.

SAFETY RECOMMENDATION - 2008-047

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

Response

With regard to the accident of a British Airways Boeing 777 at Heathrow Airport on 17 January 2008, the Agency welcomes the report of the Air Accidents Investigation Branch (AAIB) and its recommendations. EASA has worked closely with the Federal Aviation Administration (FAA) and the affected Type Certificate holders, Boeing and Rolls-Royce, in support of the AAIB investigation team.

In consultation with the FAA, it has been agreed that interim measures in response to Safety Recommendation 2008-047 will be defined through mandatory aircraft level action for the B777 aircraft equipped with Rolls-Royce Trent 800 engines.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-048

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

Response

With regard to the accident of a British Airways Boeing 777 at Heathrow Airport on 17 January 2008, the Agency welcomes the report of the Air Accidents Investigation Branch (AAIB) and its recommendations. EASA has worked closely with the Federal Aviation Administration (FAA) and the affected Type Certificate holders, Boeing and Rolls-Royce, in support of the AAIB investigation team.

In respect of Safety Recommendation 2008-048, EASA and the FAA have initiated reviews to determine the implications of the findings from this investigation for other certified aircraft/engine combinations, and will take appropriate action where necessary.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-049

It is recommended that the Federal Aviation Administration and the European Aviation Safety Agency review the current certification requirements to ensure that aircraft and engine fuel systems are tolerant to the potential build up and sudden release of ice in the fuel feed systems.

Response

With regard to the accident of a British Airways Boeing 777 at Heathrow Airport on 17 January 2008, the Agency welcomes the report of the Air Accidents Investigation Branch (AAIB) and its recommendations. EASA has worked closely with the Federal Aviation Administration (FAA) and the affected Type Certificate holders, Boeing and Rolls-Royce, in support of the AAIB investigation team.

In respect of Safety Recommendation 2008-049, EASA will review the need for future rulemaking action.

Status - Accepted - closed

Bombardier BD700 Global Express	**Luton Airport**	**29 January 2008**	**Accident**

AAIB Bulletin: 12/2008
FACTOR: N/A

Synopsis

Following an extended period of heavy rain, VP-CRC took off from a dry runway for a long range flight to London Luton Airport. During the subsequent landing roll, the left inboard main landing gear tyre suffered a slide-through failure resulting from an initially locked wheel. This tyre failure caused extensive damage to the flight control system. Although the aircraft landed safely, the investigation revealed a significant flight safety risk and four Safety Recommendations are made.

SAFETY RECOMMENDATION - 2008-071

It is recommended that Bombardier introduce modifications to the BD700 to reduce the extent of concentrations of water pouring onto the outboard faces of the inboard main-wheel tyres and then onto the brakes when the aircraft is parked in rain.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-072

It is recommended that Bombardier either

(a) Develop and implement modifications to the BD700 to effectively shield vulnerable flight critical hydraulic, electrical and mechanical systems in the vicinity of the main-wheel tyres against damage inflicted by items of large, full thickness, high velocity flailing tyre material and / or re-route some systems to minimise vulnerability to such events.

Or alternatively,

(b) Develop and require fitment to the BD700 and other Bombardier aircraft with similar features, a type of tyre that does not have such a flailing failure mode.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-073

It is recommended that the Federal Aviation Administration, the European Aviation Safety Agency and Transport Canada raise awareness of the vulnerability of carbon brakes to freezing in flight following exposure to moisture on the ground, emphasising the significance of the slow drying rate of saturated brakes even in warm, low humidity conditions.

Response

Transport Canada Civil Aviation (TCCA) published Ref. 2. Service Difficulty Advisory AV-2008-08 to inform operators and flight crew of Airplanes equipped with carbon disc brakes of the possibility of moisture absorption and subsequent freezing during flight, resulting in tire failure and damage to the airplane on landing due to locked wheel brake. After reviewing the available information, EASA concurred with the TCCA advisory and published Ref 3 Service Bulletin SIB No 2008-89.

The FAA has reviewed the information and concurs with TCCA advisory and EASA SIB and is issuing a corresponding Special Airworthiness Information Bulletin (SAIB) to ensure that all owners, operators and maintenance personnel of affected aircraft, registered In the U.S. are aware of these recommendations.

FAA SAIB Recommendations

- Flight crews and maintenance personnel are reminded that carbon disc brakes can absorb or retain moisture. If a wet brake is not heated sufficiently to evaporate moisture from the disk surfaces, there is a possibility after in-flight cold soak or parking in freezing conditions, the brake disk surfaces may freeze together. Should this occur, taxiing might produce a flat spot on the tire or the tire may burst on landing.

- Maintenance personnel are reminded to protect aircraft wheels and brakes from direct washing spray and inform the flight crew if the aircraft or landing gear has been washed recently.

- In accordance with the AFM and any other manufacturer's documents, if carbon disc brakes have been exposed to moisture, flight crews are reminded to:

i) During taxi, use light brake applications to warm the brakes before takeoff.

ii) When landing, carry out a positive landing to ensure initial wheel spin-up and breakout of frozen brakes are suspected.

iii) Avoid touch-and-go landings if frozen brakes are suspected.

iv) During the landing roll and subsequent taxi, use brakes to prevent progressive build-up of ice on the wheels and brakes. If equipped, monitor brake temperatures during taxi.

Following takeoff or landing on wet, snow or slush covered runways and taxiways, tires should be inspected for flat spots prior to the next flight.

EASA issued Safety Information Bulletin 2008-89 on 19 December 2008 titled Tire Failure - Locked Carbon Disc Brake due to Moisture Absorption and Freezing.

On 2 December 2008, Transport Canada issued a Service Difficulty Advisory. The purpose of the Advisory is to inform Canadian operators and flight crews operating aeroplanes equipped with carbon disc brakes of the possibility of moisture absorption and subsequent freezing during flight, resulting in tire failure and damage to the aeroplane on landing due to a locked wheel brake. A copy of Service Difficulty Advisory AV-2008-08 is attached for your information. This Advisory is also available on the internet at the following internet address.

Http://www.tc.gc.ca/CivilAviation/certification/continuing/Advisory/2008-08.htm

In addition, Transport Canada has scheduled the publication of an article in the widely circulated, Aviation Safety Letter to further inform the aviation community this same issue. The article is planned to appear in issue 4/2009. This publication is available to all Canadian licensed aviation personnel and organisations and is subscribed to from around the world as well as available on the internet at the following address.

Http://www.tc.gc.ca/CivilAviation/SystemSafety/newsletters/tp185/menu.htm

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-074

It is recommended that the Federal Aviation Administration and the European Aviation Safety Agency review the certification requirements for automatically stopping flight recorders within 10 minutes after a crash impact, with a view to including a specific reference prohibiting the use of 'g' switches as a means of compliance as recommended in ED112 issued by EUROCAE Working Group 50.

Response

The Federal Aviation Administration (FAA) has been in contact with the United Kingdom's Air Accidents Investigation Branch (UK AAIB) to clarify the intent of the subject recommendation. We have been informed that the intent of this recommendation is to eliminate the use of negative acceleration sensors (g-switches) as a means to remove power to a flight recorder during a crash impact. The European Organisation for Civil Aviation Equipment (EUROCAE) document ED-112, Minimum Operational Performance Specification (MOPS) for Crash Protected Airborne Recorder Systems' dated March 2003, specifically references g-switches and recommends against their use. Reliability of the g-switches and the ED-112 recommendation against their use is the UK AAIB basis for this recommendation.

The accident report for Global Express, VP-CRC states that upon arrival at Luton, the CVR recording ceased just after the nose landing gear touched down. The FDR recording showed a peak normal acceleration at touchdown of 1.2g and longitudinal acceleration peak, just prior to the loss of power to the CVR, of -0.22g. When downloaded, the CVR operated normally. During the investigation there was no evidence of a severed DC essential power supply to the CVR. Maintenance records did not confirm the operation of the g-switch but system troubleshooting suggested that it was the most likely cause for the CVR stopping. The switch was subsequently removed from the aircraft and tested by the component manufacturer. Results confirmed that the switch operated successfully only when exposed to accelerations in excess of 3g.

In order to properly respond to this recommendation, the FAA has initiated communications with manufacturers of negative acceleration sensors (g-switches), as well as airframe manufacturers to better understand the power removal logic of the CVR system and to discuss reliability issues directly related to g-switches. Once more information is collected and the issue is completely understood, we will provide a further update to this recommendation in July, 2009.

Status - Response Awaited - open

Airbus A321-231	Manchester Airport	28 July 2008	Accident

AAIB Bulletin: 6/2009
FACTOR: N/A

Synopsis

The aircraft made a hard landing, in a flat attitude, in which the nose landing gear sustained internal damage. An engineer, following the process in the Aircraft Maintenance Manual (AMM), determined that no inspections were required as the relevant recorded parameters had not exceeded the stated threshold values. On the next flight, the flight crew were unable to retract the landing gear. Subsequent investigation of this defect identified internal damage to the nose

landing gear and a bent proximity switch link rod. The nose landing gear was replaced and extensive inspections conducted before the aircraft was released to service.

SAFETY RECOMMENDATION - 2008-092

It is recommended that Airbus includes, in the appropriate publications, further information and guidance to flight crew with regard to unusual landings to ensure they are able to properly discharge their responsibilities to declare potential high load events.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-093

It is recommended that Airbus review the landing parameters recorded on any of their aircraft types which are able to produce a LOAD<15> report, so that a LOAD<15> report is generated whenever there is potential for damage to be caused to the aircraft and/or its landing gear following both hard/overweight landings or abnormal landings, such as nosewheel first landings.

Status - Response Awaited - open

Aeroplanes <> 2,250kg and 5,700kg MTWA

BN2B-26 Islander	**7.7 nm west-north-west of Campbeltown Airport, Argyll**	**15 March 2005**	**Accident**

AAIB Formal Report: 2/2006
FACTOR: F39/2006

Synopsis

The Glasgow based Islander aircraft was engaged on an air ambulance task for the Scottish Ambulance Service when the accident occurred. The pilot allocated to the flight had not flown for 32 days; he was therefore required to complete a short flight at Glasgow to regain currency before landing to collect a paramedic for the flight to Campbeltown Airport on the Kintyre Peninsula.

Poor weather at Campbeltown Airport necessitated an instrument approach. There was neither radar nor Air Traffic Control Service at the airport, so the pilot was receiving a Flight Information Service from a Flight Information Service Officer in accordance with authorised procedures. After arriving overhead Campbeltown Airport, the aircraft flew outbound on the approach procedure for Runway 11 and began a descent. The pilot next transmitted that he had completed the 'base turn', indicating that he was inbound to the airport and commencing an approach.

Nothing more was seen or heard of the aircraft and further attempts at radio contact were unsuccessful. The emergency services were alerted and an extensive search operation was mounted in an area based on the pilot's last transmission. The aircraft wreckage was subsequently located on the sea bed 7.7 nm west-north-west of the airport; there were no survivors.

SAFETY RECOMMENDATION - 2006-101

The European Aviation Safety Agency and Joint Aviation Authorities should review the UK Civil Aviation Authority's proposal to mandate the fitment of Upper Torso Restraints on all seats of existing Transport Category (Passenger) aeroplanes below 5,700 kg being operated for public transport, and consider creating regulation to implement the intent of the proposal.

Response

As an interim response to the Safety Recommendation, the Agency has issued a Safety Information Bulletin (SIB) 2008-24.

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

Status- Partially Accepted - open

Reims Cessna F152	Meden Vale, Nottinghamshire	28 January 2006	Accident

AAIB Bulletin: 1/2008
FACTOR: F4/2008

Synopsis

After approximately 20 minutes of flight the engine rpm started to decrease, with the engine running unevenly and producing severe vibration prior to stopping. The pilot successfully landed the aircraft in a field, with no injury to the occupants. An engineering examination revealed that the No 4 cylinder had separated from the engine due to a fatigue crack that had originated from an external surface corrosion pit. A search of the Civil Aviation Authority's Mandatory Occurrence Reporting database revealed 23 similar events. The Bureau D'Enquetes et D'Analyses Pour La Securité De L'Aviation Civile (BEA) has reports of 34 similar events occurring in France.

SAFETY RECOMMENDATION - 2007-095

It is recommended that the Federal Aviation Administration review the continued airworthiness of cylinders manufactured prior to the year 2000 that are fitted to Lycoming O-235 series engines.

Response

Reports of cracking of cylinder barrels installed on Lycoming 0-235 series engines were received from France in the late 1990's. In June 1998, the French Direction General De L'Aviation Civile (DGAC) issued Airworthiness Directive (AD) 1998-255 to inspect Lycoming 0-235 series engines in France for engine cylinder barrel cracking. In September 2000, representatives from Lycoming Engines and the FAA New York Aircraft Certification Office (NYACO) met with the DGAC to discuss cracking of cylinder barrels installed on Lycoming 0-235 series engines in France.

A subsequent Lycoming investigation determined that the cylinder barrel cracks initiated from corrosion pits at the base of the cylinder. Lycoming issued Service Instruction (SI) No. 1504, dated January 26, 2001, to recommend replacement of cylinders affected by DGAC AD 1998-255 with new part number cylinders with improved corrosion protection. Lycoming began shipping these new, improved cylinders, with a different part number, after September 1, 2000. At that time, Lycoming 0-235 series engine cylinder cracking only occurred in France. Therefore, Lycoming SI No. 1504, which listed the new, improved cylinders, only affected Lycoming 0-235 series engines operating in France, and included a one year prorated warranty program.

Lycoming and the NYACO became aware of United Kingdom (U.K.) Air Accidents Investigation Branch (AAIB) Safety Recommendation 2007-095 through written communication with the European Aviation Safety Agency (EASA) on October 12, 2007. This communication contained data on six similar incidents/accidents that occurred in the U.K. on Lycoming 0-235 series engines with pre-2000 cylinder barrel part numbers, not the new, improved cylinder barrels listed in Lycoming SI No. 1504. The AAIB determined these incidents resulted from "a complete or partial separation of a cylinder from a Lycoming 0-235 series engine caused by a fatigue crack propagating from an external corrosion pit."

In support of the investigation, Lycoming reviewed their service records for failures in the U.K. and the NYACO reviewed the FAA and NTSB databases for cylinder cracking on Lycoming 0-235 series engines in the U.S. No reports of failures in the U.S. were found. In addition, the NYACO sent an Airworthiness Concerns Sheet, dated October 16, 2007, to the Aircraft Owners and Pilots Association (AOPA) to obtain information directly from their members on cylinder cracking on Lycoming 0-235 series engines. In the response from AOPA, dated November 30, 2007, they said, "AOPA has no comments regarding this particular concern."

Since September 1, 2000, the only replacement cylinders Lycoming supplies are the new, improved cylinders listed in Lycoming SI No. 1504. A specific inspection interval for corroded cylinders is not specified by Lycoming service bulletin; however an owner/operator or a local regulatory authority may independently institute such inspections in geographic areas that are conducive to cylinder cracking problems. In addition, Lycoming recommends replacement of cylinders at each overhaul.

On December 5, 2007, the NYACO advised EASA that based on the NYACO review of the FAA and NTSB databases for cylinder cracking on Lycoming 0-235 series engines in the U.S. and the response from AOPA, there is no justification for FAA action at this time.

The FAA has determined that the corrosion and associated cylinder cracking situation is different between the United States and Europe. Although we have not determined the cause of this difference, we have not received any reports of the new, improved cylinders cracking either in Europe or in the U.S. Therefore, although no justification exists for further action by the FAA at this time, we continue to monitor the airworthiness of the Lycoming 0-235 series engines.

Status - Rejected

Piper PA-38-112	**Durham Tees Valley Airport**	**9 December 2006**	**Accident**

AAIB Bulletin: 10/2007
FACTOR: F35/2007

Synopsis

Whilst taxiing following a firm landing, the left main landing gear detached from the aircraft. Examination showed that one of the three landing gear attachment bolts had unscrewed and fallen out and the remaining two bolts had pulled out as the gear detached from the aircraft.

SAFETY RECOMMENDATION - 2007-088

It is recommended that the Federal Aviation Administration require that Piper Aircraft introduce a form of locking on the main landing gear attachment bolt, part number 401 511, fitted to PA-38 series aircraft.

Response

Small Airplane Directorate Response: The FAA has investigated the recommendation and based on the procedures in 14 CFR Part 21.99 and the Small Airplane Directorate AD Manual Supplement, the safety risk is not sufficient for the FAA to mandate a design change. In addition, the data (refer to attachment) do not show the problem to be a significant issue for U.S.-registered aircraft. The FAA does support the idea of a voluntary design change and is currently working with Piper who is generating a service bulletin and kit to that end.

In addition, the FAA are discussing with Piper considerations for jacking the airplane when checking the bolt torque so as to preclude any preload on the bolt. These changes involve the type design and instructions for continued airworthiness, including the Maintenance Manual and the Airplane Parts Catalogue.

Pending a final resolution, and publication of the service bulletin, the FAA requests this recommendation be classified as "Open - Awaiting Further Response.

Status - Partially Accepted - open

Beech B200	Southend Airport, Essex	24 March 2007	Accident

AAIB Bulletin: 4/2008
FACTOR: N/A

Synopsis

After selecting the landing gear to UP after takeoff from Caen, the 'gear unsafe' light remained on. The flight crew established that the nose landing gear had neither retracted nor remained locked down and, despite recycling the gear and attempted use of the emergency gear lowering system, the crew were unable to lock the nose leg down. Upon landing at Southend Airport, the leg collapsed, causing damage to the fuselage nose structure and the propeller blade tips. The investigation revealed that the nose gear actuator had been affected internally by corrosion, precipitated by water ingress, which led to the failure of the threads within the actuation nut of the actuator. It had completed a total of 1,449 cycles of its 8,000 cycle life, but only 532 cycles since its last 1,000 cycle check.

One Safety Recommendation is made.

SAFETY RECOMMENDATION - 2007-126

It is recommended that the Federal Aviation Administration require Raytheon (Beechcraft) to review the maintenance requirements of the nose landing gear actuator fitted to the Beech B200 King Air series of aircraft, and any other model using a similar design of actuator, with regard to the requirement of periodic lubrication and the periodicity of inspections.

Response

The Wichita Aircraft Certification Office and Hawker Beechcraft have reviewed the maintenance manual requirements for lubrication, inspections, overhaul and replacement, and do not believe any changes are necessary to the existing maintenance manual.

While there is no direct requirement for routine lubrication, there is requirement to check the nose actuator for leakage during scheduled inspections. A packing is installed to seal and exclude moisture during retraction. If the seal is damaged, there should be indications of lubricant leakage. The actuator nut assembly and gear box are to be parked MIL-G-21164 Molybdenum Disulfide grease. This is a service-proven lubricant for this type of aircraft application.

Maintenance manuals are written as a guideline for an operator to begin a maintenance program. The operator needs to consider that the airplane may be operating in a more severe environment than the norm.

The Maintenance Manual states:

'SPECIAL CONDITIONS CAUTIONARY NOTICE'

Airplanes operated for Air Taxi, or other than normal operation and airplanes operated in humid topics, cold and damp climates, etc., may need more frequent intervals until the owner/operator can set his own inspection periods based on the contingencies of field experience'

The occurrences cited in the Safety Recommendation are not sufficient justification for changes to the lubrication and inspection periodic requirements. This gear design has been in service since 1964; and the service life history reveals no significant safety risk. Our service difficulty data reflects a total of four B200 gear nut failures reported since the airplane entered service.

We consider our action complete and request Safety Recommendation 08.052 be classified as 'Closed-Not Adopted'

Status - Rejected

Nomad N22B	Chatteris Airfield	12 August 2007	Accident

AAIB Bulletin: 8/2008
FACTOR: N/A

Synopsis

The aircraft, with 13 parachutists on board, inadvertently entered cloud as it climbed through about 8,500 ft. The pilot descended the aircraft and regained VMC at about 4,000 ft; however one of the engines ran down due to icing before the engine anti ice system was selected on. The pilot was unable to restart the engine and returned to his departure airfield, where he flew a faster than normal approach in accordance with training he had received for single-engine landings. The aircraft landed long and the pilot was unable to stop it before the end of the runway. During the subsequent overrun, the nose wheel entered a ditch causing the nose leg to collapse.

The pilot did not hold a type rating for the aircraft, as required under CAA and JAR's, however he was operating under his FAA licence, (based on his CAA licence) and he incorrectly believed he did not require a specific type rating.

SAFETY RECOMMENDATION - 2008-031

It is recommended that the Federal Aviation Administration (FAA) clarify the implications of FAA pilot certification rule 61.75 (e)(3) to those in possession of FAA licences that are based on foreign state licences.

Status - Response Awaited - open

Aeroplanes = or < 2,250kg MTWA

Piper PA-28R-201T	**9 nm south of Oban (North Connel) Airport, Argyll and Butte, Scotland**	**9 April 2007**	**Accident**

AAIB Bulletin: 6/2008
FACTOR: F9/2008

Synopsis

The commander was planning to return to Andrewsfield Airfield, Essex, from Oban Airport after a weekend of touring with his family. The weather was poor. The aircraft departed Oban at 1035 hrs and the Air/Ground operator lost sight of it shortly thereafter due to the poor visibility as it headed west at approximately 1,000 ft amsl. Nothing was subsequently heard from the aircraft by any other ATC agency. The wreckage of the aircraft was discovered the following day in the hills, 9 nm south of Oban Airfield, by a farmer. No technical fault with the aircraft was found apart from evidence of a pre-impact failure of the vacuum pump which would have caused the Attitude Indicator to become unreliable. The characteristics of the final flight path, particularly the high airspeed, the rapid descent and the rate of turn, were consistent with a loss of control following spatial disorientation in IMC. The vacuum pump failure, the commander's lack of instrument flying training and his apparent high blood alcohol level, all contributed to the spatial disorientation.

SAFETY RECOMMENDATION - 2008-002

The Civil Aviation Authority should publicise the vacuum pump replacement requirements in Parker Airborne Service Letter 58A and recommend that operators and maintainers of such aircraft which will be operated under Instrument Flight Rules, comply with the limits specified therein.

Response

The CAA accepts this recommendation and will publicise, through the issue of a Letter to Operators, the vacuum pump replacement requirements in Parker Airborne Service Letter 58A and recommend that operators and maintainers of such aircraft which will be operated under Instrument Flight Rules, comply with the limits specified therein. The CAA will also publish an article relating to this subject matter in the September 2008 edition of the General Aviation Safety Leaflet (GASIL).

CAA Action

An article on the subject was published in the General Aviation Safety Information Leaflet (GASIL) on 15 September 2008.

LTOs have been replaced with AIRCOMS (Airworthiness Division Communications) and the CAA published an AIRCOM in June 2009 to highlight to aircraft owners and maintainers the importance of considering manufacturers' recommendations and the need to revise aircraft maintenance programmes in the light of operating experience.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-003

The New Piper Aircraft Company should revise their maintenance manuals to ensure that the maintenance requirements for vacuum pumps are consistent across their product range.

Response

Piper is currently in the process of updating all of our Maintenance/Parts Manuals. As there are numerous (1,000+) manuals involved, and limited staff, this will take some time. Piper have submitted a schedule to the FAA, for approval, that commits to having all of the updates complete by mid 2010. These updates incorporate all changes including Service Publications, Inspection Requirements, System Changes/Updates, Engineering Data, Vendor Data, etc and are not specific to this issue. Piper is making every effort to get these updates implemented as soon as possible.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-004

The European Aviation Safety Agency (EASA) should mandate compliance with vacuum maintenance and replacement requirements, to ensure that aircraft fitted with vacuum-driven Attitude Indicators can be safely operated in Instrument Meteorological Conditions when such aircraft are certified to do so.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-005

The US Federal Aviation Administration (FAA) should mandate compliance with vacuum pump maintenance and replacement requirements, to ensure that aircraft fitted with vacuum-driven Attitude Indicators can be safely operated in Instrument Meteorological Conditions when such aircraft are certified to do so.

Status - Response Awaited - open

Piper PA-25-235	**Hinton-in-the-Hedges, Northamptonshire**	**17 June 2007**	**Accident**

AAIB Bulletin: 4/2008
FACTOR: N/A

Synopsis

After a normal landing, the aircraft's tail began to rise and the propeller struck the ground. As a result, the aircraft pitched onto its back. Two Safety Recommendations have been made with regard to the survivability of this accident.

SAFETY RECOMMENDATION - 2008-011

It is recommended that Lavia SA (the present Type Certificate holder) produce a modification for aircraft that have the anti-collision light assembly on the roof of the cockpit, which moves the light to a position which would not compromise the living volume of the cockpit in the event of an accident and that Direccion Nacional De Aeronavegabilidad ensure that Lavia SA produce the relevant modification and consider making it mandatory.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-012

It is recommended that Lavia SA produce a retrofit modification for the installation of an emergency door release system on Piper PA25-235 aircraft manufactured prior to serial number 25-4171, and that Direccion Nacional De Aeronavegabilidad ensure that Lavia SA produce the relevant modification and consider making it mandatory.

Status - Response Awaited - open

Slingsby T67M260	**Stapleford Tawney Airport, Essex**	**3 August 2007**	**Incident**

AAIB Bulletin: 4/2008
FACTOR: F8/2008

Synopsis

As the crew carried out functional checks of the flight controls while taxiing for takeoff, both left brake pedals became disconnected. It was found that the left wheel brake master cylinder had detached from the rudder/brake pedal mechanism. The failure was consistent with the effects of previous overload and consequent weakening of the mechanism as a result of inadvertent exceedance of the maximum allowable nosewheel steering angle during ground towing. In this situation, as the primary steering stops were within the pedal mechanism, rather than on the nosewheel leg, the mechanism could be severely overloaded. Damage could both weaken the mechanism and reduce the clearances between its moving parts and other components, potentially preventing operation of the rudder and/or wheel brake controls, and could remain undetected for a considerable time.

The aircraft manufacturer had taken a number of measures aimed at reducing the likelihood of the pedal mechanism being damaged during towing. A relatively minor aircraft modification could probably eliminate the possibility of such damage. Three Safety Recommendations are made.

SAFETY RECOMMENDATION - 2008-006

It is recommended that the UK Civil Aviation Authority ensure that the prohibition by Slingsby Advanced Composites Ltd on using a non Slingsby-approved tow bar with T67 aircraft, is made mandatory.

Response

The CAA accepts this recommendation. The responsibility for the control of the matters addressed in this recommendation, in terms of the worldwide fleet of T67 aircraft, passed to EASA on 28 September 2003, in accordance with EC Regulation No 216/2008. It is therefore EASA's responsibility in the longer term to consider the issue of an Airworthiness Directive based upon the Manufacturer's Service Bulletins for the aircraft or to agree that a Flight Manual amendment is required to highlight the issue. Nevertheless, the CAA notes that EASA considers Issue 3 of Slingsby Service Bulletins (SB) 187 and 188 (which the CAA had accepted as part of its administration of Slingsby Advanced Composites Ltd's Design Organisation Approval for EASA) to be adequate for preventing further damage to the rudder system during towing.

The CAA will however, include a general article in the next GASIL publication to highlight the need to exercise caution when using tow bars during ground manoeuvring of aircraft. The CAA will also issue a Letter to Operators to owners/operators of UK registered Slingsby T67 aircraft highlighting the issue and the content of the Manufacturer's Service Bulletins.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-007

It is recommended that Slingsby Advanced Composites Ltd develop modifications for the T67 aircraft, aimed at eliminating the possibility that forces generated during ground towing could cause undetected damage to the rudder/brake pedal mechanism.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-008

It is recommended that EASA require the development of modifications for the Slingsby Advanced Composites Ltd T67 aircraft, aimed at eliminating the possibility that forces generated during towing could cause undetected damage to the rudder/brake pedal mechanism.

Status - Response Awaited - open

Piper PA-28-140	**0.5 nm south-west of Isle of Wight/Sandown Airport**	**5 August 2007**	**Accident**

AAIB Bulletin: 10/2008
FACTOR: N/A

Synopsis

The aircraft departed from Runway 23, with four people on board, on a flight to Pontivy, France. Its takeoff ground roll was noticeably long and, having lifted off, G-AVRP climbed to about 50 ft agl and maintained that height as it flew over rising ground beyond the end of the runway. As it approached trees at the top of the rising ground, the aircraft was seen to pitch up and clear the trees before its nose dropped and it descended out of sight. The aircraft struck another line of trees and crashed into a field. The aircraft rapidly caught fire. The fire was extinguished by the Airport Fire-fighting and Rescue Service (FFRS). All the occupants of the aircraft died in the accident and the aircraft was destroyed.

It was established that the aircraft's predicted performance, at its estimated takeoff weight and in the prevailing conditions, should have enabled a successful departure. Its failure to do so may have been the result of reduced engine power, a tailwind component, a greater takeoff weight than estimated, an incorrect piloting technique during takeoff or a combination of some or all of these factors.

SAFETY RECOMMENDATION - 2008-050

It is recommended that the Isle of Wight/Sandown Airport aerodrome licence holder installs an additional, suitably located wind sleeve within the appropriate distance from the threshold of Runway 23, in accordance with the advice contained in CAP 168.

Response

In May 2008, the Isle of Wight/Sandown Airport aerodrome licence holder installed an additional windsleeve located about 70 metres from the threshold of Runway 23. The windsleeve is clearly visible to the pilot of an aircraft on the threshold of Runway 23.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-051

It is recommended that the European Aviation Safety Agency amend that part of the Regulations dealing with Continuing Airworthiness so that aircraft under their jurisdiction will require a periodic performance assessment.

Status - Response Awaited - open

Dyn'Aero MCR-01	**Near Fridd Farm Airstrip, Bethersden, Kent**	**30 September 2007**	**Accident**

AAIB Bulletin: 11/2008
FACTOR: N/A

Synopsis

The aircraft, soon after takeoff, suffered a partial loss of engine power. The pilot returned to the farm strip from which he had taken off, and attempted to land. However, the approach was made with a tailwind and the aircraft was too fast to land before the end of the runway. The pilot attempted a go-around but there was not sufficient engine power available; the aircraft descended and landed in a field just beyond the end of the runway. The aircraft struck a large oak tree, the passenger-side harness mounting was disrupted and the passenger was fatally injured.

The investigation found that the main fuel jet of the right carburettor had become obstructed by a corrosion fragment liberated from the carburettor bowl. The failure of the passenger's restraint was found to be due to the failure of the bond between the shoulder harness attachment fitting and the inner surface of the fuselage, to which it was secured.

SAFETY RECOMMENDATION - 2008-029

It is recommended that ROTAX introduce a requirement into the engine maintenance schedule for engine type 912 series, to remove and inspect the carburettor bowls periodically for the presence of moisture and other contaminants.

Status - Response Awaited - open

Microlights

Pegasus Quantum 15-912	**Clench Common Airfield, near Marlborough, Wiltshire**	**5 April 2006**	**Accident**

AAIB Bulletin: 2/2007
FACTOR: F4/2007

Synopsis

After an uneventful flight and while on the approach to land, the wing pitched up and the aircraft turned to the right. It subsequently crashed into the roof of a barn close to the landing threshold of the airstrip. Ferrules had failed in four rigging cable assemblies causing structural failure of the aircraft. These four cable assemblies had been recently fitted. The cable assemblies were made locally; they were not approved by the manufacturer, nor were they approved by the BMAA.

SAFETY RECOMMENDATION - 2007-007

It is recommended that the BMAA update their Guide to Airworthiness to state clearly that only parts approved either by the manufacturer or in a BMAA approved modification, should be used for the replacement of all safety critical items.

Response

"Only parts approved either by the aircraft manufacturer (where they are the Type Approval Holder), or by the BMAA Technical Office against a formal modification or repair scheme, should be used for the replacement of safety critical items."

The BMAA responded that an amendment to the existing Guide to Airworthiness Procedures was in preparation and they strongly promote the use of approved parts specified by the manufacturer for safety critical components.

Status - Accepted - closed

Raven X	**North of Cliffe, Kent**	**9 June 2006**	**Accident**

AAIB Bulletin: 2/2007
FACTOR: F13/2007

Synopsis

The student pilot was briefed to fly a solo general handling exercise over marshland on the south side of the Thames Estuary. He had not returned to the airfield by the time the aircraft's fuel was known to be exhausted and a search and rescue operation was initiated. Approximately 24 hours later the crew of the Police Air Support Unit helicopter located the aircraft and the fatally injured pilot. There were no eye-witnesses and no recorded evidence. The investigation was unable to determine the cause of the accident.

SAFETY RECOMMENDATION - 2006-126

The British Microlight Aircraft Association should promulgate the information that fibre-cored cables should not be used on aircraft, unless specified by the manufacturer, and that the Nicopress swaging tool was not designed for fibre-cored cables and will therefore not produce a correctly swaged joint.

Response

The BMAA published AAIB Safety Recommendation 2006-126 in the British Microlight Aircraft Association Accident Survey 2006 booklet and distributed it to all BMAA members in 2007.

Furthermore, this is covered by the BMAA's response to the AAIB's earlier Safety Recommendation Number 2007-007 where the BMAA inserted the following text into its new Standard Inspection Guidelines for Microlight Aircraft (SIGMA) on page 4-10 in June 2007.

"Only parts approved either by the aircraft manufacturer (where they are the Type Approval Holder), or by the BMAA Technical Office against a formal modification or repair scheme, should be used for the replacement of safety critical items."

A similar amendment to the BMAA's existing Guide to Airworthiness Procedures is in preparation and the BMAA strongly promotes the use of approved parts specified by the manufacturer for safety critical components.

Status - Accepted – closed

Dragon 200	Sandown Airport	11 August 2007	Accident

AAIB Bulletin: 2/2008
FACTOR: F6/2008

Synopsis

The aircraft took off at close to its maximum all up weight, from a grass strip, towards rising ground. It encountered turbulence and then made a forced landing after the end of the runway and was extensively damaged. Whilst the aircraft's type acceptance data sheet performance figures show that it should have been able to complete this manoeuvre, the aircraft did not perform as expected.

SAFETY RECOMMENDATION - 2008-001

It is therefore recommended that the CAA, in conjunction with the BMAA and PFA, ensure that during the check flight for a permit to fly revalidation, the aircraft's performance, at its maximum certified takeoff weight, is confirmed.

Response

The CAA accepts this Recommendation. The CAA has raised this issue with the British Microlight Aircraft Association and Popular Flying Association, who have reviewed their internal processes in this area to ensure that an aircraft's performance at its maximum certificated weight is properly reviewed and accepted before the certificate of validity is issued or renewed. The CAA will continue to monitor the situation as part of its regulatory oversight of those approved organisations.

Status - Accepted - closed

MCR-01 ULC - Banbi	**Burgham Park Golf Course, near Felton, Northumberland**	**30 December 2007**	**Accident**

AAIB Bulletin: 2/2009
FACTOR: N/A

Synopsis

The pilot and his passenger, who each owned a half-share in the aircraft, were making a short flight between two airfields about 4 nm apart. As the aircraft joined the circuit to land, at a height of around 800 ft, there was a 'bang' as the tailplane separated and fell to the ground. The aircraft became uncontrollable and descended into trees. The occupants survived the impact but both received serious injuries.

The tailplane attachment lugs had failed in upload; the metallurgical evidence showed that a stress corrosion mechanism had been present.

SAFETY RECOMMENDATION - 2008-045

The Direction Generale de l'Aviation Civile (DGAC) should mandate the replacement of Type 2 tailplane attachment lugs on all variants of MCR models with a stainless steel replacement as described in Dyn'Aero Procedure M EH NO 01, dated 13 March 2008.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-046

The aircraft manufacturer, Dyn' Aero, should inform all owners of all variants of MCR models with the Type 2 tailplane lug fitted, as identified from Dyn' Aero Service Bulletin (BS 08 B0034 issued on 13 March 2008) of the availability of a stainless steel replacement, as described in Dyn' Aero Procedure M EH No 01, dated 13 March 2008.

Status - Response Awaited - open

Rotorcraft > 5,700kg MTWA or above

No Safety Recommendations were made in this Section.

Rotorcraft <> 2,250kg and 5,700kg MTWA

SA365N	**Approximately 450 metres South-SE of the North Morecambe gas platform, Morecambe Bay, Irish Sea.**	**27 December 2006**	**Accident**

AAIB Formal Report: 7/2008
FACTOR: F12/2008

Synopsis

The helicopter departed Blackpool at 1800 hrs on a scheduled flight consisting of eight sectors within the Morecambe Bay gas field. The first two sectors were completed without incident but, when preparing to land on the North Morecambe platform, in the dark, the helicopter flew past the platform and struck the surface of the sea. The fuselage disintegrated on impact and the majority of the structure sank. Two fast response craft from a multipurpose standby vessel, which was on position close to the platform, arrived at the scene of the accident 16 minutes later. There were no survivors amongst the five passengers or two crew.

The investigation identified the following contributory factors:

1. The co-pilot was flying an approach to the North Morecambe platform at night, in challenging weather conditions, when he lost control of the helicopter. He requested assistance from the commander. The transfer of control was not handled precisely and the commander did not take control until approximately four seconds after the initial request for help. The commander's initial actions to recover the helicopter were correct but the helicopter descended into the sea.

2. The approach profile flown by the co-pilot suggests a problem in assessing the correct approach angle, probably because of the limited visual cues available to him. The paucity of instrument cross-checks and lack of evidence of monitoring by the commander were symptomatic of Standard Operating Procedures that provided insufficient guidance to the crews when operating in such conditions.

3. An appropriate training device for the SA365N was available but it was not used; the extensive benefits of conducting training and checking in such an environment were therefore missed. The co-pilot was flying an approach to the North Morecambe platform at night, in poor weather conditions, when he lost control of the helicopter. He requested assistance from the commander. The transfer of control was not handled precisely and the commander did not take control until approximately four seconds after the initial request for help. The commander's initial actions to recover the helicopter were correct but the helicopter subsequently descended into the sea.

SAFETY RECOMMENDATION - 2008-032

It is recommended that CHC (Scotia) review their Standard Operating Procedures related to helideck approaches, to ensure that the non-handling pilot actively monitors the approach and announces range to touchdown and height information to assist the flying pilot with his execution of the approach profile. This is especially important on the S365N helicopter when the co-pilot is flying approaches in poor visual conditions and cannot easily monitor a poorly positioned radio altimeter.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-033

It is recommended that the European Aviation Safety Agency ensure that research into instrument landing systems that would assist helicopter crews to monitor their approaches to oil and gas platforms in poor visual flying conditions and at night is completed without delay.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-034

It is recommended that CHC (Scotia) conduct a thorough review of their Standard Operating Procedures related to helideck approaches, for all helicopter types operated by the company, with the aim of ensuring safe operations.

Response

The Operations Manual Part B (OMB) for the SA365N was modified by FSI 01/08 which expanded on the techniques to be employed in the event of a Go-around by sole reference to instruments. The Flying Staff Instruction (FSI) covered both manual and coupled procedures and associated changes to the Normal Checklist were also completed.

In addition, FSI 011/08 reminded crews of the need to log go-arounds in the SMS.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-035

It is recommended that the Civil Aviation Authority should ensure that the recurrent training and checking of JAR-OPS, Part 3 approved operators should be carried out in an approved Synthetic Training Device.

Response

The CAA accepts this recommendation. The CAA will write to all commercial helicopter operators and ask them to review their current recurrent training and checking arrangements with their assigned Inspectors to ensure that whenever possible Synthetic Training devices are being used in accordance with the JAR-OPS 3 requirements. This action will be completed by February 2009.

CAA Action

It was not possible to address the issue in the time available. However, the letter was sent to all operators on 22 May 2009 drawing their attention to the AAIB report and in particular, this recommendation. The letter was for action by all IFR and off-shore operators and for the information of all other operators including PAOC holders.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-036

It is recommended that the European Aviation Safety Agency investigate methods to increase the conspicuity of immersion suits worn by the flight crew, in order to improve the location of incapacitated survivors of a helicopter ditching.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-037

It is recommended that the Civil Aviation Authority ensure that personnel who are required to conduct weather observations from offshore installations are be suitably trained, qualified and provided with equipment that can accurately measure the cloud base and visibility.

Response

The CAA accepts this recommendation insofar as amending current CAA guidance material in CAP 437 "Offshore Helicopter Landing Areas - Guidance on Standards" is concerned. The Memorandum of Understanding (MoU) between the CAA and the Health and Safety Executive (HSE) on Offshore Operations identifies that the CAA's remit is to regulate the safety of helicopters that operate to and from offshore installations. In accordance with this MoU, the CAA provides guidance to assist helicopter operators and the Helicopter Certification Agency (HCA) to discharge their relevant duties. The HSE has agreed that conformity with the guidance in CAP 437 is an acceptable means of compliance with applicable offshore regulations. When Edition 6 of CAP 437 is published (currently scheduled for before the end of December 2008), it will contain comprehensive and revised guidance material concerning the requirements for accurate, timely and complete meteorological observations which are strongly recommended to be gathered using automated meteorological equipment. This guidance also includes material concerning meteorological observer training and radio messaging in relation to meteorological reports. Additionally, the CAA is working with the HCA and Oil and Gas UK to agree appropriate implementation methodologies, including using relevant information extracted from CAP 746 "Meteorological Observations at Aerodromes" on specifications for meteorological sensor equipment to measure cloud base and visibility at offshore installations.

CAA Action

The 6th edition of CAP 437 "Offshore Helicopter Landing Areas - Guidance on Standards" was issued on 8 January 2009 and now contains comprehensive and revised guidance material concerning the requirements for accurate, timely and complete meteorological observations which are strongly recommended to be gathered using automated meteorological equipment. This guidance also includes material concerning meteorological observer training and radio messaging in relation to meteorological reports.

Status - Accepted - closed

AS350B2	**Rear of Jerviswood House, Newstedings Farm, Lanark**	**15 September 2007**	**Accident**

AAIB Bulletin: 2/2009
FACTOR: F4/2009

Synopsis

The helicopter crashed in a wooded valley while manoeuvring at high speed and low height. The helicopter was intact when it crashed, and the available evidence indicated that the engine was delivering power: although no technical reason was found to explain the accident, a technical fault could not be ruled out entirely. The cause of the accident was not positively determined; however, it is probable that the pilot attempted a demanding manoeuvre, during which the helicopter deviated from his intended flight path, whether due to the pilot exceeding the permitted manoeuvring limits, mis-judgement, disorientation, distraction or a combination of such events. There were indications that the pilot had started a recovery but, with insufficient height in which to complete it, the helicopter struck trees in the valley and crashed, killing all four occupants.

SAFETY RECOMMENDATION - 2008-067

It is recommended that Eurocopter review current operational information and advice about the servo transparency phenomenon. This should be with a view to including a warning in applicable Flight Manuals that the associated uncommanded right roll and possible pitch-up, if encountered by an aircraft manoeuvring in a right turn, have the potential to cause a significant deviation from the intended flight path which, if encountered in close proximity to terrain or obstacles, could be hazardous.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2008-068

It is recommended that the Civil Aviation Authority should circulate, by the most appropriate means, the content of Eurocopter's Service Letter SL-1648-29□03 to owners and operators of applicable helicopter models, with a view to reminding them of the causes, symptoms, hazards and recovery actions relating to 'servo transparency' or 'jack stall' encounters.

Response

The CAA accepts this Recommendation. The Helicopter Inspectorate of the CAA will, during visits to AOC holders, alert them to the issue of "servo transparency", to AAIB Bulletin 1/2009 and to the Eurocopter Service letter. A FODCOM addressed to all helicopter AOC holders and helicopter pilots, containing the content of the Eurocontrol Service Letter, will be published. In addition, an article will be published in GASIL. All of these actions will be completed by the end of May 2009.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-069

It is recommended that the Civil Aviation Authority, in conjunction with the European Aviation Safety Agency, require an awareness of the causes, symptoms, hazards and recovery actions relating to 'servo transparency' or 'jack stall' encounters to be covered as a ground study item as part of the mandatory training for aircraft type ratings for those helicopter types likely to be affected.

Response

The CAA accepts this recommendation. The Acceptable Means of Compliance to JAR-FCL 2.261(c)(2), Guidelines for the Approval of a Helicopter Type rating Course, paragraph 9, Theoretical Instruction, already states:

"The theoretical knowledge instruction training should meet the general objectives of:

(c) Giving the student an understanding of system malfunctions, their effect on helicopter operations interaction with other systems.

(d) Giving the student the understanding of normal, abnormal and emergency procedures."

In addition, the Acceptable Means of Compliance to JAR-FCL 2.261(c) paragraph 1.6 requires Aircraft Hydraulic Systems to be taught on a Type Rating Course

The CAA will, by means of a TrainingCom and other appropriate communications, notify training schools that for any new course of training to be approved, the CAA will expect the organisation to show how the potential for 'servo transparency' or 'jack stall' will be covered for those types likely to be affected, as part of compliance with the above requirements. For courses already approved, the CAA will request that schools confirm in writing how the potential for 'servo transparency' or 'jack stall' is covered for those types likely to be affected, as part of compliance with the above requirements.

The CAA has now included 'servo transparency' as part of the briefing at helicopter Flight Instructor seminars and all helicopter Flight Instructor Examiners will be briefed to include this topic as necessary when conducting FI and TRI revalidations.

Finally, the CAA will write to EASA proposing that this Recommendation be taken into account in the comments to EASA-FCL (NPA-2008-017b), however the CAA believes that direct communication from AAIB to EASA would be also be useful. CAA has included a comment to EASA AMC 3 to OR.ATO.125 (NPA-2008-22c), where the JAR-FCL requirements for TRTO courses have been included. The comment has proposed that 'servo transparency' be included in a course of training for those helicopter types likely to be affected.

CAA Action

An article was published on 8th May 2009 in GASIL 04/2009 and an AIC was also published on 18th June 2009.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2008-070

It is recommended that the Civil Aviation Authority standardise a requirement for all Authorised Examiners to check the licence and/or other applicable documentation of candidates presenting themselves for proficiency checks or skills tests. This requirement should be stated in the applicable Standards Documents, together with the action to take in the event that the validity of any required documentation has expired or is approaching expiry.

Response

The CAA accepts this Recommendation. Standards Documents 21 and 28, and the Helicopter Flight Examiner Handbook are in the process of being updated to reflect the need to check a candidate's licence and other applicable documentation prior to test. Previously this was implicit, but it will be made explicit. The action to be taken in the event that the validity of any required documentation has expired or is approaching expiry will also be included.

These documents will be re-issued by the end of April 2009.

CAA Action

Standards Documents 28 and 21(H) have been revised and were re-published on the CAA website in October 2008 and May 2009 respectively. The Helicopter Flight Examiner Handbook was re-published in June 2009. The Aeroplane Flight Examiners Handbook was already explicit in the need to check a licence, however a Notice to Examiners (NOTEX) was published in December 2008 as a reminder. The subject has been covered at Flight Examiner Seminars (held annually), and will continue to be. Further opportunities to highlight this issue will be taken on an opportunity basis.

Status - Accepted - closed

EC135 T2	**East of North Weald Airfield, Essex**	**16 September 2007**	**Accident**

AAIB Bulletin: 9/2008
FACTOR: N/A

Synopsis

The pilot and his passenger were returning to the UK from Europe. Whilst passing through the Stansted control zone, the helicopter had an event during which the auto trim in the Automatic Flight System disengaged and the helicopter pitched nose down. The pilot, believing he had a double engine failure, entered autorotation. During the landing flare the tail of the helicopter struck the ground first, severing the Fenestron drive. The helicopter subsequently rolled on to its side and was extensively damaged. The occupants escaped without injuries.

SAFETY RECOMMENDATION - 2008-038

It is recommended that Eurocopter review the design of the Stability Augmentation System (SAS) DCPL switch on the EC135 helicopter to reduce the likelihood of inadvertent de-activation of the SAS.

Status - Response Awaited - open

Rotorcraft = or < 2,250kg MTWA

No Safety Recommendations made in the Section.

Others

Paramotor	Middle Barn Farm, Bexhill, East Sussex	8 July 2007	Accident

AAIB Bulletin: 2/2009
FACTOR: F2/2009

Synopsis

The paramotor was being operated by an experienced pilot, who was also an instructor. He was seen to initiate what was described as a 'wingover' manoeuvre to the right, at about 1,000 ft, but this was seen to develop into a rapid spiral to the left which continued for several turns, with a high rate of descent. The aircraft started to recover at a late stage but the pilot received fatal injuries in the impact with the ground.

There was no defect identified within the wing (canopy and rigging) but structural failures were identified within the paramotor unit, consistent with having occurred in flight and precipitating the spiral descent.

SAFETY RECOMMENDATION - 2008-052

It is recommended that the Civil Aviation Authority should actively develop oversight of the sport of self propelled hang gliders, including paramotors, by a single organisation.

Response

The CAA does not accept this Recommendation as it does not regulate this activity.

However, the CAA has, over many years, regularly reviewed 'sporting aviation' issues with the UK's General Aviation sector, and the current consensus is that additional certification, registration, maintenance and licensing of such activities would not provide safety benefits significant enough to outweigh the cost of such extra regulation.

In relation to the sport of 'paramotoring' the CAA maintains the view that additional CAA oversight would not bring significant safety benefits to the sport. Nevertheless the CAA has noted the comments leading to this Recommendation and shares the concerns of the AAIB concerning the fragmented nature of current guidance in relation to 'paramotoring'. As a consequence, the CAA will write to the principals of both organisations involved in the oversight of the sport of 'paramotoring', the British Microlight Aircraft Association and the British Hang Gliding and Paragliding Association, and will reinforce the concerns and propose that these organisations develop appropriate guidance.

Status - Rejected

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2006-142	Airbus A319-111	Overhead - Brest, France	15 Sep 2006	9
2006-143	Airbus A319-111	Overhead - Brest, France	15 Sep 2006	10
2006-144	Airbus A319-111	Overhead - Brest, France	15 Sep 2006	10
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2007-007	Pegasus Quantum 15-912	Clench Common Airfield, near Marlborough, Wiltshire	5 Apr 2006	36
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2007-061	Challenger 604	8nm west of Midhurst VOR, West Sussex	11 Nov 2005	6
2007-064	Airbus A319-131	Near London Heathrow	22 Oct 2005	4
2007-066	Airbus A319-131	Near London Heathrow	22 Oct 2005	5
2007-069	Airbus A319-131	Near London Heathrow	22 Oct 2005	5
2007-088	Piper PA-38-112	Durham Tees Valley Airport	9 Dec 2006	28
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2008-023	Airbus A320-214	Kos Airport	5 Jul 2007	19
2008-024	Airbus A320-214	Kos Airport	5 Jul 2007	19
2008-025	Boeing 757-3CQ	Stand 32, Manchester Airport	12 Dec 2007	19
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2008-031	Nomad N22B	Chatteris Airfield	12 Aug2007	30
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2008-036	SA365N	Approximately 450 metres south-SE of the North Morecambe gas platform, Morecambe Bay, Irish Sea.	27 Dec 2006	41
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2008-052	Paramotor	Middle Barn Farm, Bexhill, East Sussex	8 Jul 2007	47
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2008-083	Airbus A319-111	Overhead - Brest, France	15 Sep 2006	11
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2008-085	Airbus A319-111	Overhead - Brest, France	15 Sep 2006	12
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2008-087	Airbus A319-111	Overhead - Brest, France	15 Sep 2006	12
2008-088	Airbus A319-111	Overhead - Brest, France	15 Sep 2006	12
2008-089	Airbus A319-111	Overhead - Brest, France	15 Sep 2006	12
2008-090	Airbus A319-111	Overhead - Brest, France	15 Sep 2006	12
2008-091	Airbus A319-111	Overhead - Brest, France	15 Sep 2006	13
2008-092	Airbus A321-231	Manchester Airport	28 Jul 2008	25
2008-093	Airbus A321-231	Manchester Airport	28 Jul 2008	25

GLOSSARY OF ABBREVIATIONS

aal	above airfield level
ACAS	Airborne Collision Avoidance System
ACARS	Automatic Communications And Reporting System
ADF	automatic direction finding equipment
AFIS(O)	Aerodrome Flight Information Service (Officer)
AFRS	Aerodrome Fire & Rescue Service
agl	above ground level
AIC	Aeronautical Information Circular
amsl	above mean sea level
AOM	aerodrome operating minima
APU	auxiliary power unit
ASI	airspeed indicator
ATC(C)(O)	Air Traffic Control (Centre)(Officer)
ATIS	Automatic Terminal Information System
BMAA	British Microlight Aircraft Association
BGA	British Gliding Association
BBAC	British Balloon and Airship Club
BHPA	British Hang Gliding & Paragliding Association
CAA	Civil Aviation Authority
CAVOK	Ceiling And Visibility OK (for VFR flight)
CAS	calibrated airspeed
CG	centre of gravity
cm	centimetres
cc	cubic centimetres
°C,F,M,T	Celsius, Fahrenheit, magnetic, true
DGAC	Direction Général à l'Aviation Civile
DME	distance measuring equipment
EAS	equivalent airspeed
EASA	European Aviation Safety Agency
EGPWS	Enhanced GPWS
EGT	exhaust gas temperature
EPR	Engine Pressure Ratio
ETA	estimated time of arrival
ETD	estimated time of departure
FAA	Federal Aviation Administration (USA)
FIR	flight information region
FL	flight level
ft	feet
ft/min	feet per minute
g	normal acceleration
GPS	Global Positioning System
GPWS	Ground Proximity Warning System
hrs	hours (clock time as in 12:00 hrs)
HP	high pressure
hPa	hectopascal (equivalent unit to mb)
IAS	indicated airspeed
IFR	Instrument Flight Rules
ILS	Instrument landing system
IMC	Instrument Meteorological Conditions
in	inch(es)
IP	intermediate pressure
IR	Instrument Rating
ISA	International Standard Atmosphere
kg	kilogram(s)
KCAS	knots calibrated airspeed
KIAS	knots indicated airspeed
km	kilometre(s)
kt	knot(s)
KTAS	knots true airspeed
LAA	Light Aircraft Association
lb	pound(s)
LP	low pressure
LDA	landing distance available
LPC	licence proficiency check
ltr	litre(s)
m	metres
mb	millibar(s)
MDA	Minimum Descent Altitude
METAR	a timed aerodrome meteorological report
min(s)	minutes
mm	millimetre(s)
mph	miles per hour
MTWA	maximum total weight authorised
N	Newtons
N_R	Main rotor rotation speed (rotorcraft)
N_g	Gas generator rotation speed (rotorcraft)
N_1	engine fan or LP compressor speed
NDB	non-directional radio beacon
nm	nautical mile(s)
NOTAM	Notice to Airman
OPC	Operator proficiency check
PAPI	Precision Approach Path Indicator
PF	Pilot flying
PIC	pilot in command
PNF	Pilot not flying
psi	pounds per square inch
QFE	pressure setting to indicate height above aerodrome
QNH	pressure setting to indicate elevation above mean sea level
RA	Resolution Advisory
rpm	revolutions per minute
RTF	radiotelephony
RVR	runway visual range
SAR	Search and rescue
SSR	secondary surveillance radar
TA	Traffic Alert
TAF	Terminal Aerodrome Forecast
TAS	true airspeed
TAWS	Terrain Awareness and Warning System
TCAS	Traffic Collision Avoidance System
TGT	turbine gas temperature
TODA	takeoff distance available
UHF	ultra high frequency
USG	US gallons
UTC	Co-ordinated Universal Time (GMT)
V_1	Takeoff decision speed
V_2	Takeoff safety speed
V_R	Rotation speed
V_{REF}	Reference airspeed (approach)
V_{NE}	never exceed airspeed
VASI	Visual Approach Slope Indicator
VFR	Visual Flight Rules
VHF	very high frequency
VMC	Visual Meteorological Conditions
VOR	VHF omni-range