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

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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