Air Accidents Investigation Branch

Progress Report 2007

Responses to Air Accidents Investigation Branch (AAIB) Safety Recommendations

Responses recieved to AAIB recommendations made up to 31 December 2006, presented to the Secretary of State for Transport

Published December 2007

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This document is also available in electronic (pdf) format at www.aaib.gov.uk

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Safety Recommendations

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Foreword

The Air Accidents Investigation Branch is 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 authority is enshrined in the Civil Aviation (Investigation of Air Accidents and incidents) Regulations 1996 and it 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's (SRG) role is to ensure that UK civil aviation standards are set and achieved in a co-operative and cost effective manner. Until recently the SRG had to satisfy itself that aircraft were properly designed, manufactured, operated and maintained; that airlines were competent; that flight crews, air traffic controllers and aircraft maintenance engineers were fit and competent; that licensed aerodromes were safe to use and that air traffic services and general aviation activities meet required safety standards. They continue to fulfil most of these functions but, in September 2003, the responsibility for certification and continued airworthiness of aircraft was transferred to the European Aviation Safety Agency (EASA). Therefore AAIB recommendations relating to airworthiness are now directed to the EASA.

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 the accident investigation.

Effective day to day liaison has been maintained between the AAIB and the CAA, 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.

Historically, responses to the Air Accidents Investigation Branch's recommendations have been 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 recent shift of airworthiness 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 third report details the responses received to AAIB safety recommendations made up to and including 31 December 2006.

The Report

This is the third 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 2006 including the responses to those recommendations received up to and including 30 June 2007 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 2006 and status:

Number	Status Category					
	1 Accepted CLOSED	2 Rejected OPEN	3 Rejected	4 Partially accepted OPEN	5 Response awaited OPEN	6 Superceded CLOSED
123	67	0	6	2	46	1
% of total	55	0	5	2	37	1

92% of recommendations receiving a response have either been accepted or partially accepted.

Note: 25 safety recommendations were allocated with recommendation numbers of which 5 were withdrawn; 1 superceded & 19 no longer applicable before issue

Recommendations made in 2006 by Addressee:

Addressee	Number
Airbus	8
Air Regulator Gibraltar	1
Austo Control	1
Avcraft Aerospace GmBH	1
Aviance	1
BAA	3
BAE Systems	1
Ballooning Network Ltd	2
BA Maintenance Cardiff	5
BGA	4
BMAA	2
British Airways	2
CAA	24
De Havilland Support	1
Delta Airlines	1
Diamond Aircraft Industries	3
EASA	14
EuroManx	1
Europa Aircraft Ltd	1
FAA	13
Flybe	1
Gatwick Airport Ltd	8
Heathrow Airport Ltd	2
Houchin Aerospace	2
Icelandic CAA	1
International Aerospace Engineering	1
International Gliding Commisssion	1
JAA	4
Manchester Airport plc	2
NATS	3
PFA	5
P&M Aviation	1
Redhill Aerodrome	1
South African CAA	3
Transport Canada	3
Vans Aircraft	2

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

Aeroplanes > 5,700kg MTWA or above

Boeing 757-236	**Enroute from Heathrow**	**07-Sep-2003**	**Incident**

AAIB Bulletin: AAR 3/2005
FACTOR: F43/2005

Synopsis

The incident to the Boeing 757 aircraft occurred on the first flight following a 26-day major maintenance check. Shortly after takeoff on a scheduled passenger flight from London Heathrow to Paris, a hot oil smell, that had been present in the cockpit on engine startup, returned. The flight crew donned oxygen masks and immediately diverted to London Gatwick Airport. During the autopilot-coupled ILS approach to Gatwick, the aircraft drifted to the right of the localiser after selection of Flap 30. When the autopilot was disconnected, a large amount of manual left roll control was need to prevent the aircraft from turning to the right. It was necessary to maintain this control input until touch down. The aircraft landed safely despite these difficulties, with no injuries to any of the passengers or crew.

The investigation determined that the incident had been caused by maintenance errors that had culminated in the failure to reinstall two access panels, 666AR and 666BR, on the right-hand outboard flap and incorrect procedures being used to service the engine oils. The events were the result of a combination of errors on the part of the individuals involved and systemic issues, that had greatly increased the probability of such errors being committed.

The following immediate causal factors were identified:

1. The tasks of refitting the panels to the right wing and correctly certifying for the work carried out were not performed to the required airworthiness standard.

2. Ineffective supervision of maintenance staff had allowed working practices to develop that had compromised the level of airworthiness control and had become accepted as the 'norm'.

3. There was a culture, both on the ramp and in the maintenance hangar, which was not effective in ensuring that maintenance staff operated within the scope of their company authorisation and in accordance with approved instructions.

4. The maintenance planning and task instructions, relating to oil servicing on the Boeing 757 fleet, were inappropriate and did not ensure compliance with the approved instructions.

5. The Airline's Quality Assurance Programme was not effective in highlighting these unsatisfactory maintenance practices.

SAFETY RECOMMENDATION - 2005-123

The European Aviation Safety Agency (EASA) should consider introducing a requirement to carry out a duplicate inspection on aircraft access panels, removed and refitted or opened and closed as part of a maintenance procedure, that could significantly affect airworthiness if incorrectly secured and should they detach in flight, endanger either the aircraft, or persons on the ground.

Response

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

Operator responsibility:

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

Maintenance Organisation Responsibility:

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

- installation of identical components, that could be improperly installed, compromising more than one system,

- maintenance of critical systems,

- procedures for completion of paperwork in order to avoid omissinons when performing maintenance.

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

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

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

- 2.23: Control of critical tasks.

- 2.25: Procedures to detect and rectify maintenance errors.

- 2.26: Shift/task handover procedures.

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

3.13: Human Factors training

Status - Partially Accepted - open

EMB-145EU	Birmingham	18-Nov-2003	Incident

AAIB Bulletin: 9/2004
FACTOR: F44/2004

Synopsis

During takeoff at Birmingham, the left inboard main wheel tyre (number 2) shed its tread. The tread had failed as a result of overstress in the sidewall of the tyre, leading to a break up of the tyre casing plies. Air penetrated through the failure in the inner wall of the tyre and then permeated through the casing leading to the tread package lifting from the carcass. The overstress was attributed to the tyre running under-inflated, which may have been as a result of leakage from the wheel fuse plugs.

SAFETY RECOMMENDATION - 2004-027

Goodrich Aircraft Wheels and Brakes Division should carry out research into the possible causes of the fuse plug leakage and consider action to reduce the risk of leaking fuse plugs.

Response

Goodrich has advised that they will issue a temporary revision.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2004-030

The US Federal Aviation Administration should require all wheel repair stations conforming to FARs (Federal Aviation Requirements) to inform the tyre re-treader of the reason for removal of the tyre from the aircraft and indicate if there has been any suspicion of the tyre running under-inflated.

Response

The Federal Aviation Administration (FAA) has been concerned with tire care and maintenance practices to assure the safety of support personnel and the continued airworthiness of aircraft for many years. Most recently, the Aircraft Maintenance Division, AFS-300, has issued Advisory Circular (AC) No. 20-97B, "Aircraft Tire Maintenance and Operational Practices," dated April 18, 2005, and is finalising a Flight Standards Information Bulletin for Airworthiness, "Main Tire Fuseable Plug Maintenance for the Embraer EMB-145EU," that should be published in the near future.

Status - Accepted - closed

Boeing 777-236	On departure from London Heathrow Airport	10-Jun-2004	Serious Incident

AAIB Bulletin: AAR 2/2007
FACTOR: F10/2007

Synopsis

After takeoff from London Heathrow Airport a vapour trail was seen streaming aft of the aircraft. The flight crew diagnosed that the aircraft was probably leaking fuel from the centre wing fuel tank.

They declared an emergency and decided to jettison fuel to reduce to maximum landing weight before returning to Heathrow. Their intention was to minimise heating of the brake units during the landing roll in order to reduce the risk of fire if fuel was to leak onto the wheelbrakes. After landing, the aircraft was met by the Airfield Fire and Rescue Service who reported some vapour emanating from the left landing gear but no apparent fuel leaks.

The fuel leak was caused by fuel escaping through an open purge door inside the left main landing gear bay, on the rear spar of the centre wing tank. The purge door had been removed during base maintenance between 2 May and 10 May 2004 and had not been refitted prior to departure. The open purge door was missed for a number of reasons: its removal was not recorded on a job card; the engineer who closed the centre wing tank was not aware that the purge door existed; during leak checks insufficient fuel was used to reveal a leak from the purge door due to an incorrect leak check quantity in the aircraft maintenance manual; the engineer who carried out the leak checks was not aware that the purge door existed and so did not inspect the door; the purge door was not cross-referenced in the maintenance manual; and the open purge door was not visible from the ground with the left inboard main gear door closed.

Following the incident, significant safety action was taken by both the maintenance organisation and the aircraft manufacturer to address issues discovered during the investigation. The detailed response to the following five Safety Recommendations can be found in AAIB Formal Report 2/2007.

SAFETY RECOMMENDATION - 2006-097

British Airways Maintenance Cardiff should actively encourage staff to raise problems with procedures in job cards and in the Aircraft Maintenance Manuals, take prompt action to remedy the problems and provide subsequent feedback.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-098

British Airways Maintenance Cardiff should identify and publish clear disciplinary policies and boundaries relating to maintenance errors to encourage uninhibited internal reporting of maintenance errors.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-099

British Airways Maintenance Cardiff should ensure that its Maintenance Error Management System fulfils all the elements recommended in the Civil Aviation Authority's Airworthiness Notice 71.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-100

British Airways Maintenance Cardiff should ensure that its Technical Team Leaders are adequately disseminating information from Technical Team Leader meetings to the Technicians and Mechanics in their team.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-125

When British Airways Maintenance Cardiff has addressed safety recommendations 2006-097 to 2006-100, British Airways should carry out a safety audit at British Airways Maintenance Cardiff.

Status - Accepted - closed

Airbus A340-642	**En-route to London diverted into Amsterdam**	**08-Feb-2005**	**Incident**

AAIB Bulletin: S1/2005
FACTOR: N/A

Synopsis

The incident was reported to the AAIB by the operator who in turn notified the Dutch Transport Safety Board (DTSB). A Dutch investigation was opened but the following day a formal request was made by the DTSB for the AAIB to assume responsibility for the investigation.

Some 11 hours after takeoff, at about 0330 hrs with the aircraft in Dutch airspace and at Flight Level 380, the No 1 (number one) engine lost power and ran down. Initially the pilots suspected a leak had emptied the contents of the fuel tank feeding No 1 engine but a few minutes later, the No 4 engine started to lose power. At that point all the fuel crossfeed valves were manually opened and No 4 engine recovered to normal operation. The pilots then observed that the fuel tank feeding No 4 engine was also indicating empty and they realised that they had a fuel management problem. Fuel had not been transferring from the centre, trim and outer wing tanks to the inner wing tanks so the pilots attempted to transfer fuel manually. Although transfer was partially achieved, the expected indications of fuel transfer in progress were not displayed so the commander decided to divert to Amsterdam (Schipol) Airport where the aircraft landed safely on three engines.

SAFETY RECOMMENDATION - 2005-036

Airbus should review the FCMC master/slave determination logic of the affected Airbus A340 aircraft so that an FCMC with a detected discrete output failure or ARINC 429 data bus output failure cannot remain the master FCMC or become the master FCMC.

Response

Airbus has completed a review of the FCMC software and logic systems and as a result some change have been implemented.

A) The logic of the monitoring processor is changed (software standard FL8). It will not be the same logic / software as the command processor. This means that if the command processor does not identify the automatic fuel transfer the monitoring channel will be able to determine the fault and cut off the ARINC and discrete outputs.

B) If the command processor does not set the Fuel Low Level output then the integrity processor will detect this loss and cut off the ARINC and discrete outputs.

In both the above cases the cut off of the ARINC data will result in a warning being issued to the flight crew to enable them to take the appropriate action.

The recommendation is specific that an FCMC that does not have the ARINC or discrete outputs cannot be in command is not then necessary to be implemented. However the above described modifications will ensure that the outputs are being correctly cut off at the appropriate times thus ensuring that the correct certified process for the FCMC in control logic will work. This logic is defined such that if both FCMC are degraded then if one FCMC is still providing fuel quantity values it will continue to do so. Applying the recommendation exactly as defined would mean that this information would be lost.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2005-037

Airbus should review the logic of the low fuel level warnings on affected Airbus A340 aircraft so that the FDC low fuel level discrete parameter always triggers a low fuel level warning, regardless of the condition of the other fuel control systems.

Response

The investigation has not been able to identify the cause of the event but Airbus agrees that the aims and reasoning of the recommendations are to ensure that the flight crew are made aware of an automatic fuel transfer failure or a low level fuel warning in time for the crew to take the necessary corrective actions. Therefore Airbus has lauched modifications that will go beyond the spirit of the recommendations.

The modifications being made to the FCMC will ensure correct warnings are provided to the flight crews in a timely manner. However as a further enhancement an independent FWC "Fuel Low Level" warning is defined (system architecture is not yet frozen).

Status - Accepted - closed

SAFETY RECOMMENDATION - 2005-108

It is recommended that the European Aviation Safety Agency introduces into CS-25 the requirement for a low fuel warning system for each engine feed fuel tank. This low fuel warning system should be independent of the fuel control and quantity indication system(s).

Response

The Agency agrees with the safety recommendation. Consequently a task has been added to the advance planning of the Agency's rulemaking programme. This is to be called "25.055 - fuel system low level indication/fuel exhaustion". The plan is to set up a working group and to publish a Notice of Proposed Amendment (NPA) by the 4th Quarter 2007. This is to be done with the aim of amending the certification specification CS-25 by 1st quarter 2009.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2005-109

It is recommended that the European Aviation Safety Agency should review all aircraft currently certified to EASA CS-25 and JAR-25 to ensure that if an engine fuel feed low fuel warning system is installed, it is independent of the fuel control and quantity indication system(s).

Response

The Agency agrees with the safety recommendation. Consequently a task has been added to the advance planning of the Agency's rulemaking programme. This is to be called "25.055 - fuel system low level indication/fuel exhaustion". The plan is to set up a working group and to publish a Notice of Proposed Amendment (NPA) by the 4th Quarter 2007. This is to be done with the aim of amending the certification specification CS-25 by 1st quarter 2009.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2005-110

It is recommended that the USA's Federal Aviation Administration should introduce into FAR-25 a requirement for a low fuel warning system for each engine feed fuel tank. This low fuel warning system should be independent to the fuel control and quantity indication system(s).

Response

As noted within the Discussion section of the AAIB Safety Recommendation (File Ref:EW/C2005/02/03): "It could be argued that the need to indicate fuel system failures to the crew on complex aircraft is covered by EASA CS-25 1309 para c." The AAIB goes on to state that: "Indeed, when the fuel control system is operating normally on the A340-600 this is true, but this incident demonstrated a need for more specific requirements for certain warnings such as low fuel level in an engine feeder tank".

Compliance with 25.1309 (c) is just as relevant during any anticipated failure condition as it is when the system is operating normally. Traditional designs may not have effectively met the intent of 25.1309 (c) for certain "unsafe system operating conditions", including "low fuel level in an engine feeder tank". As evidenced by the Notice of Proposed Rulemaking (NPRM) (NO. 87-3) published in the Federal Register on May 12, 1987 (52 FR 17890), titled "Low Fuel Quantity Alerting System Requirements for Transport Category Airplanes" the FAA once agreed with the AAIB that this "demonstrated a need for more specific requirements".

While adding a more specific rule may focus special attention and unique provisions onto a particular "unsafe system operating condition" , it will not relieve an applicant of the obligation of complying with 25.1309 (c) for that condition. After considering the comments from NPRM 87-3 and reviewing all the relevant service history, the FAA has concluded that there is no need for any new regulatory provisions in this case. The addition of a more specific requirement will be redundant to those regulatory objectives already covered by 25.1309 (c). Furthermore, promulgation of a more specific requirement could inadvertently impede future design innovation and would not be an efficient use of our limited rulemaking resources.

The FAA now intends to develop clearer 25.1309 (c) compliance guidance in the form of an interpretive policy on this issue. Successful completion of that action would effectively address FAA Safety Recommendation 06.006.

Status - Rejected

SAFETY RECOMMENDATION - 2005-111

The Federal Aviation Administration should review all aircraft currently certified to FAR-25 to ensure that if an engine fuel feed low fuel warning system is installed, it is independent of the fuel control and quantity indication system(s).

Response

While in most instances the recommended independence constitutes good design practice, lack of such independence does not inherently render a design unsafe. Hence, universally mandating such independence would not be warranted under FAR Part 39. However, we continually review the operating safety of the transport airplane fleet. If an unsafe condition exists, we take appropriate mandatory corrective action.

We trust that this information is sufficient to address the concerns of the AAIB with regard to the safety recommendations.

Status - Rejected

Avro 146-RJ100	Approach to Paris	18-Mar-2005	Incident

AAIB Bulletin: 04/2006
FACTOR: F14/2005

Synopsis

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

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

This bulletin reiterates the safety recommendations issued in a recent AAIB bulletin, which stated that the build-up of such residues must be avoided through a tightly controlled regime of inspection and cleaning, and that new types of thickened fluids must be developed, whose residues do not cause flight control restrictions on aircraft with non-powered flight controls.

SAFETY RECOMMENDATION - 2005-135

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

Response

The Agency fully agrees that this is an important safety issue and has already taken the following actions:

-An EASA internal working group has been set up and is coordinating its work with the corresponding JAA Working group and also liaising with SAE in particular the residue Working Group and the Group developing standard for the Remote On-Ground Ice detection System. One first measure is the SAE agreement to add a warning about the problem of residues in their revised standards for fluids type II to IV. EUROCAE has also been informed of those activities.

-A Safety Information Notice 2006-09 called "Ground De- / Anti-Icing of Aeroplanes; Intake / Fan blade Icing and effects of fluid residues on flight controls" has been published on the EASA web-site. It draws the attention to the importance of eradicating frozen residues and provide guidance to that effect.

-An advance-Notice of Proposed Amendment (A-NPA) related to this problem will present several options to address design, continuing airworthiness, operations and airport it should be published for comments early 2007.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2005-136

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

Response

The Agency fully agrees that this is an important safety issue and has already taken the following actions:

-An EASA internal working group has been set up and is coordinating its work with the corresponding JAA Working group and also liaising with SAE in particular the residue Working Group and the Group developing standard for the Remote On-Ground Ice detection System. One first measure is the SAE agreement to add a warning about the problem of residues in their revised standards for fluids type II to IV. EUROCAE has also been informed of those activities.

-A Safety Information Notice 2006-09 called "Ground De- / Anti-Icing of Aeroplanes; Intake / Fan blade Icing and effects of fluid residues on flight controls" has been published on the EASA web-site. It draws the attention to the importance of eradicating frozen residues and provide guidance to that effect.

-An advance-Notice of Proposed Amendment (A-NPA) related to this problem will present several options to address design, continuing airworthiness, operations and airport it should be published for comments early 2007.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2005-137

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

Response

The Agency fully agrees that this is an important safety issue and has already taken the following actions:

-An EASA internal working group has been set up and is coordinating its work with the corresponding JAA Working group and also liaising with SAE in particular the residue Working Group and the Group developing standard for the Remote On-Ground Ice detection System. One first measure is the SAE agreement to add a warning about the problem of residues in their revised standards for fluids type II to IV. EUROCAE has also been informed of those activities.

-A Safety Information Notice 2006-09 called "Ground De- / Anti-Icing of Aeroplanes; Intake / Fan blade Icing and effects of fluid residues on flight controls" has been published on the EASA web-site. It draws the attention to the importance of eradicating frozen residues and provide guidance to that effect.

-An advance-Notice of Proposed Amendment (A-NPA) related to this problem will present several options to address design, continuing airworthiness, operations and airport it should be published for comments early 2007.

Status - Accepted - closed

Boeing 737-33V	Lyons Airport France	22-Mar-2005	Incident

AAIB Bulletin: 4/2006
FACTOR: F18/2006

Synopsis

During a flight from Nice to Luton, the flight crew experienced progressive abnormal annunciator indications. For some of these there were no procedures in the Quick Reference Handbook. Having determined that these indications were a symptom of a greater electrical problem, including degradation of their flight instruments and loss of protection systems, a PAN call was declared and a diversion to Lyons initiated where an uneventful landing was made. The subsequent investigation revealed that a failure of a contact post had occurred in the R1 relay associated with the Battery Busbar, and that power had been lost from this Busbar in flight. There were no drills published for such a failure on this model of the Boeing 737. With this failure there is a risk that, due to the loss of power to the equipment cooling fans, all attitude information could eventually be lost if power is not switched to an alternate supply. The many different configurations of the electrical system in the Boeing 737-300/400/500 fleet have made it difficult for the manufacturer to produce a generic procedure for this failure, although they have provided information to enable operators to write a procedure for their own aircraft.

SAFETY RECOMMENDATION - 2005-065

It is recommended that the Federal Aviation Administration require that the Boeing Airplane Company examine the various electrical configurations of in-service Boeing 737 aircraft with the intention of providing operators with an Operations Manual Procedure that deals with loss of power from the Battery Busbar.

Response

OEM's (Boeing) Actions:

In response to the failure conditions related to the subject incident, the Boeing Company has issued the following:

1. Service Letter, 737-SL-24-120, dated June 11,1998, concerning identification of the relay with specific part numbers that Boeing recommended for use in the Battery Bus.

2. Flight Operations Technical Service Bulletin, 98-1 (737-300/400/500), concerning 'Battery Bus Failure,' issued August 4, 1998.

3. Alert Service Bulletin, 737-21A1156, released in 2006, which will change the wiring of the EFIS cooling warming circuit to a different DC Bus on affected aircraft.

Seattle ACO Action:

The FAA has investigated the subject incident and made safety determination on February 14, 2007, in consideration of the top level unsafe condition being the loss of all Attitude Displays, including the Standby Attitude indication. As a result of this safety decision an Airworthiness Directive will be issued by way of NPRM which will mandate the affected operators to incorporate the corrective actions proposed by the Boeing Service Bulletin 737-21A1156.

This safety determination was based on the evaluation of the Boeing design of the EFIS cooling system that the system did not take into account the subject failure condition and its effect, thus rendering the system operation to inherently unsafe condition. We believe the proposed modification of the system by the Boeing Service Bulletin 737-21A1156 would be the adequate means of corrective action in conjunction with the Boeing's action described in the item 1 and 2

above, and in agreement with the United Kingdom- Civil Aviation Authority's (UK-CAA) recommendation as indicated in page 45 of the safety recommendation, as an alternate to the Operations Manual Procedure change.

We appreciate your recommendation and detailed analyses of this safety issue. The Seattle Aircraft Certification Office will provide a final response when the NPRM becomes the final rule.

Status - Accepted - closed

Boeing 737-86N	Manchester Airport	16-Jul-2003	Incident

AAIB Bulletin: 3/2006
FACTOR: F46/2006

Synopsis

G-XLAG, a Boeing 737-86N, with seven crew and 190 passengers on board, was undertaking a flight from Manchester Airport to Kos, Greece. Runway 06L was in use but the flight crew were not aware that this runway was being operated at reduced length. This was due to work-in-progress to remove rubber deposits at the far end of the runway, which was out of sight from the 06L threshold end as the runway was built over a slight rise in the ground. Due to a difference in interpretation of information passed between Air Traffic Control (ATC) and the flight crew, the aircraft entered the runway from holding point AG, rather than the expected holding point A, and the takeoff was conducted using a reduced thrust setting calculated for the assumed normal runway length. As the aircraft passed the crest of the runway, the flight crew became aware of vehicles at its far end but, as they were now close to their rotation speed, they continued and carried out a normal takeoff. The aircraft passed within 56 ft of a 14 ft high vehicle.

This serious incident was notified to the AAIB at 1724 hrs on 23 July, seven days after it had occurred. The subsequent investigation revealed further incidents had occurred during the course of the work, the most significant being on the night of 15 July 2003. On this occasion ATC had instructed three commercial passenger aircraft to go-around after they had knowingly positioned them to land on the reduced length runway. The crews of all three aircraft were unaware of the reduced length available and, when informed, stated that it was insufficient for them to be able to land. The closest of the aircraft, a Tristar, was at a range of 2.5nm when instructed to go-around.

The actions of Manchester Airport plc (MA plc) and National Air Traffic Services (NATS) Manchester, whilst not directly contributing to the event involving G-XLAG, raised additional concerns. In light of this, the scope of the investigation was extended to include the manner in which MA plc and NATS had planned and managed the rubber removal operation.

The operator, MA plc and NATS have now taken considerable steps to address most of the issues raised in this report.

SAFETY RECOMMENDATION - 2006-007

It is recommended that the Civil Aviation Authority review the measures required to protect runway safety surfaces during reduced length runway operations.

Response

The Civil Aviation Authority accepts this recommendation. The Civil Aviation Authority will review the measures prescribed in CAP 168 (Licensing of Aerodromes) to protect runway safety surfaces during reduced length runway operations.

Revised guidance to aerodrome licence holders on the protection of runway safety surfaces during reduced length runway operations was issued in NOTAL 2/2007 in February 2007.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-011

It is recommended that the Civil Aviation Authority, in conjunction with National Air Traffic Services and other air traffic service providers, jointly review the current risk analysis associated with operations from runways when at reduced length, to ensure that it remains valid.

Response

The Civil Aviation Authority accepts this recommendation. Each Air Navigation Service Provider's Safety Management System requires a risk assessment to be completed for every change of operational procedure. Therefore, the Civil Aviation Authority will remind all Air Navigation Service Providers and Airport Operators, of the requirement to conduct a risk assessment prior to the introduction of operations from runways at reduced length.

The Civil Aviation Authority will also remind Air Navigation Service Providers of the need to ensure that, where they and the Airport Operator use separate safety management systems, a robust and effective interface between the two systems is established and maintained.

Initial action is effectively complete as an ATSIN and a NOTAL have been issued to remind relevant parties of the requirements. A supplementary letter from the AAIB is being considered by the CAA.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-012

It is recommended that Manchester Airport plc include appropriate guidance in the Airport Operations Manual on the local authority planning agreements governing the use of Runway 06R/24L.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-013

It is recommended that National Air Traffic Services incorporate appropriate guidance in the Manchester Airport Manual of Air Traffic Services (Part 2) on the local authority planning agreements governing the use of Runway 06R/24L.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-014

It is recommended that Manchester Airport plc introduce a system which requires the timely dissemination and acknowledgement of any instruction issued containing operational information with safety implications, such as Operations Advice Notices.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-008

It is recommended that National Air Traffic Services consider the exclusion of operational staff in direct commercial negotiations, where there is the potential for this to result in a conflict of interest between operational best practise and commercial considerations.

Status - Response Awaited - open

Avro 146-RJ100	Birmingham	01-Oct-2004	Incident

AAIB Bulletin: 4/2006
FACTOR: F15/2006

Synopsis

The crew had planned an instrument departure from Birmingham Airport using the aircraft's Flight Management System (FMS), although they believed the Honiley VOR to be out of service. Shortly after takeoff, the crew observed indications showing that the Honiley VOR was serviceable and whilst confirming its identity, inadvertently retracted the flaps instead of the landing gear. When the aircraft was at about 750 ft agl, the stick shaker activated. The commander immediately reduced the pitch attitude and allowed the aircraft to accelerate to a safe speed and the co-pilot raised the landing gear. The remainder of the flight was uneventful.

SAFETY RECOMMENDATION - 2006-002

It is recommended that the Civil Aviation Authority encourage operators to monitor possible mis-selections of gear and flap levers through established flight data monitoring programs in an attempt to identify the scale and severity of the problem.

Response

The CAA accepts this recommendation. The CAA, through the UK FDM Operator's Group will alert them to the circumstances of this incident and encourage them to monitor possible mis-selections of gear and flap levers through their established FDM programmes. In addition, the CAA will ask the group for data concerning such mis-selections in an attempt to identify the scale and severity of the problem. The next meeting is scheduled for 6 June 2006.

CAA Action

The CAA, through the medium of the UK FDM Operator's Group, has alerted operators to this incident and has further encouraged them to monitor possible mis-selections of gear and flap levers through their established FDM programmes. Current FDM programmes include an FDM event that identifies changes in flap setting below various heights after take-off.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-003

It is recommended that the Civil Aviation Authority should provide up-to date guidance to operators regarding the use of FMS for navigation purposes, keeping it under frequent review, and require operators to update their operations manuals in accordance with the latest guidance within a specified period.

Response

CAA Response

The CAA accepts this recommendation. The CAA has recently commenced a review of internal guidance material in relation to Area Navigation (RNAV) operations and CAA RNAV approval processes. Part of the output of the review will enable the CAA to publish a FODCOM containing guidance on the use of FMS for navigation purpose. The FODCOM will be published before the end of August 2006.

CAA Action

The CAA commenced a review of internal guidance material in relation to Area Navigation (RNAV) operations and CAA RNAV approval processes. Part of the output of the review was to enable the CAA to publish a FODCOM containing guidance on the use of FMS for navigation purposes. It had been hoped to publish this FODCOM in 2006. However, the task was more complicated than at first thought, and the resultant guidance too detailed to appear as a FODCOM. Instead, the guidance will be published on the CAA web site, and the attention of all operators will be drawn to it though the medium of a FODCOM by December 2007. In addition, any future applicant for an RNAV approval will be expected to have used this material to support their application(s).

Status - Accepted - closed

Boeing 767-304	Luton Airport	16-Feb-2005	Accident

AAIB Bulletin: 11/2006
FACTOR: F43/2006

Synopsis

The aircraft had been pushed back, with engines running, and the ground handling crew was then asked to tow it forward. During the manoeuvre the towbar shear pins failed, the tug was braked to a stop and the aircraft ran into the tug. Ownership of the towbar was not clear and consequently it had not been maintained and was unserviceable. The ground crew's training had not prepared them for towing an aircraft forwards.

SAFETY RECOMMENDATION - 2006-118

It is recommended that the Civil Aviation Authority reminds AOC holders of their responsibility to ensure that suitable curricula and standards are in place for the training and maintenance of competency of staff involved in the ground handling of commercial aircraft at airports and also that they should require a means of ensuring adherence to those standards.

Response

The CAA accepts this recommendation. The CAA will alert operators to the accident and the circumstances surrounding it through the medium of a FODCOM. The FODCOM will further remind operators of their need to apply JAR-OPS 1 Support C, Appendix 2 to JAR-OPS 1.175, which specifies the responsibilities and requirements for the competency of ground handling staff and the maintenance of standards. FODCOM 23/2006 was published on 18 December 2006.

In addtion, the CAA's future audit strategy for AOC holders will be revised to re-emphasise the need to ensure that standards for the training and maintenance of the competency of ground handling staff are in place and are being adhered to.

Status - Accepted - closed

Boeing 747-436	**En route from Los Angeles International Airport to London Heathrow Airport**	**20-Feb-2005**	**Incident**

AAIB Bulletin: 6/2006
FACTOR: F23/2006

Synopsis

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

In the latter stages of the flight the crew encountered difficulties in balancing the fuel quantities in the four main tanks, became concerned that the contents of one tank might be unusable and declared an emergency in accordance with the operator's procedures. The aircraft landed with low contents in both outboard main tanks, although the total fuel quantity was in excess of the planned reserve. The fuel system, in the configuration selected, should have continued to feed the operating engines until all tanks emptied.

The investigation determined that the engine surge had been due to excessive wear to the high-pressure compressor casing and, with the standard of fuel controller software installed, this resulted in turbine over-temperature damage. There was no evidence of fuel system malfunction and it was possible to maintain fuel tank quantities in balance by the selective use of fuel pumps. The evidence suggested that the operator should ensure that flight crews are provided with relevant instruction on 3-engined fuel handling during initial and recurrent training, and that the regulators should review the policy on flight continuation for public transport aircraft operations, following an in-flight shutdown of an engine, in order to provide greater clarity to the operators. Eight recommendations are made, 6 of which relate to flight data recorders.

SAFETY RECOMMENDATION - 2006-018

It is recommended that the Civil Aviation Authority and the Federal Aviation Administration, in conjunction with other relevant agencies, should review the policy on flight continuation for public transport aircraft operations, following an in-flight shutdown of an engine, in order to provide clear guidance to the operators.

Response

The CAA accepts this recommendation. The CAA will engage with the Federal Aviation Administration and other relevant agencies and review current policy on public transport flight continuation following an engine shut down in-flight. Appropriate guidance to operators will be provided as part of the review.

The CAA have been in discussion with the FAA and an agreement reached whereby the CAA will draft a position paper, which will incorporate the positions of both the CAA and UK operators. This paper will be presented to the FAA for debate. It is anticipated that this paper will be finalised and

presented to the FAA by August 2007. Once the FAA and CAA are content with the final paper, and subject to FAA agreement, the paper will be passed to EASA for their information and possible regulatory action.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-019

It is recommended that British Airways include relevant instruction on 3-engined fuel handling during initial and recurrent training.

Response

British Airways has accepted this recommendation and has taken the following action:

The revised fuel management procedures have been incorporated into the relevant manuals and training courses. All Boeing 747-400 flight crew have received additional engine-out fuel management training as part of their regular simulator training. Three-engine fuel management, including low fuel quantity procedures, have been added to the recurrent training cycle.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-022

It is recommended that the Federal Aviation Administration should require that Honeywell modify the appropriate Return to Service test procedures, to ensure the detection of a fault which prevents a series 980-4100 model of flight recorder from retaining the appropriate minimum duration of recorded data proscribed by regulation.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-023

It is recommended that the Federal Aviation Administration should require that Honeywell modify the design and operation of its automated equipment used for testing the series 980-4100 model of flight data recorder, to ensure the detection of a fault which prevents such a model of flight recorder from retaining the appropriate minimum duration of recorded data proscribed by regulation.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-024

It is recommended that the Federal Aviation Administration should require that Honeywell alert all users of Acceptance Test Unit part number 964-0434-042, utilising test software part number 998-1513-513, to make them aware that the equipment will not detect a short circuit fault between one or more tracks on the distribution board of the series 980-4100 model of flight data recorder.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-025

It is recommended that the Federal Aviation Administration should require Honeywell to amend the Maintenance Manual for the series 980-4011 model of flight data recorder to include a specific inspection of the underside of the distribution board for the presence of short circuits and detached wiring following the replacement of components.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-026

It is recommended that the United Kingdom Civil Aviation Authority should require that operators of United Kingdom registered aircraft, installed with the series 980-4100 model of flight data recorder, review the annual flight recorder readout records for those aircraft in order to determine compliance with the applicable requirements for duration of recording.

Response

The CAA does not accept this recommendation. It is believed the only currently known risk that would cause a model 980-4100 flight data recorder not to record for the full duration will be adequate If mitigated by the corrective actions required in Safety Recommendations 2006-022, 023, 024 and 025.

Letter to Operators, LTO No. 2904, was published 11th July 2006 alerting operators to the potential undetected fault resulting in non-recording of data. The CAA has also revised CAP 731 "Approval, Operational Serviceability and Readout of Flight Data Recorder Systems", on 3 July 2006. This revision requests operators to amend their maintenance programmes to validate the recorded data for accuracy and duration as part of annual readout.

Status - Rejected

SAFETY RECOMMENDATION - 2006-027

It is recommended that the Federal Aviation Administration, European Aviation Safety Agency and the United Kingdom Civil Aviation Authority should require that, as part of any flight recorder readout procedure mandated by regulation, an assessment is conducted to ensure that the quantity and quality of all data recovered from the FDR is correct for the data rate of the system and the recorder part number concerned.

Response

The CAA accepts this Recommendation. The recommendation is already addressed by the guidance published in CAA CAP 731, Approval, Operational Serviceability and Readout of Flight Data Recorder Systems. This document is currently being amended and the opportunity will be taken to confirm that the issues are adequately covered. The revised CAP was published on 3 July 2006.

Status - Accepted-closed

Avro 146-RJ100	**London (City) Airport**	**29-Mar-2005**	**Incident**

AAIB Bulletin: 11/2006
FACTOR: F44/2006

Synopsis

The First Officer had stabilised the aircraft on an ILS approach, at night, to Runway 10. At 400 ft the commander sighted the runway lights, took control in accordance with the Operator's procedures and disconnected the autopilot and autothrottle. During the landing flare the rate of descent appeared to be high and the commander corrected this by increasing the pitch attitude. The aircraft touched down at a body angle that exceeded the safe limit, causing the underside of the rear fuselage to contact the runway surface.

SAFETY RECOMMENDATION - 2006-095

It is recommended that BAE Systems review the work jointly undertaken with the operator regarding tail strike prevention with a view to promulgating the information to other operators.

Status - Response Awaited - open

Boeing 777-232	**Stand 50, London Gatwick Airport**	**20-May-2005**	**Incident**

AAIB Bulletin: 10/2006
FACTOR: F37/2006

Synopsis

The aircraft was taxied onto the stand at an appropriate speed and aligned with the centre line; the airbridge was parked in the correct location. The stand guidance system had been calibrated correctly, and it was serviceable and operating at the time of the incident. The aircraft overran the stopping point and collided with the airbridge. The leading edge of the aircraft's left engine intake cowl was damaged, and there was substantial damage to the airbridge. Ten safety recommendations have been made.

SAFETY RECOMMENDATION - 2006-076

It is recommended that BAA should ensure an effective transfer of airside safety related information between all of their airports.

Response

BAA has accepted this recommendation. Information exchange within BAA is now achieved through meetings involving the Operations Directors of the various airports in the group; these meetings are held every 4 months. The Duty Managers of the different airports make contact more frequently in order to share immediate safety related information.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-077

It is recommended that Gatwick Airport Limited should ensure that all PAPA boards are fitted with backing plates and that aircraft type markings on the boards are unambiguous.

Response

Gatwick Airport Limited has accepted this recommendation. An audit has been carried out to identify those PAPA units at Gatwick Airport without a backing plate. It was found that backing plates were not fitted to those older units which had been manufactured without provision for such plates to be fitted. New backing plates have been designed and will be fitted where required. Newly manufactured PAPA units have enclosed systems where no such backing plate is required. Aircraft type markings on the PAPA boards have been revised to remove ambiguity.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-078

It is recommended that BAA should review all current and future visual guidance docking systems at their airports with a view to complying with ICAO Annex 14, Chapter 5, Section 5.3.24.

Response

BAA has accepted this recommendation. A program has commenced across BAA airports to replace older generation guidance systems with those complying with ICAO Annex 14, Chapter 5, Section 5.3.24. A risk assessment has been conducted for each stand and guidance systems are being replaced on a priority basis related to this assessment. Thirty 'Safe Dock' docking systems have now been installed at Gatwick Airport.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-079

It is recommended that Gatwick Airport Limited should install an emergency STOP light adjacent to any aid used by the pilot for alignment or stopping, in such a position that, irrespective of which aid is being used, the emergency STOP light is within the handling pilot's field of view.

Response

Gatwick Airport Limited has partially accepted this recommendation. They pointed out that when the STOP button is activated all lights within the guidance system extinguish, at which point a pilot should bring the aircraft to a halt immediately. They also considered that such STOP lights, which are visible in some light conditions even when not illuminated, could confuse some pilots who might expect them to illuminate to provide active stopping guidance when the aircraft was at the correct stopping point. Gatwick Airport Limited has agreed to carry out a risk assessment for each stand, taking these factors into account, before deciding if additional lights were required.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-080

It is recommended that Gatwick Airport Limited should ensure that the location of emergency STOP buttons, at ground level on stands, is clearly identifiable to ground crews operating on the stand.

Response

Gatwick Airport Limited has accepted this recommendation. The location and signage of the emergency STOP buttons, at ground level on stands, has now been standardised and is clearly identifiable to the ground crews operating on the stands.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-081

It is recommended that Gatwick Airport Limited should ensure that all emergency STOP buttons positioned in airbridges are clearly and unambiguously marked.

Response

Gatwick Airport Limited has accepted this recommendation. An audit of the airbridges at Gatwick Airport has been completed and all emergency STOP buttons positioned in the airbridges are now clearly and unambiguously marked.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-082

It is recommended that Gatwick Airport Limited should review the system by which Managing Directors Instructions are published to ensure the information they provide is readily identifiable.

Response

Gatwick Airport Limited has accepted this recommendation. A suitable index will be added to the Managing Directors Instructions to ensure that the information they provide is readily identifiable.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-083

It is recommended that Gatwick Airport Limited should review all ground markings related to aircraft parking stands to ensure that they are clearly marked and that their meanings are unambiguous.

Response

Gatwick Airport Limited has accepted this recommendation. Unofficial ground markings have been removed. All future marks will have to be authorised by the Duty Operations Manager and will only be made using a suitable stencil.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-084

It is recommended that Gatwick Airport Limited should examine the practicability of requiring a member of the ground crew to assume the responsibility of being adjacent to the ground level emergency STOP light button, and of monitoring the arrival of the aircraft onto the stand, whenever ground crews are present on a stand whilst an aircraft is manoeuvring to park. An effective means of monitoring whether the aircraft has overrun its correct parking position should also be devised.

Response

Gatwick Airport Limited has accepted this recommendation. Gatwick Airport Limited will consult ground operation organisations working at the airport to determine whether it is feasible to have the ground level emergency stop button manned during parking manoeuvres.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-085

It is recommended that Delta Airlines review the effectiveness of their measures to control crew fatigue, taking into account the time for crews to travel from their residences to the bases at which they are required to report for flight.

Response

Delta Airlines has accepted this recommendation. Their Director (Flight Safety) will conduct a review of Delta's crew fatigue countermeasures together with the Director (Flight Operations) and the Director (Crew Resources and Scheduling).

Status - Accepted - closed

BAE.ATP	**Shortly after takeoff from Isle of Man**	**23-May-2005**	**Incident**

AAIB Bulletin: 1/2007
FACTOR: F2/2007

Synopsis

This serious incident was notified to the Air Accidents Investigation Branch (AAIB) by ATC at the Isle of Man (Ronaldsway) airport, at 1855 hrs on 23 May 2005.

Under the Isle of Man Civil Aviation (Subordinate Legislation) (Application) Order 1992, the United Kingdom Civil Aviation (Investigation of Air Accidents) Regulations 1989 are applicable in the Isle of Man. Accordingly, Air Accident Inspectors from the AAIB carried out an investigation into this event.

Shortly after takeoff, with 33 passengers on board, a seal associated with the retraction line for the hydraulically retracted integral airstairs at the front left cabin door, failed. This allowed hydraulic fluid to escape in the form of a fine mist, depleting the contents of the main hydraulic system. This misting was perceived by the cabin crew as smoke, and they informed the flight crew accordingly. In flight, this line is normally de-pressurised but, owing to a jammed airstairs UP selection switch and a stuck door safety microswitch, it had remained pressurised.

The intensity of the misting in the forward section of the cabin led the cabin crew to reposition the passengers towards the rear of the cabin and, as a result, the aircraft's Centre of Gravity position moved beyond the aft limit.

An emergency was declared to ATC and the aircraft returned to Ronaldsway. During the approach, the EGPWS system alerted the crew to an incorrect flap setting for landing.

After landing, the aircraft was taxied off the runway but difficulties encountered with the nosegear steering system forced the commander to stop the aircraft short of the terminal buildings. One passenger, who was asthmatic, was taken to a local hospital but later discharged as medical treatment was not considered necessary.

SAFETY RECOMMENDATION - 2006-069

It is recommended that Civil Aviation Authority advise all operators of Commercial Air Transport aircraft of the need to ensure that the training of cabin crew members includes an awareness of the potential problems on the flight characteristics of an aircraft, due to movement of the aircraft's CG position, should a significant re-distribution of a partial passenger load be required in flight. This awareness training should include the necessity to both inform and seek the approval of the flight crew prior to such a re-distribution taking place and should be reflected in the appropriate Cabin Crew Safety Manuals.

Response

The CAA accepts this recommendation. The CAA published a "Flight Operations Department Communication to Operators" (FODCOM) on 13th October 2006 (FODCOM 16/2006). The FODCOM highlighted the circumstances surrounding this serious incident and made the following recommendations to operators:

Recommendations:

1. Operators should ensure that, if appropriate to the type of operation and aircraft in their fleet, their Operations Manuals contains guidance to flight and cabin crews regarding the effect on the aircraft's CG position in the event of redistribution of a passenger or freight load whilst airborne.

2. Operators should ensure that the training of flight and cabin crew members includes an awareness of the potential problems on the flight characteristics, due to movement of the aircraft's

CG position, caused by a significant redistribution of passenger or freight loads. Training should include the necessity for cabin crew to ensure that the flight crew are informed of any redistribution and that approval should be sought for the final redistribution.

Status - Accepted - closed

Boeing 767-300	**London Gatwick Airport**	**11-Jul-2005**	**Accident**

AAIB Bulletin: 9/2006
FACTOR: F33/2006

Synopsis

As the aircraft approached V1 during the takeoff, a problem was detected by the crew with the No.1 (left) engine. The takeoff was rejected and the aircraft brought to a halt clear of the runway. The airport fire service arrived very promptly at the aircraft, extinguishing small fires which has started in the left and right main landing gear wheels. After the passengers had disembarked and been bussed to the terminal, the aircraft was towed to a stand.

Data on the 30 minute cockpit voice recorder covering the rejected takeoff was lost as this had been overwritten before it was isolated. Three safety recommendations are made relating to this standard of recorder.

SAFETY RECOMMENDATION - 2006-061

It is recommended that the South African Civil Aviation Authority, in common with the Federal Aviation Administration intent, mandate for a minimum recording duration of two hours for all aircraft currently required to be fitted with a Cockpit Voice Recorder.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-062

It is recommended that the South African Civil Aviation Authority review their oversight processes of Operator's procedures and training support, to ensure the timely preservation of Cockpit Voice Recorder recordings in accordance with ICAO Annex 6 Part I, 11.6, following a serious incident or accident.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-063

It is recommended that the South African Civil Aviation Authority require Nationwide Airlines, and any other airline regulated by them with similar procedures, to amend their procedures to ensure the timely preservation of Cockpit Voice Recorder recordings in the event of an accident or serious incident.

Status - Response Awaited - open

DHC-8-311	On departure from Manchester Airport	09-Aug-2005	Incident

AAIB Bulletin: 9/2006
FACTOR: F34/2006

Synopsis

Shortly after takeoff from Manchester the No 2 (right) engine failed and subsequent attempts to feather the propeller were unsuccessful. The aircraft returned to Manchester where it made an uneventful landing. The No.1 propeller blade support bearing of the right propeller assembly had failed catastrophically, resulting in large imbalance loads through the engine. This led to the fracture of the Power Turbine (PT) shaft, and a consequent overspeed of the PTs, leading to the loss of the PT blades and an exhaust baffle plate from the rear of the engine. The failure of the propeller to feather was due to a ball from the failed bearing becoming jammed between the propeller blade root and the propeller hub. The origin of the bearing failure was not determined although metallurgic examination revealed that cracking had been occurring for a period of time. Six days prior to the incident, heavy vibration was reported but, as vibration survey equipment was not available at the time, the defect was deferred in accordance with the aircraft operator's technical instruction. When vibration survey equipment was fitted, it was set up incorrectly and a full vibration survey was not carried out prior to the incident flight.

SAFETY RECOMMENDATION - 2006-067

It is recommended that Transport Canada require the aircraft manufacturer, Bombardier Aerospace, to amend the maintenance manual for the DHC Dash 8-300 aircraft with regard to propeller vibration measurements and to provide instructions when to investigate the propeller and/or engine assembly for possible internal damage, based on measured vibration levels, and to provide specific vibration level limits at which detailed inspections are required.

Response

In a response to this safety recommendation, Transport Canada stated the following:

'Transport Canada agrees with the intent of this recommendation. If appropriate Instructions for Continued Airworthiness (ICA) or other operational limitations for procedures regarding significant or unusual vibration events were in place at the time of the initial event noted in the "Aircraft Vibration History" [page 28 of this Bulletin], the bearing failure and subsequent events may have been prevented.'

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-068

It is recommended that Transport Canada require the aircraft manufacturer, Bombardier Aerospace, to amend the DHC Dash 8-300 maintenance manual with regard to propeller vibration monitoring flights, to ensure that vibration surveys are only conducted on non-revenue flights by appropriately trained crews.

Response

As a direct result of this incident, the operator now carries out all airborne checks of propeller vibration levels using AMM approved equipment which is deployed only during dedicated non-revenue 'function flights'.

In addition, the aircraft manufacturer has stated that they support 'the fact that flight crews must be adequately trained and proficient in the use of the propeller balancing [vibration measuring] equipment, prior to undertaking this task.'

However, they 'believe that mandating of this recommendation [2006-068] must remain at regulatory authority level. If it is decided that this task can be performed on a revenue flight, it is mandatory that it be performed during low workload periods (such as cruise flight), by an appropriately trained proficient crew.'

Status – Accepted- closed

DHC-8-311	**Stand 8 at Aberdeen Airport**	**7-Oct-2005**	**Accident**

AAIB Bulletin: 11/2006
FACTOR: F45/2006

Synopsis

The DHC-8 aircraft was parked on stand, all the passengers were on board and the engines had been started. Shortly after the Ground Power Unit (GPU) cables had been disconnected from the aircraft, and with nobody in the cab, the GPU moved forward and struck the rotating propeller on the right engine before coming to rest against the fuselage. All the occupants exited the aircraft through the passenger door and no one was injured.

The investigation identified a number of maintenance issues with the GPU. No issues were revealed with either the serviceability or operation of the aircraft, and hence this report is focussed on the GPU.

SAFETY RECOMMENDATION - 2006-092

It is recommended that British Airways review their operations at Aberdeen Airport to ensure that airside vehicles are maintained in accordance with the appropriate manufacturer's recommended servicing schedule and to ensure that their defect reporting system for ground vehicles operates effectively.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-093

It is recommended that Houchin Aerospace update their recommended servicing schedule to include checks for governor rods, fuel pump springs and forward-neutral-reverse selectors at appropriate intervals. These changes should be promulgated to all operators of relevant equipment world-wide.

Response

Houchin Aerospace have produced Technical Manual Supplement No. 270 (Pages 1&2) to cover additional checks to be carried out on the Model 762 GPU. These include checks on governor rods, fuel pumps and forward-neutral-reverse selectors at appropriate levels.

The recommended frequency of parking brake check/adjustment has also been increased within the supplement.

Copies were to be forwarded to original purchasers of the model 762 GPU.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-094

It is recommended that Houchin Aerospace review the design of their engine control systems for self propelled ground equipment to ensure that safety is not compromised if there is a system failure.

Response

Having reviewed the engine control system we feel that the existing features together with the inclusion of the additional checks has maximised protection.

Status - Accepted - closed

DHC-8-402	**Leeds Bradford International Airport**	**20-Oct-2005**	**Incident**

AAIB Bulletin: 5/2006
FACTOR: F36/2006

Synopsis

The aircraft was conducting a practice CAT II ILS approach to Runway 32 at Leeds Bradford International Airport in VMC. Contrary to company standard operating procedures, the co-pilot flew the approach and the landing. At a height of approximately 80 ft, the co-pilot retarded both power levers, resulting in a high rate of descent. Both pilots applied power and the co-pilot flared positively in an attempt to reduce this rate of descent. In doing so, the aircraft was pitched-up to an angle sufficient to cause the underside of the rear fuselage to contact the ground. Damage was confined to the composite fairing covering the 'runway touched' sensor. There were no injuries. Although not a cause of the incident, the investigation revealed that the heading selectors for the commander and co-pilot operated independently, resulting in a temporary deviation from the ATC assigned heading. This was not noticed immediately by the non-handling commander. Two safety recommendations are made.

SAFETY RECOMMENDATION - 2006-049

It is recommended that the aircraft operator, Flybe, expedite the reconfiguring of the heading selector systems on their DHC-8-400 (Q400) aircraft that do not have coupled heading selectors, such that operation of either heading selector results in an identical selection being presented on both the commander's and co-pilot's flight instruments.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-050

The Civil Aviation Authority should ensure that co-pilots of Bombardier DHC-8-400 series aircraft operated by Flybe, receive training and practice in landing the aircraft from a Category II ILS approach.

Response

The CAA accepts this Recommendation. The CAA has worked closely with the operator, Flybe, and now co-pilots of Bombardier DHC-8-400 series aircraft receive training and practice in landing the aircraft from a Category II ILS approach. The training commenced in January 2007 and has been incorporated into the training syllabus.

Status - Accepted - closed

Airbus A319-131	London Heathrow	22-Oct-2005	Incident

AAIB Bulletin: S3/2006
FACTOR: N/A

Synopsis

This event was initially reported in AAIB Special Bulletin S2/2005, published on 25 November 2005. The AAIB has become aware of five previous incidents involving reported failures which have resulted in the loss of both the commander's and co-pilot's primary flight and navigation displays (PFD and ND) and the ECAM (Electronic Aircraft Centralised Monitor) upper display. The reason for the loss of the co-pilot's displays has not been fully explained in any of these cases. The investigation is continuing.

SAFETY RECOMMENDATION - 2006-051

It is recommended that the aircraft manufacturer, Airbus, reviews the existing ECAM actions for the A320 series aircraft, given the possibility of the simultaneous in-flight loss of the commander's and co-pilots' primary flight and navigation displays. They should consider whether the priority of the items displayed on the ECAM should be altered, to enable the displays to be recovered as quickly as possible and subsequently issue operators with a revised procedure if necessary.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-052

It is recommended that the aircraft manufacturer, Airbus, should review the A320 series aircraft Master Minimum Equipment List Chapter 31, INDICATING/RECORDING SYSTEMS and reconsider whether it is acceptable to allow the ECAM lower display unit to be unserviceable. They should amend the requirement, as necessary, to take account of the possibility of the simultaneous in-flight loss of both the commander's and co-pilot's primary flight and navigation displays and the ECAM upper display.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-053

The aircraft manufacturer, Airbus, should identify those aircraft with the single power supply to the standby artificial horizon and advise the operators of the potential implications of this configuration.

In Special Bulletin S2/2005 it was reported that the standby artificial horizon on G-EUOB would not have remained powered. This statement was based on information contained in the Flight Crew Operating Manual (FCOM) for G-EUOB, which implied that the standby horizon had the single power supply configuration. It was subsequently established that this aircraft had the ISIS wiring provision and so its standby horizon remained powered, but would not have been lit.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-054

It is recommended that the aircraft manufacturer, Airbus, revises the information about the power sources for the standby artificial horizon provided in Flight Crew Operating Manuals for the A320 series aircraft to reflect the actual status of the aircraft to which they apply.

Status - Response Awaited - open

Airbus A340 - 300 **Boeing 777 - 200**	**Holding Area Runway 27L, London Heathrow Airport**	**06-Nov-2005**	**Accident**

AAIB Bulletin: 8/2006
FACTOR: N/A

Synopsis

Aircraft entering the Holding Area prior to departure from Runway 27L at London Heathrow Airport, initially follow a single yellow taxiway centreline, which splits into two parallel lines within the holding area. This is wide enough for two 'heavy/widebody' aircraft to position side by side when lined up on the parallel lines. Prior to departure, a Boeing 777 (B777) was holding, in turn, at N2W behind a Boeing 737-800 (B737), in the Holding Area. Whilst in this position, an Airbus A340 (A340) was instructed to taxi to N2E. As it passed behind the B777, the A340's right winglet made contact with the B777's left elevator and its left wing tip. The A340 had not reached the section of the line parallel to that upon which the B777 was parked. This accident happened at the same location as a collision between similar aircraft types reported in AAIB Bulletin 9/2005, reference EW/C2004/07/03.

SAFETY RECOMMENDATION - 2006-058

It is recommended that Heathrow Airport Limited review the current layout/design of the Holding Areas for departing aircraft, to ensure that wingtip clearance is maintained between manoeuvring aircraft.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-059

It is recommended that Heathrow Airport Limited, in co-operation with National Air Traffic Services, review the current Air Traffic Control procedures applicable to the Holding Areas for departing aircraft, and any future layout of these Holding Areas, to ensure that adequate wingtip clearance is maintained between manoeuvring aircraft.

Status - Response Awaited - open

Boeing 737 - 8AS	**Prestwick Airfield**	**26-Nov-2005**	**Incident**

AAIB Bulletin: 9/2006
FACTOR: F32/2006

Synopsis

The aircraft had been parked on Stand 4 and the flight crew had started the normal aircraft shutdown checks. A baggage belt vehicle was being manoeuvred towards the front hold of the aircraft and subsequently struck the fuselage of the aircraft. No one was injured as a result of the incident. The report contains one AAIB Safety Recommendation.

SAFETY RECOMMENDATION - 2006-060

It is recommended that the Civil Aviation Authority should remind airport operators that their Safety Management Systems should ensure that safe standards of maintenance and use are applied to all vehicles and mobile ground equipment used in the proximity of aircraft.

Response

The CAA accepts this recommendation. A communication to aerodrome licensees will be published in Reference Point in September 2006 to raise awareness of recent incidents and the lessons learned subsequent to the investigations. Aerodrome licensees will be reminded of the need to make sure that their Safety Management Systems, and those of operators, ensure safe standards of maintenance and operation are applied to all vehicles and mobile ground equipment used in the proximity of aircraft.

The amendment to CAP 642, published on 5 September 2006, included guidance on the development by an aerodrome of its own procedures for vehicle maintenance and use in line with the manufacturer's instructions, servicing schedules and MOT requirements. Additionally, each model proforma in CAP 642 has been marked with the term "specimen".

Status - Accepted - closed

Dornier 328 -110	**Isle of Man (Ronaldsway) Airport**	**28-Nov-2005**	**Incident**

AAIB Bulletin: 10/2006
FACTOR: F38/2006

Synopsis

The aircraft had a covering of frost and was de-iced/anti-iced using a heated mixture of Type II+ de-icing fluid and water. The commander commenced the takeoff run and at the calculated rotation speed pulled the control column aft. The aircraft did not appear to rotate in response to the control input and he abandoned the takeoff. The aircraft was brought to a stop on the runway.

The probable cause of the incident was the incorrect V1/VR speed selected. Contamination must have been present on the tail surfaces because the aircraft would not rotate at the 'normal' rotation speed for its configuration and load but it was not possible to determine whether the contaminant was ice or thickened fluid. The problem may have occurred because fluid was sprayed from the trailing edge towards the leading edge. Two safety recommendations were made.

SAFETY RECOMMENDATION - 2006-072

The Joint Aviation Authorities should contact all Dornier 328 Type Rating Training Organisations within JAA member States and emphasise the need to train pilots to use icing speeds following de-icing/anti-icing with thickened fluids, even when in non-icing conditions.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-073

EuroManx should provide annual pre-winter flying awareness refresher training and information to all its flight crews. This refresher training should emphasise the need to use the correct icing speeds even in non-icing conditions.

Status - Response Awaited - open

Dornier 328	**On approach to Runway 24R at Manchester Airport**	**18-Jan-2006**	**Incident**

AAIB Bulletin: 10/2006
FACTOR: F40/2006

Synopsis

The aircraft failed to capture the glideslope during an ILS approach in IMC conditions to Runway 24R at Manchester Airport. The operating crew did not monitor the flight path of the aircraft and were only alerted that they had descended (with a high vertical speed) dangerously close to the ground some 5.5 nm from touchdown, by a "GLIDESLOPE" aural alert triggered by the EGPWS. The commander disconnected the autopilot and performed a go-around. ATC provided radar vectors to re-position the aircraft for another ILS approach, following which the aircraft landed without further incident.

SAFETY RECOMMENDATION - 2006-086

It is recommended that the Austrian aviation authority, AustroControl, review the flight crew training and operational procedures of EuroManx Airlines Gmbh, with the intent of ensuring that the operation of their aircraft is conducted in accordance with approved procedures.

Status - Response Awaited - open

Boeing 737-45D	**Stand 114, London Heathrow Airport**	**20-Feb-2006**	**Accident**

AAIB Bulletin: 1/2007
FACTOR: F1/2007

Synopsis

While taxiing on to its assigned parking stand, the aircraft struck a vehicle which was parked in a prohibited area. The member of ground staff whose responsibility it was to ensure that the stand was unobstructed, was unable to see the whole stand from his assigned position in the jetty. Members of ground staff who saw the potential conflict were unable to alert the pilots. Three safety recommendations were made.

SAFETY RECOMMENDATION - 2006-138

It is recommended that the Civil Aviation Authority should amend CAP 637 – Visual aids handbook, to clarify those areas where parking is prohibited.

Response

The CAA accepts this recommendation. CAP 637 'Visual Aids Handbook' will be amended to clarify those areas where parking is prohibited. The amendment will be published by June 2007.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-139

It is recommended that Aviance UK should amend the Airside Safety and Driving code handbook to clarify those areas where parking is prohibited.

Response

Amended Safety bulletin number GEN-014, has now been issued to all Aviance Ramp personnel at all airports where Aviance operate in the UK.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-140

It is recommended that the BAA should examine the practicability of requiring a member of the ground crew to assume the responsibility of being adjacent to the ground level emergency STOP light button, and of monitoring the arrival of the aircraft on to the stand, whenever ground crews are present on a stand whilst an aircraft is manoeuvring to park.

Status - Response Awaited - open

Boeing 757-2T7	**On approach to Gibraltar Airport**	**17-Mar-2006**	**Incident**

AAIB Bulletin: 8/2006
FACTOR: F31/2006

Synopsis

Following a surveillance radar approach (SRA) to Runway 09 at Gibraltar Airport, the flight crew lost visual contact with the runway after passing the Visual Decision Point (VDP). During the subsequent go-around, the crew did not follow the correct missed approach procedures but ATC provided effective heading control to avoid the high ground. The lowest altitude of the aircraft when over the land was 2,100 ft. The highest point on the land, just south of the airfield, is 1,420 ft.

Following the incident, ATC and the aircraft operating company made changes to procedures to reduce the chances of a similar occurrence. Additionally, it was considered that the airport lighting should be improved and a recommendation has been made to that effect.

SAFETY RECOMMENDATION - 2006-065

It is recommended that the air regulator review the airport lighting at Gibraltar with the aim of providing, for civilian operations from the airfield, runway approach lighting and improving the runway lighting.

Status - Response Awaited - open

ATR72-202	**Runway 27, Guernsey Airport**	**23-May-2006**	**Incident**

AAIB Bulletin: 3/2007
FACTOR: F11/2007

Synopsis

The aircraft bounced on touchdown due to insufficient landing flare being applied. In an attempt to cushion the second touchdown the co-pilot, who was the handling pilot, over pitched the aircraft resulting in the tail bumper making contact with the runway surface. The co-pilot was relatively inexperienced, this being his first airline aircraft type, and he could not recall ever having received formal instruction in recovery techniques for bounced landings

SAFETY RECOMMENDATION - 2006-124

The UK Civil Aviation Authority should require UK aircraft manufacturers, operators and training providers to issue appropriate guidance to pilots in the techniques for recovering from bounced landings.

Response

The CAA partially accepts this recommendation.

As far as operators and training providers are concerned, in the short term, the CAA will, in the course of its normal oversight, check that operators have appropriate guidance in place. In the longer term, the CAA will issue an appropriate publication (either FODCOM or AIC) alerting industry to the incident and surrounding issues, further recommending that appropriate guidance be made available.

As far as UK manufacturers are concerned, since September 2003 legal competence for airworthiness of this class of aircraft has been granted to the European Aviation Safety Agency (EASA). This part of the recommendation is therefore not accepted.

Status - Partially accepted - open

Dornier 328	**Near Sumburgh Airport, Shetland**	**11-Jun-2006**	**Serious Incident**

AAIB Bulletin: 3/2007
FACTOR: F19/2007

Synopsis

During a visual approach to Sumburgh Airport, the aircraft encountered worsening weather conditions and inadvertently flew into close proximity with the terrain. The crew were alerted to the situation by on-board equipment, but the commander did not respond to the 'PULL UP' warnings it generated. The approach was continued and a safe landing made at the airport. The investigation identified a number of organisational, training and human factors issues which contributed to the crew's incorrect response to the situation. Two recommendations were made, concerning crew training and regulatory oversight of the aircraft operator.

SAFETY RECOMMENDATION - 2006-130

The Joint Aviation Authorities should review the training requirements for flights crews operating aircraft required to be equipped with a predictive terrain hazard warning function, with a view to ensuring that such crews are adequately trained in its use, interpretation and response.

Response Awaited - open

SAFETY RECOMMENDATION - 2006-131

The Icelandic Civil Aviation Administration should conduct a safety audit of Landsflug ehf (City Star Airlines) in the light of the shortcomings identified during the investigation into this serious incident.

Response Awaited - open

Dornier 328 - 100	**Aberdeen**	**22-Jun-2006**	**Incident**

AAIB Bulletin: S7/2006
FACTOR: N/A

Synopsis

After a normal landing at Aberdeen the co-pilot, who was the pilot flying (PF), was unable to release the latches on the power levers and move them rearwards from the flight idle position into the beta control range to assist with aircraft retardation. After two further unsuccessful attempts the commander took control and, whilst braking aggressively, made four further unsuccessful attempts to release the latches.

The aircraft overran the end of Runway 34, and traveled some 350 m over rough grass before coming to rest. The commander steered the aircraft to avoid lights and antenna installations and attempted to move the condition levers to shut the engines down. Although aircraft movement over the uneven ground and the design of the condition levers made this difficult, he was eventually successful. The aircraft came to rest intact, there was no fire and all occupants were uninjured. The investigation is continuing.

SAFETY RECOMMENDATION - 2006-104

It is recommended that Avcraft Aerospace GmBH i.I advise all operators of Dornier 328 turboprop aircraft to detail procedures, and provide adequate training, to ensure that their pilots are able to act appropriately if the beta control range on the power levers cannot be selected after landing.

Response

This recommendation is not addressed to the CAA. However, the recommendation has been acted upon by the CAA and Inspectors, assigned to the UK companies operating Do328 aircraft, have been made fully aware of the issue and will be discussing the incident with the companies as necessary.

Status - Response Awaited - open

Boeing 747-443	**Taxiway Lima, London Gatwick Airport**	**05-Jul-2006**	**Incident**

AAIB Bulletin: 2/2007
FACTOR: F5/2007

Synopsis

The right wingtip of the aircraft collided with a blast fence when the aircraft was pushed back into an area of taxiway where insufficient clearance existed between the blast fence and the taxiway centreline to accommodate its wingspan. This and other large aircraft types were prohibited from parking on stands in this area but not from pushing back onto the taxiway adjacent to them. One safety recommendation was made.

SAFETY RECOMMENDATION - 2006-137

It is recommended that Gatwick Airport Limited should issue a Managing Director's Instruction or equivalent notice advising all operators and handling agents that:

a.Ground staff involved in pushback operations may enter the manoeuvring area adjacent to stands to the extent necessary to provide position guidance.

b.During pushback operations the nosewheel of any wide-bodied aircraft should not be pushed rearwards beyond the Stand 36L lead in arrow.

Response

A revision is being prepared for our Managing Director's Instruction (MDI) to include your recommendations but I would like to suggest some changes(in italics).

a. Ground staff involved in pushback operations may enter the manoeuvring area adjacent to stands on foot to the extent necessary to provide position guidance.

b.During pushback operations from stand 36 the nosewheel of any wide-bodied aircraft with a wingspan of greater than 61 metres should not push rearwards beyond the Stand 36L lead-in arrow.

This latter is to allow aircraft of the 767 class, which is classified as wide-bodied but has a span of only 52 metres (B767-400ER).

Status - Accepted - closed

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

AAIB Bulletin: S9/2006
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 reccurrence 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.

In the light of the initial findings of the investigation, four safety recommendations are made. The investigation is continuing.

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.

Status - Response Awaited - open

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.

Status - Response Awaited - open

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.

Status - Response Awaited - open

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.

Status - Response Awaited - open

Jetstream 3202	Wick Airport, Caithness	03-Oct-2006	Accident

AAIB Bulletin: N/A
FACTOR: N/A

Synopsis

The aircraft was on a scheduled flight from Aberdeen Airport to Wick in Scotland. It was the final sector of a four sector day during which there had been no significant delays. The crew completed the VOR/DME arc procedure for Runway 31, becoming visual with the runway during the latter stages of the arc portion of the procedure. The crew configured the aircraft for landing with the landing gear selected DOWN and flaps 35 set. The commander, who was the pilot flying, flared the aircraft for touchdown at the normal height. As the aircraft continued to sink, he realised that the landing gear was not down. The PF carried out a go-around and following a recycling of the landing gear flew past the ATC tower. The controller confirmed that the landing gear was down and the aircraft diverted back to Aberdeen Airport where a safe landing was made.

During the go-around, the underside of the fuselage and the tips of the right propeller contacted the runway surface.

The investigation identified contamination of the landing gear selector switch points which had acted as an electrical insulator. This prevented current flow to the landing gear lowering system and audio warning systems. The 'three green' landing gear lights are independent of this circuit but were not checked by the flight crew. They were therefore not aware that the landing gear was retracted.

The accident was notified to the Air Accidents Investigation Branch (AAIB) by Wick Air Traffic Control (ATC) at 1800 hrs on 3 October 2006.

SAFETY RECOMMENDATION - 2006-135

It is recommended that the US Federal Aviation Administration review the technical data supporting STC SA3020AT for the introduction of the Sandel ST3400 TAWS to ensure that the post installation test is sufficient to validate the full range of inputs into the system.

Response

The RA input type was incorrectly setup as "Collins-52" when it should have been configured as "ARINC 552" to match the RA sytem found in the aircraft. EMTEQ's STC ground test was not adequate to prevent erroneous setup of the Sandel TAWS.

EMTEQ has changed their ground test procedure to fully test the system for proper configuration and has implemented corrective action to retest In service aircraft for possible miss-configuration. EMTEQ issued mandatory Service Letter (SL) No. 2-25975-1001, on January 1, 2007, that requires retest and if required, reconfiguration of the system. Twenty two (22) of Seventy five (75) modified Jetstream model 3202 aircraft retested by the SL have been found to be incorrectly configured with the acception of the first reported aircraft (Reg. No. G-BUVE).

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-136

It is recommended that the US Federal Aviation Administration take immediate action to ensure that aircraft equipped with the Sandel ST3400 TAWS have the correct radio altimeter type set and that

the system is tested to ensure that the radio altimeter signal is correct over the operating range specified in the Sandel ST3400 installation manual.

Response

The RA input type was incorrectly setup as ''Collins-52'' when it should have been configured as ''ARINC 552'' to match the RA sytem found in the aircraft. EMTEQ's STC ground test was not adequate to prevent erroneous setup of the Sandel TAWS.

EMTEQ has changed their ground test procedure to fully test the system for proper configuration and has implemented corrective action to retest In service aircraft for possible miss-configuration. EMTEQ issued mandatory Service Letter (SL) No. 2-25975-1001, on January 1, 2007, that requires retest and if required, reconfiguration of the system. Twenty two (22) of Seventy five (75) modified Jetstream model 3202 aircraft retested by the SL have been found to be incorrectly configured with the acception of the first reported aircraft (Reg. No. G-BUVE).

Status - Accepted - closed

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

BN2B-26 Islander	**7.7 nm west-nort-west of Cambeltown Airport, Argyll**	**15-Mar-2005**	**Accident**

AAIB Bulletin: 2/2006
FACTOR: F39/2006

Synopsis

The watch supervisor at the Scottish and Oceanic Area Control Centre notified the accident to the Air Accidents Investigation Branch (AAIB) at 0115 hrs on 15 March 2005.

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.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-102

Considering the unique circumstances of air ambulance flights, the Civil Aviation Authority, in conjunction with the Joint Aviation Authorities should review the circumstances in which a second pilot is required for public transport flights operating air ambulance services.

Response

Recommendations 2006-102 and 2006-103 were addressed to both the CAA and the JAA. The CAA wrote to the JAA on 21 November 2006, confirming that they were ready to carry out the required actions.

On 13 March 2007, the JAA responded that they were no longer in a position to undertake any work on these topics and responsibility must now lie with EASA. On 28 March 2007, the CAA representative briefed the Operations Sectorial Team on the issues involved in these

recommendations: this team is overseen by EASA. In addition, the JAA agreed to write to EASA to ask them how these recommendations should best be addressed.

The AAIB subsequently wrote to EASA requesting them to address these recommendations.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-103

The Civil Aviation Authority, in conjunction with the Joint Aviation Authorities, should consider mandating the carriage of a radio altimeter, or other independent low height warning device, for public transport IFR flights operating with a single pilot.

Response

Recommendations 2006-102 and 2006-103 were addressed to both the CAA and the JAA. The CAA wrote to the JAA on 21 November 2006, confirming that they were ready to carry out the required actions.

On 13 March 2007, the JAA responded that they were no longer in a position to undertake any work on these topics and responsibility must now lie with EASA. On 28 March 2007, the CAA representative briefed the Operations Sectorial Team on the issues involved in these recommendations: this team is overseen by EASA. In addition, the JAA agreed to write to EASA to ask them how these recommendations should best be addressed.

The AAIB subsequently wrote to EASA requesting them to address these recommendations.

Status - Response Awaited - open

Aeroplanes = or < 2,250kg MTWA

Cessna U206F	**Beacon Village near Honiton, Devon**	**27-June-2004**	**Accident**

AAIB Bulletin: 11/2005
FACTOR: F40/2005

Synopsis

Shortly after takeoff, with the pilot and five parachutists on board (including one 'tandem' pair), the aircraft's engine began to lose power. The pilot flew to the east away from the airfield for a distance of some 6 nm, achieving a maximum height of approximately 1,100 ft agl, before turning back. As the engine lost power the pilot was unable to maintain height and, in attempting a forced landing, the aircraft clipped the tops of several tall trees and crashed steeply nose down into a sloping grass field.

SAFETY RECOMMENDATION - 2005-042

It is recommended that the British Parachute Association revise sections of the Operations Manual relating to the operation of parachuting aircraft, with the intention of clarifying the flying training syllabus and test syllabus required to qualify as a parachute pilot.

Response

At the AAIB pre-report meetings (attended by BPA representatives) some surprise had been expressed that the BPA did not have a written syllabus or flight test proforma within its pilot qualification system. Originally, the BPA did utilise such documents but abandoned these (with CAA approval) when the CAA tightened up on its pilot licensing system generally. At this time it was thought that the new system would provide adequate training to enable pilots to be inducted into parachute flying with a more simplified testing system.

At the same meetings strong misgivings were also expressed that there was no formal qualification system attached to becoming a BPA Pilot Examiner. At the time, the status was achieved simply be accumulating two years service and a total of 500 flying hours flying (to include 200 hours parachute flying) together with an Examiner recommendation.

The PWG devoted a lot of time to this issue. It examined and discussed the following issues which related to the way in which the BPA approved its parachute pilots, Club Chief Pilots and Pilot Examiners.

A). Qualifying levels in terms of number of hours of flying experience.

B). Age limitations.

C). Basic parachute flying training procedures and syllabus.

D). Formal flight testing.

E). Proficiency and recency.

F). Additional requirements for Club Chief Pilots.

G). Additional requirements for Pilot Examiners.

The PWG then produced a consultation document which was circulated to all BPA Club Chief Pilots and Chief Instructors in July 2006. This document made recommendations regarding the issues in the form of proposed changes to the BPA Operations Manual requirements. Comment was invited to be submitted to the end of August 2006 and a revised document was presented to the Safety and Training Committee meeting on 28th September 2006. As well as the proposals for changes to the Operations Manual the document contained revised or new proformas for the following BPA Forms.

A). Authorised Parachute pilot Application

B). Training Syllabus for BPA Approved Pilots

C). Flight Test Proforma

D). Pilot Proficiency Check

E). Additional Types Application

F). Authorised Pilot Renewal Form

G). Club Chief Pilot Application

H). Pilot Examiner Application

Samples of written examination papers were also submitted for Authorised Pilots, Club Chief Pilots and Pilot Examiners. The basic Authorised Pilot paper is published generally but the CCP and PE exam papers are kept confidential.

The recommendations were ratified by the Safety & Training Committee on 28th September 2006 and were incorporated into the BPA Operations Manual (Section 9 Flying) with immediate effect. The main changes to come into effect as a result of this exercise are summarised as follows.

Basic experience to qualify. 100 hours P1 still as minimum, but qualifying hours on type levelled at 5 hours regardless of total P1 hours. This was recommended because training demands now extended beyond previous requirements.

Age. Age limitations have been placed at 55 years as the upper limit to commence tainting and 70 years as the upper limit to continue to hold an authorisation.

Training. Minimum number of training flights has been increased and the training requirements have been prescribed on an appropriate form.

Testing. A more formal flight test has been introduced.

Proficiency and recency. Proficiency tests have been introduced for all pilots on an annual basis, even if in current practice, or after six months if they have not been parachute flying.

Club Chief Pilots. Minimum qualifying requirements are now mandatory for CCPs including 100 hours parachute flying and written exam.

Pilot examiners. Minimum qualifying requirements are now 500 hours parachute flying (250 for CSIs), an IMC rating and a written exam.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2005-043

It is recommended that the British Parachute Association, in consultation with the Civil Aviation Authority, consider issuing a requirement for appropriate energy attenuating material to be installed as flooring in aircraft engaged in parachuting operations, where the occupants are required to be seated on the floor.

Response

In considering this recommendation the PWG sought the advice of Dr. Tony Segal who has done much research into the effectiveness of energy attenuating foam (EAF) and who has been most helpful by providing copies of his research papers and providing continued input via telephone calls and written correspondence.

Input was also sought from Mr. Les Neil who is the Senior Consultant Engineer for Occupant Impact Protection at Qinetiq in Farnborough. Both Mr. Neil and Dr. Segal have also been most helpful in other areas of this report, particularly with regard to the use of restraints and crash brace positions.

The principal fact to come out of the research into the use of specified EAF is that there is no doubt that it affords significantly greater levels of protection from vertical forces than does domestic type foam matting or other materials such as wood or carpet. In translating this to parachute aircraft crash situations it would appear that a parachutist seated on the floor of an aircraft which has EAF flooring material, and who is subjected to vertical impact forces, will have his chances of vertical impact injury (particularly to the spine and pelvis) substantially reduced.

The forces in most aircraft crashes, however, are a resolution of horizontal as well as vertical forces and it is clear that the greater the horizontal force the less is the protection afforded by EAF flooring. It is probably true also that most crash scenarios will involve a higher component of horizontal force than vertical force. The PWG attempted to ascertain if EAF flooring would have made any significant differences in the Dunkeswell accident and the consensus of opinion, whilst lacking the necessary information to be definitive, was that it probably wouldn't have made any difference. The view expressed by Mr. Neil was that if an aircraft impacted at a 30' nose down attitude (this was the probable angle of impact in the Dunkeswell accident) then EAF flooring would have no effect as the occupants would tend to be propelled away from the floor rather than into it. Dr. Segal expressed the view that EAF flooring would not have increased survivability significantly in the Dunkeswell crash. He did believe that EAF would generally be of benefit to floor seated occupants in most aircraft crashes but felt that they would also have to be wearing restraints for the EAF to be effective. The issues relating to restraints are dealt with at item 6.

In view of the above information the conclusion of the PWG is that it would recommend the use of EAF as flooring material in parachuting aircraft in situations where flooring material is both desirable and permissible. If flooring material is desirable, then given the information available, the use of EAF would seem to be the preferable alternative to other materials.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2005-044

It is recommended that the British Parachute Association include specific advice in their Manuals detailing emergency situations, in aircraft engaged in parachuting operations, concerning when conjoined tandem jumpers should separate from each other.

Response

The PWG discussed, in depth, the issue of whether circumstances could arise where it would be necessary or desirable for tandem pairs to separate in the aircraft. It has always been a firm policy under BPA regulations that tandem pairs remain connected together, at all four connection points, before take off and remain so until after landing (with exception that side connectors may be released once under a normal parachute canopy). This policy has been determined in the light of potentially serious incidents that have occurred because tandem pairs were not properly connected prior to exit. Such incidents are believed to be more prevalent at some overseas parachute centres where such rules do not apply.

The group agreed that the Dunkeswell crash had indicated a scenario where it would have been preferable for the tandem student to have been separated from the instructor prior to impact. A situation where a surviving and mobile tandem student could be prevented from escaping crash

wreckage (possibly on fire) by virtue of being connected to an instructor who had been killed or injured, was one to be avoided if possible.

The outcome of the group's discussion was that an appropriate ruling should be constructed to permit tandem pairs to separate, at the instructor's discretion, in circumstances where an emergency aircraft landing or crash is likely. It was felt unwise to make separation mandatory under such circumstances, as it was recognised that a tandem instructor may wish to keep open his options of exiting the aircraft with his student until the last possible moment. In so doing he may then, in some circumstances, not to be left with sufficient time to disconnect prior to preparing for impact.

Accordingly the PWG proposed an amendment to the existing rule in the BPA Operations Manual so that it would now read:

'All Student Tandem Parachutists, or parachutists acting as Student Tandem Parachutists, are to be attached to the Tandem Instructor before take off and must remain attached, except in the event of an aircraft emergency landing, where Tandem instructors may have to separate from the Students inside the aircraft.'

This proposal was presented at the Safety & Training Committee meeting of 3rd August 2006 and was ratified with immediate effect.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2005-045

It is recommended that the British Parachute Association, in consultation with the Civil Aviation Authority, consider the practicality of installing appropriate restraint systems for parachutists in all aircraft engaged in parachuting operations.

Response

The current requirement with regard to restraints in parachuting aircraft has been established for a number of years and was originally formulated in consultation with the CAA. This basically requires operators to ensure that restraints for parachutists are fitted in accordance with the requirements of a specific aircraft's flight manual. At the time when the discussions took place it was acknowledged that restraints in small aircraft were problematic for parachutists and should not be required. It was recognised, however, that the desirability for their use increased as the aircraft got larger. It was felt that at least single point floor restraints were desirable in larger aircraft if only to prevent weight shift in unusual flight conditions which might lead to centre of gravity problems. It was evident, however, that they would also fulfil a protective function in the event of a crash. At the time it was felt that an aircraft the size of a Britten-Norman Islander would be the largest to be permissible without restraints. Also, at the time, the CAA were in a position to determine the contents of flight manual supplements and could, therefore enforce their requirements regarding the restraints by insisting on appropriate flight manual entries. This situation has now changed with the transfer of regulatory functions from the CAA to EASA and the greater difficulty which is now involved in implementing flight manual changes.

The PWG believes that the philosophy behind the original arrangement still holds good. The group does not dispute that in a crash situation the chances of survivability for parachutists are greatly enhanced if they are wearing restraints. Restraints do, however, pose other safety risks for parachutists in small aircraft (such as in the C206) in the course of normal operations as opposed to crash situations.

The reasons for this are that parachutists are usually seated on the aircraft floor and sat in very close proximity. The close crowding in the cabin is accentuated by the bulk of the parachute equipment that each person is wearing. By comparison, the crowding of occupants is much tighter than you would expect to find when riding in an average saloon car with all seats occupied. This

close crowding makes the wearing of restraints extremely difficult and would entail a mass of loose webbing and hardware fittings littering the cabin floor when the time comes to exit the aircraft.

This presents a number of hazards to parachutists. The first is that as they attempt to exit the aircraft from a seated or kneeling position. They risk part of their own parachute pack or harness snagging on the loose restraint straps and hardware in the aircraft. This can result in a 'hang up' scenario where a parachutist is left suspended outside the aircraft; a situation which presents very obvious dangers and difficulties.

The second danger which can result from a snagging hazard is that of premature deployment of the parachute from within, or just outside, the aircraft. This danger is greater now than it was historically. This is because old style parachute rip cord handles were usually mounted on a parachutist's chest and were within his view.

With regard to larger aircraft the PWG believe that restriants continue to be a safety benefit as they do not present the same hazard as a small aircraft. The group were concerned, however, to discover that a fifteen place aircraft, of which two had recently commenced parachuting operations in the UK, did not have a flight manual supplement which required parachutists to have restraints. This situation places operators and the BPA in a difficult postion. If the operators wished to use restaints, then they would be faced with the possiblity of a long and expensive bureaucratic process to get the necessary approval, or the temptation not to use them at all because that was the easiest and legally 'correct' thing to do. The BPA would be faced with the possibility of insisting that the operators install restraints because that was the safest thing which at the same time encourages them to operate without appropriate certification restraints.

Status - Rejected

SAFETY RECOMMENDATION - 2005-060

It is recommended that the British Parachute Association, in consultation with the Civil Aviation Authority, establish an appropriate ‘brace’ position for each seating position on aircraft engaged in parachuting operations.

Response

The PWG has attempted to obtain firm advice and recommendations regarding appropriate crash brace positions for parachutists who may be faced with an aircraft emergency landing or crash scenario. In particular advice has been sought from Qinetiq at Farnborough, the Cranfield Impact Centre (Cranfield University), the CAA, the FAA, the National Transportation Safety Board of the USA, and The Joint Air Transport Evaluation Unit at RAF Brize Norton. The main personal contact has, again, been with Les Neil from Qinetiq at Farnborough. Mr.Neil has carried out research and has advised on numerous aspects of crash impact and brace positions for all seating axes and his expertise in this area of safety is currently being applied to future military aircraft programmes.

The working group has sought guidance as to the brace positions which are the most suitable for a parachutists to adopt according to the nature of the seating position they have been allocated witihin the aircraft. Types of seating position vary between aircraft and within aircraft. Unlike civil passenger transport, where most passengers are carried in forward facing upright seats with lap restraints, parachutists are likely to be faced with a variety of (often unrestrained) seating positions.

The positions most commonly encountered within parachuting are floor seated rear facing, floor seated forward facing, floor seated sideways facing, and upright seated sideways facing. Parachutists will occasionally find themseleves seated 'normally' in a forward or rear facing seat.

It appears that a great deal of research has taken place with regard to 'normally seated' forward, rear and sideways facing positions incorporating two, three or four point restraints, but no research is available which relates to floor seated, unrestrained or partially restrained (single point) positions. Furthermore, the unpredictability of human responses to the impacts while seated in this configuration and the variable conditions of the aircraft impact itself makes it difficult to obtain any

firm advice. Despite the available research for normally seated positions Qinetiq have also confirmed that many brace positions, which have been historically recommended within the aviation community, have not been satisfactorily validated.

This leaves the BPA in a difficult situation. It is unable to issue firm advice based upon empirical research but at the same time could now be seen as lacking if it failed to issue advice at all. The working group felt that the BPA should give some advice and should demonstrate that it has given the issue some consideration. Accordingly the group prepared written advice regarding crash landing procedures and recommended that the advice be published as a formal BPA Form (261) and be incorportated into the BPA Instructor Manual and lesson plans and become a mandatory part of instrutor teaching.

The recommendation was presented to the STC as a proposed Operations Manual insertion (Section 10 1.4) to read:

'All parachutists must have been briefed as to the emergency crash procedures and brace positions relevant to their seating or kneeling positions in the aircraft' 'N.B. Crash Landing Procedures can be found on BPA Form 261.'

This recommendation was implemented at the STC meeting on 1st Feburary 2007 with immdeiate effect and the contents of the proposed BPA Form 261 were accepted as written.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2005-061

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

Response

The PWG has discussed the issues of the crashworthiness of aircraft cabin interiors insofar as they appear to the group members as experienced pilots and parachute instructors, as opposed to technical experts within this field, which they are not.

The group's main conclusions centre on the belief that crashworthiness of cabin interiors is a subject to be approached at two levels. The first, at a higher level, is a matter for the technical expertise of aircraft designers prior to putting aircraft into the air. The PWG is not really in a position to become involved with, or to influence this process as it does not possess the necessary expertise. Its members are drawn from users of aircraft which have already been through their major design and approval processes and are on the market for general use and, in most cases, have been for many years.

The second, lower level of approach, is generated from the experience of pilots and parachutists and involves the process of incorporating minor modifications to cabin interiors which are based on the practised experience of users and which appear to be based simply on fundamental good sense.

These modifications which, under the supervision of licensed aircraft engineers, should be relatively quick and easy to incorporate.

The experience of the working group so far, has led us to the conclusion that such processes, which should be relatively simple and cheap, have become such daunting and costly exercises to the extent that they are either never undertaken, or they are undertaken illegally, without the benefit of any formal engineering guidance, and the benefits are achieved, but in the shadow of doubt and concealment.

The chief difficulties stem from the transfer of the authority to approve minor modifications and implement flight manual supplement changes from the CAA to EASA. In earlier times, under the

CAA, a minor modification approval was a relatively straightforward operation. It is now bureaucratically awkward and fairly costly by comparison. The nature of the EASA definition of 'major' and 'minor' modifications appears to have supplanted experience judgement with a more rigid system which lacks flexibility. It has, for instance, been suggested to us that the installation of a portable GPS system on the control wheel of a light aircraft 'could' require a major modification application because of its potential to interfere with the control yoke. We believe that this is a simple issue that could be resolved by a competent aircraft engineer in minutes and without the need to refer to any higher authority.

Status - Rejected - closed

SAFETY RECOMMENDATION - 2005-062

It is recommended that the European Aviation Safety Agency develop standards for appropriate recording equipment that can be practically implemented on small aircraft.

Response

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

Status - Accepted - closed

Diamond DA40D	**Field near Old Stratford, Northamptonshire**	**29-Jun-2004**	**Accident**

AAIB Bulletin: 10/2005
FACTOR: F35/2005

Synopsis

The aircraft's engine failed in flight when most of the oil was lost overboard. From an altitude of 2,000 feet the pilot carried out a successful forced landing into a field. The engine's turbocharger compressor had been damaged resulting in an imbalance that caused vibration. This vibration induced a fatigue failure of a bearing and a piece of this bearing passed into the oil scavenge pump, causing it to seize. With the pump seized, the oil separator overfilled causing the engine oil to escape via the breather vent line. This caused a loss of oil that resulted in the engine overheating and then seizing. Two safety recommendations were made to reduce the probability of a recurrence.

SAFETY RECOMMENDATION - 2005-047

Thielert Aircraft Engines should modify the TAE-125-01 diesel engine's oil system to reduce the likelihood of sections from a failed turbocharger causing seizure of the oil scavenge pump.

Response

Thielert has published a Service Bulletin that meets the intent of the Safety Recommendation.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2005-048

The European Aviation Safety Agency (EASA) should consider requiring Thielert Aircraft Engines to modify its TAE-125 diesel engine's oil system to reduce the likelihood of sections from a failed turbocharger causing seizure of the oil scavenge pump.

Response

The EASA delegated National Aviation Authority's for the oversight of Thielert Aircraft Engines is the LBA, Germany. The LBA estimates that it is impossible to design the engine such that it will not fail as a result of a foreign object being introduced into the air intake system during maintenance.

Furthermore, a failure of the turbocharger can cause a drastic power reduction or in-flight shutdown for several reasons (reduction of air supply, releasing parts can seize intake valves of the combustion chamber and can destroy the valve train immediately). All these failure cases are improbable and are considered in the failure analyses and safety assessments during engine certification.

The Agency agrees with the objection of the manufacturer that a coarse mesh filter between the scavenge pump and the catchtank can introduce additional failure mechanisms. Experience from turbine engines has shown that strainers on the suction sides of oil pumps can cause problems in the oil system, especially when it is not possible or difficult to maintain them. For that reason the former JAR-E & 570 (a) (3) "The suction side of each pressure and scavenge pump shall be fitted with a strainer of adequate capacity to protect the pump and to ensure that the pump entry is not restricted under any starting or operating procedures." was deleted (NPA-E 23)

There is no need for an immediate catchtank design change. Operation of the engine outside the certified limits and/ or subsequent faulty maintenance may damage the engine at any time.

Status - Rejected

MOONEY M20J	**Jersey Airport**	**16-Oct-2004**	**Accident**

AAIB Bulletin: 11/2006
FACTOR: F42/2006

Synopsis

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

SAFETY RECOMMENDATION - 2006-028

It is recommended that International Aerospace Engineering review their internal processes to ensure that they comply with the standards required under their EASA Part 145 approval focussing, in particular, on areas relating to the provision of maintenance information and staff training.

Response

In response to this recommendation IAE has stated that 'it believes that it does comply with the standards required under its EASA [Part] 145 approval. It continues to monitor such compliance as a necessary and ongoing element of its business.'

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-030

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

Response

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

Operator responsibility:

Part M.A.402(a) and AMC M.A402(a) already impose an independent duplicate inspection after any flight sensitive maintenance task (such as those affecting flight controls). They provide a description of what systems should be checked and the corresponding procedure. However, AAPENDIX V to AMC M.A.704 doesn't call out for a specific procedure to be included in the Continuous Airworthiness Maintenance Exposition in order to deal with these issues. Therefore, the Agency may consider clarifying such procedures as part of the task referenced MDM-020.

Moreover, the Maintenance Organisation responsibility:

145.A.60(b) and AMC 145.A.65(b) also impose special requirements regarding:

-Installation of identical components, that could be improperly installed, compromising more than one system.

-Maintenance of critical systems.

-Procedures for completion of paperwork in order to avoid omissions when performing maintenance.

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

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

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

. 2.23: Control of critical tasks.

. 2.25: Procedures to detect and rectify maintenance errors.

. 2.26: Shift/task handover procedures.

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

. 3.13: Human Factors training.

Status - Partially Accepted - open

SAFETY RECOMMENDATION - 2006-031

It is recommended that the Federal Aviation Administration require Teledyne Continental Motors to conduct a critical review of their processes for the support of maintenance organisations which maintain/overhaul their products, to ensure that concise and current technical data, and spare parts of acceptable quality, are always readily available.

Response

In response to this safety recommendation, Teleydyne Continental Motors has stated the following:-

•TCM will critically review its technical publication management system, and will maintain current publication status on-line

•TCM has reviewed and re-written the process to improve the release of approved documentation

•TCM uses Service Bulletins to expedite dissemination of updated technical information

•TCM encourages customer feedback regarding technical information in its technical publications

•TCM customers can receive 'kits' that include all the necessary replacement parts for magneto inspections or overhauls

•TCM takes steps to verify supply chain quality, is subject to FAA audits, annual reviews per AS9001 standard, and only uses approved suppliers/distributors.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-134

It is recommended that the Civil Aviation Authority review their regulatory oversight methods which underpin its EASA Part 145 approvals of maintenance organisations, to ensure they include adequate sampling and objective scrutiny of the physical engineering activities.

Response

The CAA accepts this recommendation. The Civil Aviation Authority will review its regulatory oversight methods, which underpin its EASA Part 145 approvals of maintenance organisations, to ensure they include adequate sampling and objective scrutiny of the physical engineering activities. This review will be completed by October 2007.

Status - Accepted - closed

Cessna FR172E	Bracklesham Bay, West Sussex	07-Aug-2005	Accident

AAIB Bulletin: 6/2006
FACTOR: F24/2006

Synopsis

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

SAFETY RECOMMENDATION - 2006-042

It is recommended that the European Aviation Safety Agency review the design of tow hooks fitted to banner towing aircraft with particular regard to eliminating any possibility of the hook interfering with the aircraft's primary flying control surfaces.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-043

It is recommended that the Civil Aviation Authority initiate a study into the fatigue aspects associated with flying operations such as banner towing and provide guidance on duty and flying hour's limitations to such operators.

Response

The CAA does not accept this recommedation. There is little evidence in the report showing that fatigue or cumulative fatigue had a direct bearing on this accident, which occurred after all banner towing operations had been completed. The Air Navigation Order (Article 32(4)) is clear regarding a pilot's responsibilities for his own fitness for flying. Further, although banner towing is not explicitly referenced in CAA publications, all published guidance is believed to provide sufficient material for pilots to reach a considered judgement on their fitness to fly.

Status - Rejected - open

DH82A Tiger Moth	**Remenham (Berkshire), near Henley-on-Thames**	**18-Aug-2005**	**Accident**

AAIB Bulletin: 7/2006
FACTOR: N/A

Synopsis

During a pleasure flight in good weather conditions the aircraft was observed to enter a spin to the right from which it did not recover. The pilot and passenger both sustained fatal injuries. Despite extensive investigation, the cause of the accident could not be established.

SAFETY RECOMMENDATION - 2006-055

It is recommended that de Havilland Support remind pilots and maintainers of Tiger Moths of the importance of the embodiment and periodic inspection of the mandatory modifications for the aileron system described in Technical News Sheet No 5.

Response

1) An article was published in the *de Havilland Gazette No 7* in October 2006, which is distributed to Moth Technical News Sheet subscribers, and reprinted in *The Moth* magazine in January 2007. This article highlighted the importance of the embodiment and periodic inspection of the mandatory modifications for the aileron system.

2) The publication of TNS No 5 issue 2 on 1 May 2007. As a result of the revision TNS No 5 now features several photographs and revised text.

Status - Accepted - Closed

Piper PA-38-112	**Near Biggin Hill Airport, Kent**	**22-Oct-2005**	**Accident**

AAIB Bulletin: 11/2006
FACTOR: F41/2006

Synopsis

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

SAFETY RECOMMENDATION - 2006-075

The UK CAA should alert light aircraft owners, operators and maintainers of the dangers inherent in using worn, degraded or loose-fitting fuel tank filler caps.

Response

The CAA accepts this recommendation. The CAA published, in its December 2006 issue of the General Aviation Safety Information Leaflet (GASIL) an article alerting light aircraft owners, operators and maintainers to the dangers of worn, degraded or loose fitting fuel tank filler caps.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-109

The European Aviation Safety Agency should instigate a one-off inspection of PA-28 and PA-38 aircraft fuel filler caps to identify any with unserviceable rubber gaskets or excessive wear in the metal locating lugs and require refurbishment or replacement of any defective caps.

Response

Please be informed that I acknowledge receipt of your Safety Recommendation 2006-109. As you already know, the EASA is not involved in the Continued Airworthiness of Piper aircraft since it is an FAA task but this has however been input into the Safety Recommendation database and will be taken into account.

Status - Rejected

SIPA 903	**Sandown Airfield, Isle of Wight**	**14-Nov-2005**	**Accident**

AAIB Bulletin:
FACTOR: F28/2006

Synopsis

The aircraft owner was rotating the propeller by hand to introduce a priming charge into the cylinders when the engine started unexpectedly. The aircraft moved forwards, gathered pace, tore the supine owner's clothing and yawed into a hangar where it hit other aircraft. Inside the hangar its propeller struck and injured a person who had seen the 'runaway' aircraft coming towards him and had sought refuge there

SAFETY RECOMMENDATION - 2006-057

The UK Civil Aviation Authority should take forward a recommendation to the Joint Aviation Authorities that they should revise the training syllabus for the JAR Private Pilot's Licence (Aeroplanes) to include training on all aspects of propeller safety.

Response

The Civil Aviation Authority accepts this recommendation, and will put forward the proposals as a working paper to the JAA Licensing Sectorial Team.

Propeller safety is now included in the JAR-FCL syllabus for both PPL(A) and FI(A).

Status - Accepted -closed

StampeSV4C(G)	**Redhill Aerodrome, Surrey**	**19-Nov-2005**	**Accident**

AAIB Bulletin:
FACTOR: F25/2006

Synopsis

The aircraft struck a marker board whilst taxiing after landing. The marker board, which indicated the hold position for the displaced threshold of Runway 19, was correctly positioned and properly notified to aerodrome users. The pilot acknowledged that his lookout from the rear cockpit of the tailwheel aircraft had been inadequate. However, the investigation also revealed that communication between the aerodrome authority and the home-based flying organisations was not.

SAFETY RECOMMENDATION - 2006-044

It is recommended that Redhill Aerodrome Ltd establishes a programme of regular formal meetings with flying organisations based at the aerodrome to discuss and monitor operating procedures.

Response

Redhill Aerodrome operated a Users' Committee for many years this included the based flying training organisations and a representative private owner. In the period up to the end of 2004 no items were put forward by the flying training organisations for the agendas and the meetings were suspended. The aircraft concerned in this accident is operated by a small group and they would not have been represented on this committee.

A procedure was introduced whereby any changes to Aerodrome procedures or layouts are distributed by e-mail to all based operators, this includes all private owners and group operated aircraft. This was seen as a better way to ensure that all pilots using the Aerodrome were aware of changes. They are also able to e-mail their comments directly to me.

Redhill Aerodrome Limited will consult with the based flying training organisations as to the benefits of re-establishing the Users' Committee in addition to the consultation/notification presently undertaken by e-mail and the Redhill Aerodrome we site.

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Redhill Aerodrome Limited will consult with the based flying training organisations as to the benefits of re-establishing the Users' Committee in addition to the consultation/notification presently undertaken by email and the Redhill Aerodrome web site.

Status - Accepted - closed

Cessna 152	**Moreton in Marsh, Gloucestershire**	**18-Dec-2005**	**Accident**

AAIB Bulletin: 11/2006
FACTOR: F47/2006

Synopsis

A student pilot was flying Cessna 152, G-BNXC, on a cross-country navigation exercise. His planned route took the aircraft overhead the disused airfield at Moreton in Marsh. The pilot of the Aerotechnik EV-97 Eurostar, G-GHEE, had a passenger on board and flew towards Moreton in Marsh where his passenger intended taking photographs. After the Eurostar had completed about 270º of turn over the disused airfield, it rolled out on a northerly heading and very soon afterwards collided with the Cessna 152 which was flying on a west-south-westerly track. The weather was fine with good visibility. The investigation concluded that the accident was caused by neither pilot seeing the other aircraft in sufficient time to take effective avoiding action. One safety recommendation was made, concerning guidance on medication.

SAFETY RECOMMENDATION - 2006-117

The CAA should review the guidance that is contained in LASORS, such that the regulations regarding occasional medication, rather than just the regular use of medication, are emphasised.

Response

The CAA accepts this recommendation and the wording of LASORS has been revised for the 2007 edition with the following text:

MEDICATION

Pilots taking medication on a regular basis should check with their AMEs to see whether the medication or the condition for which it is being taken, are acceptable for aviation duties. This includes non-prescription medication (also known as 'over the counter medication')

Status - Accepted - closed

Socata TB10	**Nottingham Airport (Tollerton)**	**16-Feb-2006**	**Accident**

AAIB Bulletin: S2/2006
FACTOR: F50/2006

Synopsis

During a touch and go landing, as power was applied a propeller blade detached. The resulting imbalance caused both the crankshaft to fracture (allowing the propeller to be released) and the engine to partly separate from the structure. Metallurgical examination indicated the presence of fatigue in the propeller hub. The location and nature of the fatigue was similar to that described in an existing Service Bulletin, however that document has not yet been classified as mandatory by the FAA. Two Safety Recommendations are made.

SAFETY RECOMMENDATION - 2006-046

It is recommended that the CAA take immediate action to alert M3 organisations and other relevant maintainers in the UK to the existence and importance of Hartzell Service Bulletin HC-SB-61-269.

Response

The CAA accepts this recommendation insofar as it relates to the need to alert relevant persons to the existence and importance of Hartzell Service Bulletin HC-SB-61-269. To that end the CAA issued, on 30 March 2006, a letter to relevant UK operators strongly recommending that owners of aircraft affected by Hartzell Service Bulletin HC-SB-61-269 arrange for an eddy current inspection to be performed in accordance with the Service Bulletin instructions as soon as possible.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-047

It is recommended that the FAA take urgent steps to issue an Airworthiness Directive making the inspection requirements of Hartzell Service Bulletin HC-SB-61-269 mandatory.

Response

A final rule; request for comments airworthiness directive (AD), regarding this safety recommendation, issued August 30, 2006 and published in the Federal Register September 8, 2006 (71 FR 52994)

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-048

It is recommended that the EASA take urgent steps to issue an Airworthiness Directive making the inspection requirements of Hartzell Service Bulletin HC-SB-61-269 mandatory.

Response

On 3 May 2006 the EASA responded to Safety Recommendation 2006-048 by issuing Airworthiness Directive No. 2006-0092, which mandated the inspection procedure or optional terminating action (replacement of the hub) described in the Hartzell Service Bulletin.

Status - Accepted - closed

Vans RV-9A	**Bicester Airfield, Oxfordshire**	**16-Apr-2006**	**Accident**

AAIB Bulletin: 3/2007
FACTOR: F12/2007

Synopsis

Whilst initiating the landing flare the dual cockpit control stick became disconnected from the flying control system and the aircraft pitched nose down and impacted the grass runway damaging the nose landing gear, propeller and engine mountings and cowling.

SAFETY RECOMMENDATION - 2006-110

It is recommended to Van's Aircraft, the producer of the drawings and aircraft kits, that they modify their drawings for the RV-7, -7A, -9 and -9A models to introduce a positive attachment of the dual cockpit control stick to the aircraft's flying control system.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-111

It is recommended to Van's Aircraft, the producer of the drawings and aircraft kits, that they issue a Service Bulletin recommending to all owners of RV-7, -7A, -9 and -9A aircraft that they positively attach the dual control stick to the aircraft's flying control system.

Status - Response Awaited - open

Europa	**Wickenby, near Market Rasen, Lincolnshire**	**27-May-2006**	**Accident**

AAIB Bulletin: 3/2007
FACTOR: F18/2007

Synopsis

After a normal touchdown, on both main wheels followed by the nose wheel, the nose wheel shimmied and departed the aircraft, together with the nose wheel fork. The lower cowl, propeller, nose gear leg, nose gear mount and main gear fairings were all subsequently damaged. The pilot and the passenger were uninjured.

A scroll pin which retained the nose wheel fork assembly had failed, although the precise cause of this failure could not be determined.

SAFETY RECOMMENDATION - 2006-146

It is recommended that Europa Aircraft Ltd. review the design, manufacture and recommended maintenance of the nose gear fork assembly of the tri-gear Europa to improve the integrity of the nose wheel fork attachment.

Response

Prior to finalising this report for publication, and following the distribution of a draft to various parties including Europa, for comment, Europa has advised the AAIB that the design of the pivot shaft has been revised. It has been modified to increase the length of insertion in the casting and thereby reduce the load on the scroll pin. Also, the tolerances of the shaft and casting bore will be reviewed, and a new material has been specified for the casting. No change to the maintenance requirements was considered necessary by Europa.

Status - Accepted - closed

Diamond HK 36 TC	Enstone Airfield, Oxfordshire	12-Jun-2006	Accident

AAIB Bulletin: 5/2007
FACTOR: F16/2007

Synopsis

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

SAFETY RECOMMENDATION - 2006-113

It is recommended that Diamond Aircraft Industries, the aircraft manufacturer, issue a service bulletin for HK36-TC aircraft requiring immediate and recurring inspections for cracking of the nose landing gear wheel fork arms.

Response Awaited - open

SAFETY RECOMMENDATION - 2006-114

It is recommended that Diamond Aircraft Industries, the aircraft manufacturer, fully appraise the sulphuric acid anodising of the nose landing gear wheel fork arms that are fitted to HK36-TC aircraft for its effect on fatigue crack resistance.

Response Awaited – open

SAFETY RECOMMENDATION - 2006-115

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

Response Awaited - open

Microlights

Team Himax 1700R	**Vale of Neath Gliding Club, Mount Road, Rhigos, Aberdare.**	**30-Aug-2005**	**Accident**

AAIB Bulletin: 4/2006
FACTOR: F21/2006

Synopsis

The aircraft took off, carried out an abbreviated circuit and stalled at a low height on the base turn. The ground impact was in a steep nose down attitude and the pilot suffered serious injuries. One safety recommendation was made.

SAFETY RECOMMENDATION - 2006-006

It is recommended that the Popular Flying Association reviews the design of the attachments of the shoulder harness and its securing cable in the rear fuselage of Team Himax and Minimax aircraft, to reduce the possibility of the shoulder harnesses slipping off the pilot's shoulders and to ensure that all bends in the restraining cable are of greater than the minimum bend radius recommended by the cable manufacturer and not routed over sharp edges.

Status - Response Awaited - open

Raven X	**North of Cliffe, Kent**	**09-Jun-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 Awaited - open

Flight Design CT2K	**High Wych, near Sawbridgeworth, Hertfordshire**	**10-Jun-2006**	**Accident**

AAIB Bulletin: 1/2007
FACTOR: F7/2007

Synopsis

Whilst in a steep continuous orbit to the left at relatively low level, the engine stopped suddenly, leaving little time for the pilot to plan for a forced landing. After touching down in a field of standing corn, the aircraft flipped over on to its back. The occupants were uninjured and vacated the aircraft through the doors.

SAFETY RECOMMENDATION - 2006-105

It is recommended that the British Civil Airworthiness Requirements Section S Working Group of the Civil Aviation Authority, review the Section S Fuel System design requirements to ensure that any present or future requirements are applied in a consistent manner to UK registered aircraft.

Response

The CAA accepts this recommendation. The CAA, in conjunction with the BCAR S Working Group, has completed the review of the BCAR Section S Fuel Systems design requirements. Changes to the requirements and additional guidance material have been developed with the aim of producing a consistent approach for UK registered aircraft. These, and other changes to BCAR S, will be finalised at the next meeting of the BCAR S Working Group in October, with the intent of issuing an Amendment paper to CAA for formal consultation by the end of 2007.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-106

It is recommended that P&M Aviation review the fuel system design of the CT2K aircraft and consider making available to UK owners a modification that makes the fuel system the same as that approved in the CTSW version of the aircraft, ie, the ability to feed fuel to the engine from both fuel tanks simultaneously.

Response

In response to the issues raised in this report, the BMAA have stated:

'….the BCAR Section S working group met on 3/8/06 and an amendment to S951 was discussed with a view to clarifying the situation, as per recommendation 2006-105. A draft form of wording has been put together which is likely to go into the next revision paper for Section S, and addresses the issues of tanks effectively interconnected by atmospheric pressure.'

Status - Superceded - closed

Skyranger 912(2)	Near Eshott Airfield, Northumberland	18-Jun-2006	Accident

AAIB Bulletin: 11/2006
FACTOR: F48/2006

Synopsis

The engine failed shortly after takeoff and, in the ensuing forced landing, the aircraft stuck a fence and pitched inverted, causing minor injuries to the pilot and moderate damage to the aircraft. It was quickly established that the engine oil filter had become detached, allowing oil to escape and the engine to seize from oil starvation.

The oil filter had been replaced the previous day with a 'FRAM' automotive oil filter, instead of the Rotax-approved part. The FRAM filter has a slightly larger diameter thread which makes it incompatible for use on this type of engine.

SAFETY RECOMMENDATION - 2006-107

The Popular Flying Association should remind owners of Rotax-powered aircraft that only the engine manufacturer's specified oil filters are approved for installation on their engines.

Response

Email from Ken Craigie:

In order to enact our response to Safety Recommendation 2006-107, I anticipate providing guidance on the matter in the next Popular Flying magazine (to be published end of October).

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-108

The British Microlight Aircraft Association should remind owners of Rotax-powered aircraft that only the engine manufacturer's specified oil filters are approved for installation on their engines.

Response

In response we intend to publish a reminder in the next issue of 'Microlight Flying' as per text below:

"We remind owners of Rotax-powered aircraft that the only parts approved by Rotax for use in their engines are genuine Rotax parts. Owners wishing to use non-Rotax parts should ensure that they have either been approved for use by the aircraft manufacturer as part of the original aircraft design or as a modification, or been approved as a modification through a relevant body such as the BMAA or PFA."

Status - Accepted - closed

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

AS355F1	**Hurstbourne Tarrant, near Andover, Hampshire**	**02-Dec-2003**	**Accident**

AAIB Bulletin: 7/2006
FACTOR: N/A

Synopsis

The helicopter was engaged on a post-maintenance test-flight following the fitment of a newly overhauled main rotor gearbox and combining gearbox. Eyewitnesses heard unusual noises coming from the helicopter before the tail boom apparently folded forward around the cabin. The helicopter then fell to the ground, catching fire on impact. All three occupants received fatal injuries. Examination showed that the two gearboxes and the main rotor had detached before impact. Subsequent investigation showed that the left freewheel showed clear evidence of slippage under load; the right freewheel also showed signs of slippage but not to the same extent.

It is concluded that a series of freewheel slippages followed by aggressive re-engagements led to the structural failure. The reasons for the slippage however, cannot be proven conclusively. Although it was found that the rollers forming part of the freewheel mechanism had come from a manufactured batch that had been coated using an incorrect process, no laboratory testing could reproduce any greater tendency for such a coating to cause slippage. The helicopter manufacturer recorded five incidents of slippage under load, coinciding with the introduction of rollers from this batch. Satisfactory performance of the freewheels resumed following the removal from service of the incorrectly coated batch of rollers.

SAFETY RECOMMENDATION - 2006-070

It is recommended that the European Aviation Safety Agency, together with Eurocopter, review the design of the AS355 helicopter freewheel to ascertain whether it can be made more tolerant of variations in dimension or tribological performance of its components.

Response

The EASA accepts this recommendation. Eurocopter has now completed a review of the AS355 freewheel design. This review includes an in service experience review, a comparison of the AS355 design with other freewheel designs used on Eurocopter helicopters and some freewheel tests with deliberately contaminated lubricating oil. In summary the results of this review showed:

1) Service experience is good for freewheels that conform to the approved design.

2) The design of the AS355 freewheel is similar to that of freewheels used on other Eurocopter helicopters and has similar design tolerances. Because of the nature of operation of freewheels it is necessary for design tolerances to be tight.

3) Testing has shown an acceptable tolerance to lubricant contamination and no slippage was observed during the tests performed.

On the basis of this review, EASA and Eurocopter believe that the freewheel design used on the AS355 has a tolerance to manufacturing variations similar to other freewheel designs. In order to reduce the risk of further events of freewheel slippage, Eurocopter has taken the following measures:

o For new freewheels, control of the chemical characteristics and of the thickness of the coating of the rollers will be verified by destructive testing of one roller from each manufacturing batch.

o For in-service freewheels, all rollers will be exchanged during overhaul and a rejection criteria will be introduced for the inspection of freewheel ramps.

In addition to the above actions, EASA is working with Eurocopter to identify any practicable measures which could be taken to reduce the severity of the effects which can result from freewheel slippage on the AS355F1 helicopter.

Eurocopter - No response received

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-071

It is recommended that the European Aviation Safety Agency ensure that manufacturers and those responsible for regulatory oversight of manufacturers, document the decision-making process resulting from identification of an in-service problem through to issuing airworthiness action.

Response

The recommendation is noted. Assurance is provided by periodic audit of approved manufacturers to ensure compliance with published implementing rules.

Status - Accepted – closed

Bell 206B	**3 nm north-east of Coupar Angus. Tayside**	**12-Dec-2005**	**Accident**

AAIB Bulletin: 12/2006
FACTOR: F49/2006

Synopsis

The pilot of the helicopter and an observer were carrying out a pipeline inspection flight between Cumbernauld Airport and Aberdeen. Approximately 45 minutes after takeoff, the helicopter descended to low level where debris was seen to fall from its aft section. Control of the helicopter was lost and it struck the ground, fatally injuring both occupants. The investigation found that the vertical stabiliser had detached from the tail boom and struck the tail rotor. This subsequently caused the tail rotor and associated gearbox to become detached from the tail boom, resulting in the helicopter's centre of gravity moving outside controllable limits.

The cause of the fin detachment was the failure, in fatigue, of the fin attachment supports. It was concluded that this was the result of insufficient torque in the fin attachment fasteners.

SAFETY RECOMMENDATION - 2006-039

It is recommended that the United Kingdom Civil Aviation Authority require a one-off inspection, within a reasonable timescale, of the vertical fin supports of all Bell and Agusta-Bell 206 series helicopters on the UK register. The inspection should be conducted with the fin removed in order to obtain adequate access.

Response

The CAA accepts the AAIB recommendation for a one-off inspection of the Bell and Agusta-Bell 206 series helicopters on the UK register insofar as this supports the AAIB's need to gather information to assist the investigation. The CAA proposes to issue a Letter to Operators (LTO) that

would request such an inspection at the next 100 hour maintenance input. The LTO will leave the inspection to be at the operator's discretion, since it is the responsibility of Transport Canada and EASA to determine whether the inspection should be made mandatory.

The Recommendation was received in February and the LTO was subsequently published in June 2006.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-040

It is recommended that Transport Canada, the European Aviation Safety Agency and the US Federal Aviation Administration each consider requiring a one-off inspection, within a reasonable timescale, of the vertical fin supports of all Bell and Agusta-Bell 206 series helicopters within their jurisdictions.

Response

We have evaluated the safety recommendation that the FAA should require a one-off inspection of the vertical fin supports of all Bell 206 series helicopters.

Transport Canada, the Authority for the State of Design, has indicated they plan to issue an Airworthines Directive (AD). That AD would require a one-time inspection of the Bell 206 series forged tail boom vertical fin attachment to ensure that paint is not present. That AD wpould also incorporate an earlier Bell Helicopter Alert Service Bulletin 206-91-60 and the FAA AD 92-09-07 requirements addressing the proper fitment of the vertical fins with external doublers.

Once Transport Canada issues this AD, we will determine the need and the contents for an AD addressing the U.S.-registered Bell Model 206 helicopters.

Status - Accepted - closed

Rotorcraft = or < 2,250kg MTWA

Ken Brock KB-2	**Sutton Bank Gliding Club, Thirsk, North Yorkshire**	**15-Dec-2004**	**Accident**

AAIB Bulletin: 9/2005
FACTOR: F34/2005

Synopsis

Shortly after take-off from a grass strip at Sutton Bank Airfield, the gyroplane developed a nose low attitude and descended over the edge of an escarpment. Its engine noise was heard to reduce and a 'crunch' noise was heard by witnesses as it began its descent. The wreckage of the gyroplane was discovered at the base of the escarpment where the pilot had been fatally injured.

SAFETY RECOMMENDATION - 2005-064

It is recommended that the Popular Flying Association (PFA) emphasise to all PFA Inspectors, and owners of Brock KB-2 and similar gyroplanes, the particular importance of checking the security of all seat attachments and fittings and, where looseness is found, that no cracking or deformation of the airframe or seat attachments is present.

Response

Extract from Gyroplane Section of SPARS, published in September 2005:

As is typical for this sort of gyroplane and for many others including Bensen types, the pilot's seat doubles up as a fuel tank and is made from a moulded plastic material. It is supported underneath and fastened to the mast and keel by suitable structure and the top of the seat is attached to the mast by a suitable bracket. This bracket was found to have failed with the left side of this bracket having failed by fatigue cracking prior to the accident. The right side had partially failed in fatigue, and then completely failed in overload. It was not possible to determine if the final overload failure of the right side occurred prior to, or as a consequence of the accident. There was good evidence of long term fretting in a number of areas of the seat attachment points, looseness of the main load bearing rear crossbeam for the seat, and vertical ovalisation of the crossbar attachment assembly allowed the left-hand end of the crossbar to contact and restrict the movement of the left cyclic control rod which, together with the seat becoming insecure, could have led to a loss of control.

It is therefore recommended that owners and inspectors of all single-seat gyroplanes pay particular attention to this area during their regular, annual and pre-flight inspections. It should be ensured that all seat supporting structure and hardware is in good condition and secure with no looseness, cracking or deformation of the airframe, seat or attachments.

Status - Accepted - closed

Bell 206B Jetranger III-B	**Priors Park Wood, 5nm south of Taunton, Somerset**	**22-Jan-2005**	**Accident**

AAIB Bulletin: 1/2006
FACTOR: N/A

Synopsis

The pilot had planned to fly with some friends from Staverton Airport, near Gloucester, to a private landing site in the Torbay area but, due to deteriorating weather, landed at Topsham to the south of Exeter Airport. After a period of several hours, the weather had not improved so the pilot decided to return to Staverton. Although on the outbound trip he had routed south via the Bristol Channel and the M5 corridor, an area of low lying terrain, he elected to return to Staverton via Sidmouth, and communicated this to Exeter ATC, advising them that he would be flying at an altitude of 900 ft. As he approached Sidmouth, he then informed Exeter that he was going to go north towards Wellington and Taunton. This route would take the helicopter over the Blackdown Hills, which rise to a height of some 1,000 ft amsl. Witnesses in an area approximately 5nm south of Taunton generally heard, but did not clearly see, a low flying helicopter and one heard a 'bang'. A subsequent search and rescue effort failed to locate the helicopter, due to very poor weather conditions, and it was found by a dog walker the following morning. All four occupants had received fatal injuries in the accident. No pre-accident defects were found during the wreckage examination.

SAFETY RECOMMENDATION - 2005-100

The European Aviation Safety Agency should promote research into the design and development of inexpensive, lightweight, airborne flight data and voice recording equipment.

Response

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

Status - Accepted - closed

AS350B3 Eurocopter	**Oxford Kidlington Airport**	**18-Oct-2004**	**Accident**

AAIB Bulletin: 5/2006
FACTOR: N/A

Synopsis

An instructor and student were carrying out a simulated hydraulic failure approach and landing. The student was about to carry out a run-on landing when she experienced difficulty overcoming the control feedback forces. The instructor took control and attempted to climb the helicopter but it rolled to the left and struck the ground. No evidence of pre-impact mechanical faults was found but the issue of heavy control forces in manual flight was well understood by the helicopter manufacturer. Appropriate procedures, advice and guidance had been issued, both within the helicopter's Flight Manual and through supplementary documents, but the pilots involved had neither followed the Flight Manual procedure accurately nor seen all the relevant supplementary guidance and information. One safety recommendation was made about the distribution of handling advice and information to pilots.

SAFETY RECOMMENDATION - 2006-005

The European Aviation Safety Agency should encourage all aircraft manufacturers to make available, for an appropriate period, via an Internet website, interim technical instructions, handling advice and similar safety-related information, until the information has been incorporated into the appropriate manuals by formal amendment.

Response

The EASA rejects this recommendation. Assuming that the scope of this recommmendation is restricted to advance publication of material intended for future inclusion in Flight Manuals, then EASA's position is as follows:

Prior to approval of a Flight Manual amendment it is sometimes necessary to provide advanced notification of the subject matter to affected owners and operators. It is the responsibility of the aircraft Type Certificate holder to produce and distribute such material. In addition to this action, should the certificating Authority consider that a proposed Flight Manual amendment addresses a significant safety issue, then this would also become the subject of an Airworthiness Directive.

Status - Rejected

SA342J Gazelle	**Ockington Farm Strip, near Dymock, Gloucestershire**	**08-May-2005**	**Accident**

AAIB Bulletin: 8/2006
FACTOR: N/A

Synopsis

After making an approach to hover at a private landing site, the pilot initiated a spot turn to the left. After turning through 90º the rate of yaw increased and the pilot, believing he had lost control of the helicopter due to a strong gust of wind, increased collective pitch. The pilot then became disorientated and reduced collective pitch. The helicopter hit the roof of an adjacent building, the tail boom detached and the main body of the helicopter fell to the ground. Both occupants were seriously injured.

SAFETY RECOMMENDATION - 2006-066

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

Response

The EASA disagrees with the recommendations as certification specifications VLR/27/29.785, all contain requirements for shoulder harnesses (upper torso restraint).

Status - Rejected

Robinson R22 BETA	**Nr Prince Consort Buoy, half mile off shore from Cowes, IOW**	**26-Aug-2005**	**Accident**

AAIB Bulletin: 4/2006
FACTOR: F20/2006

Synopsis

Whilst flying north of Cowes on a private sightseeing flight, the pilot heard a loud bang and found that the helicopter was no longer flying normally. He immediately entered an autorotation and was able to make a controlled touchdown beside the Price Consort buoy, at the entrance to Cowes harbour. He and his passenger were rescued almost immediately. The helicopter sank quickly and was not recovered. The symptoms reported by the pilot were consistent with the failure of one of the two drive belts transmitting power from the engine to the main transmission. One safety recommendation has been made regarding advice to pilots in the event of ditching.

SAFETY RECOMMENDATION - 2006-004

The Federal Aviation Administration should ensure that Robinson Helicopter Corporation includes, in each of the ditching procedures published in the Emergency Procedures section of the R22 Pilot's Operating Handbook, an instruction to unlatch the doors prior to touchdown.

Response

It is Robinson Helicopter Company's intention to implement the AAIB Safety Recommendation No. 2006-004 through the revision of the power-off ditching emergency procedures in the R22 Pilot's Operating Handbook. Step one of the emergency procedures will be revised to read: "Follow same procedures as for power failure over land until contacting water. If time permits, unlatch doors prior to water contact." This revision will be incorporated with the next revision to the R22 Pilot's Operating Handbook.

Status - Accepted - closed

Schweizer 269C	**Putts Corner, Honiton, Devon**	**4-Sep-2005**	**Accident**

AAIB Bulletin: 9/2006
FACTOR: F35/2006

Synopsis

The pilot and a passenger were returning to Dunkeswell after a short pleasure flight when, at approximately 6 nautical miles from the airfield and at a height of 650ft, the pilot became aware that the helicopter would not climb in response to collective inputs. After clearing an approaching ridge line the pilot elected to carry out a precautionary landing in a large field ahead, with the intention of investigating the problem on the ground. During the deceleration and descent into the field, the rate of descent increased rapidly, causing the helicopter to land heavily and roll over. The passenger sustained injuries in the roll-over and was assisted from the wreckage by the pilot. One safety recommendation has been made as a result of this investigation.

SAFETY RECOMMENDATION - 2006-064

It is recommended that the Federal Aviation Administration require the Schweizer Aircraft Corporation to review modification SA269K-101-1, relating to the fuel tank vent system on the Schweizer 269 helicopter, to further reduce the possibility of fuel escaping from the fuel tank vent system in the event of the helicopter rolling over.

Response

After reviewing the accident report and the analysis, the FAA do not believe that given the geometry of the accident aircraft, this leaking fuel would reach any portion of the exhaust system or any other ignition source. A query of the database for Model 269 accidents shows no incidents of a postcrash fire involving aircraft with an SA269K-101-1 modification installed.

Also, the AAIB reports "the fuel system was tested using a smaller header tank of different rigidity to the helicopter fuel tanks and, as such, the duration of any valve 'shuttling', and the rate of release on the helicopter may differ from test results." This test was not representative of the certified installation. Therefore, we believe more rigorous testing would be needed to show the exact amount of fuel leakage under these conditions.

We believe that fuel tank vent system is performing as designed and that the service history does not support a redesigned or any any further retesting of the fuel system. Therefore, we do not plan any further action on this recommendation.

Status - Rejected

RAF 2000 GTX-SE	**West of Simon's Stone, Colliford Lake, Bodmin Moor**	**12-Jun-2006**	**Accident**

AAIB Bulletin: S6/2006
FACTOR: N/A

Synopsis

The gyroplane was being flown from Watchford Farm in Devon to Bodmin airfield in Cornwall by the pilot who was also the owner and builder. Approximately 2.8 nm north-east of Bodmin Airfield at a height of about 450 ft agl, a witness saw the main rotor blades stop. The gyroplane fell to the ground fatally injuring the pilot. The main rotor blades had contacted the vertical stabiliser, propeller and rudder.

During the course of this investigation a programme of test flying was conducted by the UK CAA, primarily as a result of an earlier accident. Undesirable handling characteristics of the RAF 2000 were identified. As a result the CAA has published Mandatory Permit Directive MPD 2006-013, restricting operation of the type.

The investigation has identified an undiagnosed medical problem, pre-impact mechanical interference of the control runs and undesirable handing characteristics of the gyroplane, but has not identified the precise cause of the accident. However any combination of these factors could have caused the accident. Four Safety Recommendations have been made.

SAFETY RECOMMENDATION - 2006-087

It is recommended that the Popular Flying Association takes the necessary immediate steps to ensure that a Duplicate Inspection is carried out following the embodiment of MPD 2006-003 on the RAF 2000.

Response

The PFA has accepted this recommendation and has taken immediate action to ensure that duplicate inspections are carried out.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-088

It is recommended that the Popular Flying Association takes the necessary immediate steps to ensure that the safety chain connected to the trim springs on the RAF 2000 does not jam the moving parts in the control system.

Response

The PFA has amended the Type Acceptance Data Sheet (TADS) for the RAF 2000 at issue 4 dated 14 December 2006 and at issue 5 dated 2 July 2007 to include special inspection points dealing with the trim spring and pushrod abrasion issues.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-090

It is recommended that the Popular Flying Association consider introducing a modification to the lower control rods of the RAF 2000 to protect them from being damaged by the trim springs.

Response

The PFA has amended the Type Acceptance Data Sheet (TADS) for the RAF 2000 at issue 4 dated 14 December 2006 and at issue 5 dated 2 July 2007 to include special inspection points dealing with the trim spring and pushrod abrasion issues.

Status - Accepted - closed

Others

Puchacz Glider	**NW of Husbands Bosworth Village near canal.**	**18-Jan-2004**	**Accident**

AAIB Bulletin: 1/2005
FACTOR: F3/2005

Synopsis

The flight, with an instructor and student on-board, was planned from Husbands Bosworth. Although no-one overheard the pre-flight briefing, it is likely that the primary aim of the flight was spinning training. Witnesses saw the aircraft enter a spin at around 1,500 feet agl and continue in a normal, steeply nose-down, spin with no significant change in the flight path before it impacted the ground. A number of likely explanations for the accident were considered but no conclusive evidence was found. The investigation was unable to dismiss the possibility of pilot incapacitation or of a control restriction/malfunction.

SAFETY RECOMMENDATION - 2004-065

It is recommended that the British Gliding Association require all Gliding Clubs to ensure that instructors and pilots establish and brief students on, minimum entry heights, minimum recovery initiation heights and minimum recovery heights, whenever intentional spinning is planned. These heights should take into account the characteristics of the glider type being flown, the experience and ability of the crew, and the possible need to abandon the glider.

Response

Reviewed during 2005. Changes incorporated into the BGA assistant instructor course. Revision incorporated in BGA instructor manual. Closed 22 Oct 2005

Status - Accepted - closed

SAFETY RECOMMENDATION - 2004-066

The Civil Aviation Authority should review the National Private Pilot's Licence medical standards to confirm that the combination of the Driver and Vehicle Licensing Agency (DVLA) Scheme and National Private Pilot's Licence Information Sheets adequately address the risk of medically induced distraction or incapacitation for instructors and pilots authorised to carry passengers.

Response

The CAA accepts this recommendation. The CAA Safety Regulation Group (SRG) Safety Plan contains a Safety Intervention which requires an annual review of the National Private Pilot Licence (NPPL) Medical Standards with a report to the SRG Executive Committee. Two reports have been given since the Licence was introduced, and the 2005 report (due in March) will incorporate this recommendation to review the NPPL medical standards to confirm that they adequately address the risk of medically induced distraction or incapacitation for instructors and pilots authorised to carry passengers.

CAA Action

The report was presented to the Executive Committee of the CAA on Monday 21 February 2005.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2004-067

It is recommended that the British Gliding Association should undertake a review of their medical standard requirements to assess whether it remains appropriate for glider pilots with any valid instructional ratings to give flying instruction in gliders whilst only in possession of a valid DVLA Class 2 Medical Declaration.

Response

Continuous review in place as part of normal quality process. Closed 07 Feb 2005.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2004-068

It is recommended that the British Gliding Association require regular inspections to be conducted on the left wing bevel gear support structure associated with the airbrake actuation system of the SZD Puchacz glider, paying particular attention to the bond between the gear support web and the inner face of the wing root rib.

Response

BGA TNS 10/04 issued. Type Certificate holder informed in writing. BGA inspectors informed. Closed 07 Feb 2005

Status - Accepted - closed

Schempp-Hirth Ventus cT Skylark	**Approximately 1.4 nm west of Lasham Airfield**	**26-Apr-2004**	**Accident**

AAIB Bulletin: 5/2005
FACTOR: F23/2005

Synopsis

The Ventus and Skylark gliders collided while gliding at approximately 4,000 feet agl a short distance west of Lasham Airfield. Both were severely damaged. Visibility was generally in excess of 5 km, but was variable and decreased with height. The investigation concluded that the gliders had approached each other about 28 degrees off head-on, probably while both were flying straight and level. Following the collision, the pilot of the Skylark parachuted to the ground with no injuries. The pilot of the Ventus was injured in the collision and was still in his aircraft when the main wreckage impacted the ground.

Safety recommendations have been made regarding international co-operation and action to improve the conspicuity of gliders and light aircraft, a study to assess means of improving light aircraft conspicuity, the adoption of measures likely to be cost-effective and operational advice to glider pilots concerning flight in IMC or marginal VMC conditions.

SAFETY RECOMMENDATION - 2005-046

The British Gliding Association should review its operational advice to and training for glider pilots with respect to flying in IMC and marginal VMC conditions.

Response

The recommendation was accepted by the BGA board and that review was completed in 2006

Status - Accepted - closed

Glider – K13	**Booker, Wycombe Air Park**	**06-Aug-2004**	**Accident**

AAIB Bulletin: 8/2005
FACTOR: F31/2005

Synopsis

The accident occurred during a 'trial lesson'. The glider was a tandem seat aircraft and the instructor gave a standard brief to his passenger, which included procedures for handing over control and when the student would be invited to take over control. The importance of the student staying away from the controls at other times was emphasised. The student had a camera with him which he placed on the floor between his feet.

The launch was conducted using a tug aircraft and the takeoff proceeded normally. Soon after the glider became airborne the instructor noticed that he was unable to move the control column forward. The student confirmed that he was not touching the controls. The glider continued to climb at an increasingly steep angle. As the tug pilot noticed the increasing force on the tow he released the tow.

The glider was seen to rise steeply to about 100 feet and enter a descending turn to the left. The instructor managed to level the wings and as the glider pitched up again it struck the ground, bounced and became airborne and then finally struck the ground in an almost vertical attitude left wing first. Both occupants were seriously injured.

SAFETY RECOMMENDATION - 2005-077

It is recommended that the British Gliding Association reinforce the message that there must be no loose articles in aircraft when they are being flown.

Response

The recommendation has been accepted by the board and actioned during 2006. The hazards associated with and control of loose objects has been reinforced in three key areas; airworthiness management, pilot and instructor training and briefing of crew.

Status - Accepted - closed

LS1F Glider	**Near Husbands Bosworth Airfield, Leicestershire**	**09-Aug-2005**	**Accident**

AAIB Bulletin: 2/2007
FACTOR: F8/2007

Synopsis

At a height of approximately 350 ft during a winch launch, the glider was observed to be climbing at a slightly steeper than normal angle. The glider's airspeed was perceived to be abnormally slow and the winch engine lost rpm. The winch operator adjusted the winch throttle setting to allow the engine to accelerate but this had little effect. The glider stalled, yawed to the right and entered a right-hand spin; during this manoeuvre the cable separated from the glider. Height was insufficient for recovery and the glider struck the ground whilst spinning. The impact parameters were not survivable.

During the launch the glider's airspeed reduced until it stalled. The load on the winch cable was such that the winch was unable to accelerate. As the glider stalled and yawed to the right, the load on the cable reduced and the winch engine accelerated but slack in the cable probably allowed it to 'back release' from the glider.

Before ground impact the glider was structurally intact and properly rigged. The ASI was functional and appeared accurate when tested. There was no evidence that the pilot was incapacitated but it is possible that his shoulder harness straps were improperly secured.

SAFETY RECOMMENDATION - 2006-119

The British Gliding Association should seek approval from the Civil Aviation Authority for the wording of the Association's competition rules in respect of the minimum height for finishing a race.

Response

BGA competition rules revised for 2007 following meeting with CAA GA specialists. Review of existing situation at end of 2007.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-120

The Civil Aviation Authority should clarify and publicise whether permission from the Authority is required before exemption from the 500 feet low-flying rule in accordance with Rule 5 (3)(f) is applicable.

Response

The CAA accepts this recommendation. In the short term, the CAA is discussing, with the BGA, a rewording of their rules concerning the minimum acceptable heights for finishing races (Safety Recommendation 2006-119 addressed to the BGA refers). In the long term, the CAA intends to change Rule 5 (3)(f), as it is unsatisfactory in its present form.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-121

The International Gliding Commission should, through national gliding associations, require, competition team coaches to include techniques for the safe conduct of race finishes within their coaching sessions.

Response

The FAI Gliding Commission (IGC) met recently here in Lausanne and devoted substantial time to your report and recommendation and to the wider implications of this accident. After full discussion, the plenary assembly unanimously agreed to adopt the following measures:

1. To endorse, for application internationally, the BGA's new requirements namely:

a) Regardless of the position of any finish line, glider approaches towards the airfield should prescribe a descending flight profile (other than to go-around where necessary), and;

b) during the approach the landing area should be in the pilot's sight, and:

c) the approach should cross the airfield boundary at a height which cannot endanger persons (seen or unseen), vessels, vehicles or structures.

2. To send a formal letter to all national gliding associations and FAI Member organisations requiring competition team coaches to include techniques for the safe conduct of race finishes within their coaching sessions (your recommendation 2006-121).

3. To conduct an immediate review of Annex A to the FAI Sporting Code for Gliding ("RULES FOR WORLD AND CONTINENTAL SOARING CHAMPIONSHIPS") and to incorporate at an appropriate place in those rules the BGA requirements in paragraph 1 above.

4. To include guidance on this subject in the notes sent to FAI Stewards and to Championship Directors.

5. To include in the Annex A "Rules for Championship" a definition of "hazardous flying" that would embrace failure to confirm with the approach profile defined in the new BGA rules, thereby allowing the application of penalties up to and including disqualification from the contest.

The implementation of these measures has already started and they will be in force at all future FAI gliding championships.

The International Gliding Commission recorded its appreciation for the thoroughness and objectivity of your report, and we thank you for this.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-122

The British Gliding Association should comply with Civil Aviation Authority Aeronautical information Circular 86/2004 and include, in their notifications to the Authority, the frequencies to be used for the competition.

Response

Process put in place. Closed 6 Mar 2007

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-123

The Civil Aviation Authority should instruct National Air Traffic Services Ltd, the organisation that manages the UK's Aeronautical Information Section, to endeavour to include any non-standard radio frequencies in NOTAMs about gliding competitions.

Response

The CAA accepts this Safety Recommendation. The CAA will include any non-standard radio frequencies, as provided by the sponsor, NOTAMS concerning gliding competitions.

Status - Accepted - closed

Cameron Z-350	**Talywain, Pontypool, Wales**	**10-May-2006**	**Accident**

AAIB Bulletin: 3/2007
FACTOR: F15/2007

Synopsis

Although the forecast included a 30% probability of thunderstorms, the local weather conditions were fine when the balloon launched from a field outside the town of Monmouth. About 40 minutes into the flight, some of the occupants of the balloon basket observed lightning to the south and east. Approximately 15 minutes later, prompted by the sound of thunder, the pilot made an approach to land in the area that he had previously selected for the end of the flight. This approach was abandoned because of fluctuating winds and the presence of wires across the landing path. Another attempt to land was aborted before the pilot made an emergency landing in gusty wind conditions onto uneven ground. During the hard landing the pilot and one passenger received serious injuries and the other 13 passengers sustained minor injuries. Following the accident the operator reviewed their decision-making procedures prior to take off.

SAFETY RECOMMENDATION - 2006-132

It is recommended that Ballooning Network Ltd review their procedures to ensure that suitable alternative landing areas are identified in their spheres of operation in the event that a planned landing area cannot be used.

Response

Email from Philip Clark:

I acknowledge receipt of recommendations 2006-132 2006-133 and confirm we are reviewing our safety equipment and alternative landing areas.

Status - Accepted - closed

SAFETY RECOMMENDATION - 2006-133

It is recommended that Ballooning Network Ltd review their safety equipment, particularly with regards to the provision of protective helmets, to cater for possible emergencies

Response

Email from Philip Clark:

I acknowledge receipt of recommendations 2006-132 2006-133 and confirm we are reviewing our safety equipment and alternative landing areas.

Status - Accepted - closed

ASW-19 **Scheibe SF27**	**Near Sutton Bank Airfield, Yorkshire**	**02-Oct-2006**	**Accident**

AAIB Bulletin: S8/2006
FACTOR: N/A

Synopsis

The aircraft were both soaring in the vicinity of Sutton Bank, at a height above the airfield of about 1,500 ft, near to the base of cloud. The surviving (SF27) pilot recalled suddenly seeing the other aircraft coming towards him, very close, and attempting to manoeuvre to avoid collision. However, the two aircraft collided almost head on, each aircraft's canopy being severely damaged by the other aircraft's wing. The SF27 wing structure separated from the fuselage; one wing of the ASW19B separated approximately half way along its span. The ASW19B and its pilot fell to the ground. The SF27 canopy and canopy frame were severely damaged in the collision, and the pilot abandoned the aircraft through a hole in the canopy. He deployed his parachute successfully, and landed safely amongst trees. His minor injuries were sustained in the collision and subsequent parachute landing.

SAFETY RECOMMENDATION - 2006-127

The British Gliding Association should advise glider pilots to incorporate into their pre-flight checks, a check to ensure that no modifications have been made which would prevent the canopy being jettisoned in emergency.

Status - Response Awaited - open

SAFETY RECOMMENDATION - 2006-128

The British Gliding Association should remind its inspectors of the provisions of BGA Glider Maintenance Schedule Task 8, specifically with regard to ensuring that any canopy may be fully jettisoned without restriction.

Status - Response Awaited - open

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DH82A Tiger Moth	Remenham (Berkshire), near Henley on Thames	18-Aug-2005	Accident	52
Piper PA-38-112	Near Biggin Hill Airport, Kent	22-Oct-2005	Accident	52
SIPA 903	Sandown Airfield, Isle of Wight	14-Nov-2005	Accident	53
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Robinson R22 Beta	Near Pronce Consort Buoy, offshore from Cowes, Isle of Wight	26-Aug-2005	Accident	68
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2006-006	Team Himax 1700R	Vale of Neath Gliding Club, Rhigos, Aberdare	30-Aug-2005	59
2006-005	AS350B3 Eurocopter	Oxford Kidlington Airport	18-Oct-2004	66
2006-004	Robinson R22 Beta	Near Prince Consort Buoy, half a mile offshore from Cowes	26-Aug-2005	68
2006-003	Avro 146-RJ100	Birmingham	01-Oct-2004	15
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2005-100	Bell 206B	Priors Park Wood, 5nm south of Taunton, Somerset	22-Jan-2005	66

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2005-044	Cessna U206F	Beacon Village, near Honiton, Devon	27-Jun-2004	41
2005-043	Cessna U206F	Beacon Village, near Honiton, Devon	27-Jun-2004	41
2005-042	Cessna U206F	Beacon Village, near Honiton, Devon	27-Jun-2004	41
2005-037	Airbus A340-642	En route to London diverted to Amsterdam	08-Feb-2005	7
2005-036	Airbus A340-642	En route to London diverted to Amsterdam	08-Feb-2005	7
2004-100	Puchacz Glider	Near Husbands Bosworth, Leicestershire	18-Jan 2004	71
2004-068	Puchacz Glider	Near Husbands Bosworth, Leicestershire	18-Jan 2004	71
2004-067	Puchacz Glider	Near Husbands Bosworth, Leicestershire	18-Jan 2004	71
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2004-065	Puchacz Glider	Near Husbands Bosworth, Leicestershire	18-Jan 2004	71
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2004-027	Embraer 145-EU	Birmingham Airport	18-Nov-2003	5

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
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
PFA	Popular Flying Association
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

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Department for Transport

Air Accidents Investigation Branch