Safety Regulation Group

Civil Aviation Authority

CAP 689

Progress Report 1998

CAA and DETR Responses to Air Accidents Investigation Branch (AAIB) Safety Recommendations

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CAA and DETR Responses to AAIB Recommendations received up to 31 December 1997, presented to the Secretary of State for the Environment, Transport and the Regions

Important Note

The CAA has made many of the documents that it publishes available electronically (in addition to traditional printed format). The contents of this document are unchanged from the previously printed version. For consistency with other CAA documents new cover pages have been added. Further information about these changes and the latest version of documents can be found at www.caa.co.uk.

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Foreword

In the UK, the Civil Aviation Authority (CAA) is responsible for civil air safety ie. the establishment and monitoring of standards, including the licensing of flight crews, aircraft engineers, air traffic controllers and aerodromes and the certification of airlines and aircraft.

The Air Accidents Investigation Branch (AAIB), a branch of the Department of the Environment, Transport and the Regions (DETR), is responsible for the investigation of all civil aircraft accidents and serious incidents (collectively referred to as 'accidents' in this document) occurring in or over the UK.

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

While day to day liaison is maintained between the CAA and the AAIB in the aftermath of any accident, the formal procedure by which the AAIB identify and convey to the CAA, or other bodies, matters which it believes require action is by means of Safety Recommendations.

Recommendations can be made at any stage as the AAIB investigation progresses. The CAA has in place formal procedures for the receipt and evaluation of such Recommendations and initiation of necessary action. In its evaluation the CAA has to consider all the implications of the Recommendation and any action being proposed; it must also take into account the views of other Regulatory Authorities eg. the European Joint Aviation Authorities or any Authority responsible for the initial certification of the aircraft type. The CAA responds to the AAIB as quickly as possible on all Recommendations as they arise; those of an urgent nature being acted upon immediately. In the case of AAIB Formal Investigations for which an Aircraft Accident Report (AAR) is published, all Recommendations made are listed in the final AAR. In such cases, the CAA publishes its Response to the Recommendations on the day the AAR is published.

The CAA Responses to all Recommendations addressed to the CAA are published, initially, by means of a FACTOR (Follow-up Action on Occurrence Report) but will subsequently appear in this annual Progress Report.

Some Recommendations involve long term investigation or research. In order to determine appropriate action when this is so, the CAA's response will indicate that the status of the Recommendation is 'Open' until all action by the CAA has been completed. This Report contains the current status of earlier Recommendations addressed to the CAA which were listed as 'Open' in the previous Progress Report.

Once CAA action is completed it will be designated 'Closed' in this Report and will not appear in subsequent Reports. However, in some instances this may mean that further action is still necessary but is being progressed by organisations outside the jurisdiction of the CAA, for example, by the Joint Aviation Authorities. In these cases CAA will continue to monitor the progress on these Recommendations as part of its normal regulation activity.

The Report

This is the ninth annual Progress Report submitted to the Secretary of State for the Environment, Transport and the Regions. It contains all Recommendations addressed to the CAA and received during 1997 together with the CAA's responses.

The Report also contains all Recommendations addressed to the CAA that remained 'Open' in the eighth annual Progress Report together with a statement of their position as at 31 May 1998 and all 'Open' Recommendations addressed to the DETR.

The Recommendations addressed to the CAA have been separated into three Parts:-

Part 1 – Aeroplanes at or above 5700kg Maximum Take-off Weight Authorised (MTWA)
Part 2 – All Rotorcraft.
Part 3 – Aeroplanes below 5700kg MTWA and others, (eg. Balloons)

Note: The definition of Aeroplane and Rotorcraft are as stated in the Air Navigation Order

Within each Part the accidents are listed by event date but in reverse chronological order. This date order should not be taken as an indication of the date of receipt of the Recommendation by the CAA as some recommendations are received a significant time after an accident.

Some of the Recommendations made by the AAIB are addressed to organisations other than the CAA. Following a request from the DETR, any responses to Recommendations addressed to the DETR would appear in a Part 4. However, as there are currently no recommendations addressed to the DETR remaining 'Open' for further action Part 4 has been omitted this year.

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CAA Responses to AAIB Recommendations 9th Report

1 INTRODUCTION

This Report is in response to the Secretary of State for the Environment, Transport and the Regions' request to the CAA for Annual Reports on the status and progress of its responses to the Recommendations made to the CAA from the Air Accidents Investigation Branch. This Report covers all of those Recommendations which remained 'Open' from the previous Report and all Recommendations received during 1997.

2 RECOMMENDATIONS – STATUS SUMMARY

2.1 Recommendations Outstanding from Previous Report

35 Recommendations remained 'Open' from the previous Report, of which 13 have now been closed and 22 remain 'Open' requiring further CAA action.

2.2 New Recommendations Received

During 1997, a total of 46 Recommendations addressed to the CAA were received compared with 40 for 1996. A Summary of the Acceptance and Current Status of these is as follows:

	Acceptance				*Current Status*	
	Fully	*Partially*	*Fully & Partially*	*Not Accepted*	*Open*	*Closed*
PRE 1996	561	65	626	128	13	741
1996	25	12	37	3	9	31
1997	29	7	36	10*	15	31
TOTAL	615	84	699 (83%)	141	37	803

* While in this period there were 10 Recommendations which had not been accepted by the CAA, it should be noted that, in effect, five of these Recommendations dealt with the same broad issue.

3 OVERALL SUMMARY OF RECOMMENDATIONS ADDRESSED TO THE CAA

The total number of Recommendations received by the Authority since 1976 is 840.

It should be noted that the average number of Recommendations either fully or partially accepted is currently 83% of the total and shows little variation over the years.

Part 1 – AAIB Recommendations relating to Aeroplanes at or above 5700kg MTWA

Boeing 737-200; Ilyushin 76 & two SU30's	**10nm East of Compton VOR**	**16Jul97**	**Incident**

References: Bulletin 12/97 dated 9 Dec 97
FACTOR F7/98 dated 9 Apr 98

RECOMMENDATION 97-45

The Air Traffic Services Standards Department (ATSSD) of the CAA Safety Regulation Group (SRG) should conduct a review of the Manual of Air Traffic (MATS) Part 1 provisions for the conduct of military formation flights as GAT (civil traffic) in controlled airspace.

Status – Fully Accepted – Open

CAA Response

The Authority accepts this Recommendation. The Air Traffic Services Standards Department is conducting a review of the requirements for military formation flights operating as General Air Traffic (GAT) within controlled airspace to determine the provisions required to be made in the Manual of Air Traffic Services (MATS) Part 1 for such operations. Amendments will be made to the appropriate document following the review, which is expected to be completed by June 1998.

RECOMMENDATION 97-46

NATS should review the process for composing Temporary Operating Instructions (TOIs) and Supplementary Instructions (SIs) to ensure that the resolution of identified hazards in any associated safety assessment process be given appropriate prominence in the subsequent instruction.

Status – Fully Accepted – Closed

CAA Response

NATS accepts this Recommendation. The review has been completed by NATS and the procedure is considered satisfactory. The Head of Area Control and Head of Terminal Control have reminded their managers at the London Area and Terminal Control Centre of the importance of this issue. These managers have, in turn, emphasised this issue to the staff within their sections.

RECOMMENDATION 97-47

NATS should ensure that the maximum possible amount of any supplementary flight plan information is shown in the remarks field of the flight progress strip or any other flight plan display media.

Status – Fully Accepted – Open

CAA Response

NATS accepts this Recommendation. NATS are presently exploring the feasibility of providing as much supplementary flight plan information as possible to controllers.

RECOMMENDATION 97-48

NATS should ensure that where flight progress strips or any flight plan display media show a truncated message, staff are reminded that they should always ascertain the full content of the message.

Status – Fully Accepted – Closed

CAA Response

NATS accepts this Recommendation. An Operational Notice (OPNOT) has been issued to all LATCC staff to remind them of their responsibilities in this regard.

Fokker F27-500	**Jersey**	**6May97**	**Accident**

References: Bulletin 12/97 dated 9 Dec 97
FACTOR F2/98 dated 11 Mar 98

RECOMMENDATION 97-67

The CAA should require that organisations which conduct scheduled mandatory readouts of digital flight data recorders are approved to JAR145.

Status – Not Accepted – Closed

CAA Response

The Authority does not accept this Recommendation. Joint Aviation Requirement (JAR)145 is a maintenance approval which conveys privileges to an organisation in order that it may release aircraft and equipment to service following maintenance. The evaluation of data extracted from Flight Data Recorders (FDR), is not in itself a maintenance task and does not warrant a 'Certificate of Release to Service' being issued. JAR145 makes no specific provision for the evaluation of FDR information within the approval rating system.

The organisation that carried out the FDR readout associated with this accident was appropriately approved to conduct the replay and evaluation of FDRs in accordance with British Civil Airworthiness Requirements Chapter A8-6. The Authority therefore does not consider that there would be any further benefit by implementing this Safety Recommendation where an existing appropriate CAA approval is already available.

RECOMMENDATION 97-68

The CAA should require that an aircraft operator maintains, for each recorder installation type, a data frame layout document which contains; details of all parameters recorded, the layout of the recorded data and the algorithms required to convert that data to engineering units. The layout of the document should be of a format standard to be stipulated by the CAA.

Status – Partially Accepted – Open

CAA Response

The Authority partially accepts this Recommendation. The Civil Aviation Authority Specification 10A, which covers the installation of flight data recorders into aircraft, already requires a reference document to be prepared that provides details of the conversion data and logic required for the translation of the data held in memory to parameters expressed in engineering units. The Authority's earlier version of Specification 10 allows the record to be kept as an analogue trace, digital transcription or original record. These Specifications are provided as a means by which operators can meet the requirements of the Air Navigation Order. In addition, the implementation of Joint Aviation Requirement JAR-OPS 1.160 has required JAR-OPS operators to keep a document which presents the information necessary to retrieve and convert the stored data into engineering units. The Authority is, however, aware that the accident investigators of various states are collaborating to define and standardise documents for the data frame layout and conversion of flight recorder data to engineering units. The Authority will, therefore, await the outcome of this work with the intention of promulgating recommendations for a standardised document.

RECOMMENDATION 97-69

The CAA should require that, prior to a scheduled mandatory flight data recorder readout being conducted, the aircraft operator shall ensure that the facility conducting the readout is provided with a copy of the data frame layout document applicable to the installation to be assessed.

Status – Fully Accepted – Open

CAA Response

The Authority accepts this Recommendation. The Authority will issue a Flight Operations Department Communication (FODC) requiring operators to include procedures in their Maintenance Management Exposition (MME) to ensure that the facility conducting the readout is provided with a copy of the data frame layout document applicable to the installation to be assessed. Target date: 31 August 1998.

RECOMMENDATION 97-70

The CAA should require that an organisation conducting scheduled mandatory readouts from a digital flight data recorder has procedures in place to ensure that all information, within a data frame layout document, is correctly interpreted, used for a scheduled mandatory readout of the relevant recording installation and that any assessment is conducted only on data that has been converted to engineering units. Furthermore, any report issued by the organisation shall reference, both by document number and issue status, the data frame layout document against which the readout was performed.

Status – Partially Accepted – Open

CAA Response

The Authority partially accepts this Recommendation. Whilst understanding the rationale for this Safety Recommendation the Authority foresees practical difficulties if organisations were constrained to convert to engineering units and to interpret a complete data recording against a data frame. Consequently, the Authority proposes to consult industry on this matter to determine the value of such a requirement.

The Authority does, however, accept that reports on FDR readouts should reference, both by document number and issue status, the applicable data frame document used. The Authority will therefore advise all organisations who undertake FDR readouts that the associated reports are to contain this information.
Target date: 31 December 1998.

Boeing 747-400	**Lilongwe, Malawi**	**5Apr97**	**Accident**

References: Bulletin 11/97 dated 7 Nov 97
FACTOR F26/97 dated 31 Dec 97

RECOMMENDATION 97-42

It is recommended that the CAA and FAA monitor the manufacturer's review of the Hard Landing Inspections and any subsequent amendment to the 747 Maintenance Manual to ensure that there is a high level of confidence in detecting structural damage which follows a heavy landing.

Status – Fully Accepted – Open

CAA Response

The Authority accepts this Recommendation.

The Authority will request that the FAA monitors the manufacturer's review of the Hard Landing Inspections. Subsequent amendments to the Boeing 747 Maintenance Manual hard landing inspections will be reviewed by the Authority to confirm that the instructions given are adequate to provide a high level of confidence that structural damage will be detected following a hard landing.

CAA Action

The Authority awaits the outcome of the manufacturer's review of the Hard Landing Inspections in the Boeing 747 Maintenance Manual.

RECOMMENDATION 97-43

It is recommended that, to aid flight crew in determining the need for inspections, the CAA and FAA consider methods for quantifying the severity of landings, based on aircraft parameters recorded at touchdown.

Status – Not Accepted – Closed

CAA Response

The Authority does not accept this Recommendation.

Reliance on flight crew judgement is the widely accepted and proven method of determining whether a hard landing has occurred. In the subject incident, the flight crew identified correctly that a hard landing had occurred and called properly for a hard landing inspection. The Authority therefore believes that mandating the fitment of equipment that would allow frequent access to flight recorder data which would aid flight crew judgement that a hard landing has occurred is not justified.

Boeing 767-300	**North Atlantic**	**6Dec96**	**Incident**

References: Bulletin 6/97 dated 5 Jun 97
FACTOR F19/97 dated 1 Aug 97

RECOMMENDATION 97-14

The CAA should conduct a safety assessment of the current procedures used by UK AOC holders in respect of aircrew actions in the event of a pilot incapacitation for various types of multi-crew aircraft. This assessment should consider a requirement for the formulation of a specific diversion criteria dependant upon the route being flown. Consideration should also be given to a requirement for the prohibition of instrument approaches in weather conditions worse than current Category 1 approach minima and also to a requirement for a suitable increment to current Category 1 ILS or non-precision approach minima, in terms of cloud ceiling and visibility, where this is deemed to be necessary.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. The Authority will conduct a safety assessment of the current procedures used by UK Air Operators' Certificate holders in line with this Recommendation. Target date : 30th November 1997.

CAA Action

The Authority has conducted an assessment of the current procedures used by a sample of UK Air Operators' Certificate holders in respect of aircrew actions in the event of a pilot incapacitation. Such procedures provide guidance to the non-incapacitated pilot as to what actions to take, depending upon the actual circumstances. The Authority believes that the non-incapacitated pilot should then assess the situation before making any decision regarding a diversion. The requirement for additional criteria could be unnecessarily restrictive in such circumstances and the Authority will therefore not require their introduction.

BAe146	London (City) Airport	18Nov96	Incident

References: Bulletin 8/97 dated 11 Aug 97
FACTOR F27/97 dated 1 Nov 97

RECOMMENDATION 97-27

It is recommended that the CAA, in conjunction with the manufacturer, airport authority and operators, carry out a project to determine the scatter of significant landing parameters for the BAe146 aircraft operating into London (City) Airport.

Status – Fully Accepted – Open

CAA Response

The Authority accepts this Recommendation. The Authority is currently drafting the specifications and requirements for a trial, to be conducted in conjunction with the manufacturer, airport authority and operators, to determine the scatter of significant landing parameters for the BAe 146 aircraft operating into London (City) Airport. It is intended that this trial will be completed by 31 December 1998.

CAA Action

The Authority has agreed a specification for a trial to determine the scatter of significant landing parameters and has contracted the manufacturer to carry out the trial in conjunction with operators and the airport authority.

Boeing 737-400; MD81	Lambourne Hold	12Nov96	Incident

References: AAR 5/97 dated 1 May 97
FACTOR F21/97 dated 26 Aug 97

RECOMMENDATION 97-18

It is recommended that the CAA publish guidelines for use by crews receiving and actioning air traffic control clearances, aiming to ensure that safeguards specified by the operator will minimise the risk of non-compliance. Emphasis should be given to the importance, during the climb and descent phases of flight, of not having just one crew member monitoring ATC clearances for longer than is absolutely necessary.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. The Authority is currently undertaking a Special Objective Check of certain flight crew procedures. Operators will be required to

ensure that their Operations Manuals include Standard Operating Procedures for use by crews receiving and actioning air traffic control clearances during all phases of flight, including the climb and descent. Target date : 30th November 1997.

CAA Action

The Authority has undertaken a Special Objective Check to ensure that operators' Operations Manuals include Standard Operating Procedures for use by crews receiving and actioning air traffic control clearances during all phases of flight.

RECOMMENDATION 97-19

It is recommended that, where STCA programs are in use, NATS ensures that information is provided in such a way that accurate Mode C data for all aircraft involved is clearly and continuously visible to the controller.

Status – Partially Accepted – Open

CAA Response

The Authority accepts this Recommendation. The National Air Traffic Services Ltd (NATS) is currently conducting research, which is planned to be complete by December 1997, to determine the accuracy of Mode C data when aircraft are in close proximity. If the research indicates that the integrity of such data can be assured, NATS will introduce a facility to display accurate Mode C information to controllers of aircraft involved in Short Term Conflict Alert (STCA) situations.

In addition, should the research prove the viability of such a facility, the Authority's Safety Regulation Group will consult with industry to ensure that future STCA systems incorporate provision of aircraft callsign and level/altitude information, which obviates the difficulties caused by data block overlap.

CAA Action

The scope of the research referred to in the Response above has been broadened to include a hazard analysis of both the technical and human factors aspects of the proposed display enhancements. The projected completion date of this further work is the end of July 1998.

RECOMMENDATION 97-20

It is recommended that NATS investigate improvements to radar displays such that controllers are able to see label information in circumstances, particularly in holding stacks, when the labels would normally overlap.

Status – Fully Accepted – Open

CAA Response

The Authority accepts this Recommendation. The research notified in the response to Safety Recommendation 97-19 will also be used to determine whether the advances in radar display systems will allow a facility to be introduced so that data block overlap does not occur. If the research indicates the viability of such a facility the National Air Traffic Services Ltd will consider its introduction as a matter of urgency. Similarly, the Authority will consult

with industry with regard to introducing a requirement for such a facility into current and future Air Traffic Services radar displays.

CAA Action

The scope of the research referred to in the Response above has been broadened to include a hazard analysis of both the technical and human factors aspects of the proposed display enhancements. The projected completion date of this further work is the end of July 1998.

RECOMMENDATION 97-21

It is recommended that the CAA make every effort to ensure that the current proposed target dates for the mandatory carriage of TCAS II equipment are implemented by ECAC and by the JAA and that such carriage, and use, is made mandatory within UK airspace.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. The Authority will make every effort to ensure that the current proposed target date of 1 January 2000 for the mandatory carriage of Traffic Alert and Collision Avoidance System equipment is implemented by the European Civil Aviation Conference and by the Joint Aviation Authorities and that such carriage, and use, is made mandatory within UK airspace.

Boeing 737-400	**Nr Florence, Italy**	**18Sep96**	**Incident**

References: Bulletin 5/97 dated 8 May 97
FACTOR F17/97 dated 1 Sep 97

RECOMMENDATION 97-16

It is recommended that the CAA review the current training requirements and standards of basic instrument flying skills and, if necessary, mandate appropriate training requirements for Public Transport operations.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. The Authority will continue to review public transport operators' current training requirements and standards of basic instrument flying skills. Where necessary, public transport operators will be required to provide basic instrument flying practice during recurrent training such that when an unusual attitude occurs, crews can take the appropriate actions having recognised the situation. The Authority will also undertake an ongoing programme to ensure that:

(i) Operators emphasis through recurrent Crew Resource Management training programmes the need to maintain awareness and to plan the distribution of work in unusual situations.

(ii) Operators instruct crews to conduct hand-overs/take-overs in a formal and disciplined manner.

Lockheed L188C Electra	**Nr Berlin (Schonefeld) Germany**	**30Jul96**	**Accident**

References: Bulletin 5/97 dated 8 May 97
FACTOR F18/97 dated 1 Jul 97

RECOMMENDATION 96-66

In order to prevent the freight doors on Lockheed L188 Electra freighter aircraft from opening in flight, as a result of failure to ensure correct latching of such doors before flight, the CAA should require that the following safety action is applied to all such aircraft on the UK register and the FAA should require the same safety action for all other such aircraft worldwide:

1 An inspection to confirm that the 'cabin-doors unsafe' annunciator illuminates when the freight door is not in the closed and fully latched condition, and when all other cabin doors are in a fully safe condition.

2 An examination of any wiring diagrams or schematics of the door warning system in L188 Flight Manual supplements and Maintenance Manuals to confirm that they correctly represent the state of the wiring of the individual aircraft to which they apply, are in accordance with an FAA approved design and have been the subject of a design safety analysis.

3 The revision of the Electra 188C Operating Manual to identify any door(s) which are not monitored by the 'cabin-doors unsafe' annunciator once the above actions have been carried out.

4 Consideration be given to providing a clear physical warning, in addition to the existing locks unsafe light, of the absence of correct lock engagement, visible from outside of outward opening freight doors on L188 freighter aircraft.

Status – Partially Accepted – Open

CAA Response

The Authority partially accepts this Recommendation. Responses to the individual parts are as follows:

1 The Authority does not require the cargo door warning system to be connected to the cabin doors warning annunciator provided a dedicated cargo door annunciator is

installed. However, a review of the warning system logic has indicated that not all UK registered aircraft incorporate acceptable cargo door unsafe warning systems due to possible dormant failure modes. The Authority intends to issue an Additional Airworthiness Directive by 31st August 1997, which will require Mandatory Action to ensure that all UK registered L188 Electra cargo aircraft incorporate acceptable unsafe warning systems. This Mandatory Action will address any need for periodic inspections of the cargo door warning systems.

2 The above Mandatory Action will also ensure that the applicable wiring diagrams, Flight Manual Supplement and Maintenance Manuals represent the state of wiring of the aircraft to which they apply. However, depending on the outcome of discussions that the Authority has initiated with FAA, those manuals may not necessarily be in accordance with an FAA approved design. Modifications which are found to be necessary will be the subject of a design safety analysis and will be approved by the Authority.

3 As a result of the above Mandatory Action, all doors whose failure to remain closed could hazard the aircraft will be monitored by an appropriate doors unsafe annunciator, the function of which will be reflected in the Aircraft Flight and Operational Manuals.

4 Current design requirements for doors do not require a 'clear physical warning' visible from the outside of the aircraft. The in-service experience of these doors supports this position. However, current requirements for outward opening doors require the installation of viewing ports, visible either from the inside or outside the aircraft to permit the locked/unlocked status of the door to be ascertained, but these are not considered to constitute a 'clear visible warning' and are normally used only for diagnostic purposes in the event of an unwanted unsafe door indication on the flight deck prior to flight.

The Authority intends to conduct further investigations of the L188 cargo doors by 31st August 1997 to determine whether design changes are required.

CAA Action

The Authority originally committed itself to taking unilateral action by issuing an Additional Airworthiness Directive based on a requirement to incorporate acceptable unsafe cargo door warning systems, where appropriate. However, as all UK registered L188 Electra freighters are fitted with cargo doors installed in accordance with FAA approved Supplementary Type Certificates, the support of the FAA to achieve this was considered necessary.

Following initial work with the FAA, they accepted the Authority's findings and agreed to carry out a design review of FAA approved cargo door STCs. Where found to be appropriate, mandatory design changes are expected to be introduced by FAA Airworthiness Directive action. This review, with the support and active participation of the Authority, is still underway.

The non-compliance with the original STC installation instructions found on the accident aircraft have been corrected by repair and modification action. This included the introduction of a new door unsafe warning system.

Boeing 747-200	Nr London Gatwick Airport	21May96	Accident

References: Bulletin 4/97 dated 10 May 97
FACTOR F14/97 dated 1 Jul 97

RECOMMENDATION 97-13

The CAA, in conjunction with the aircraft manufacturer, give detailed consideration to requiring the incorporation of Service Bulletin 747-55-2027 on UK registered Boeing 747 aircraft.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. The Authority will, in conjunction with the aircraft manufacturer and the affected operators, give detailed consideration by 31 August 1997 to requiring the incorporation of Service Bulletin 747-55-2027 on UK registered Boeing 747 aircraft.

CAA Action

The Authority has discussed the need for incorporation of Service Bulletin 747-55-2027 with the manufacturer and the UK operators of Boeing 747 aircraft, British Airways and Virgin Atlantic. These two operators operate a total of 33 Series 100 and 200 aircraft which could be subject to the Service Bulletin.

Consideration of the outcome of the lightning strike and its effects has indicated that the loss of the fin mounted VOR/LOC antennas and the mechanical damage to the composite fin cap should not result in a hazardous or unsafe condition. Therefore, the Authority has concluded that incorporation of Service Bulletin 747-55-2027 should not be made mandatory.

Boeing B757-200	London Heathrow Airport	5Apr96	Incident

References: Bulletin 10/96
FACTOR F2/97 dated 3 Feb 97

RECOMMENDATION 96-46

It is therefore recommended that the CAA Flight Operations Inspectorate should promote the introduction, by Air Operator Certificate holders, of a formalised 'rapid disembarkation' checklist procedure to expedite the de-planing of passengers using normal passenger entry facilities during potentially serious incidents which do not require a standard evacuation and which occur before aircraft push-back, or movement under engine power, and before the cabin door evacuation slides have been armed.

Status – Partially Accepted – Closed

CAA Action

The Authority has published Flight Operations Department Communication 11/98, titled Aircraft and Passenger Safety on the Ramp, which provides guidelines to Air Operators' Certificate holders on the development of rapid disembarkation procedures. In addition, the Authority has published Notice To Aerodrome Licence Holders 2/98, titled Allocation of Responsibility for the Safety of Passengers Embarking and Disembarking from Aircraft, which provides complementary guidance material to aerodrome operators.

Boeing B747-100	**London Heathrow Airport**	**19Feb96**	**Incident**

References: Bulletin 7/96 dated 9 Jul 96
FACTOR F1/97 dated 3 Feb 97

RECOMMENDATION 96-12

The CAA, in consultation with the HSE, should make a formal assessment of the use of airbridges for the purposes of an emergency evacuation while an aircraft is parked on a stand. The assessment should consider the safety aspects in the light of existing and proposed airworthiness requirements together with the arrangements for the handling of passengers in airside and landside areas. Appropriate guidance should be issued to airport users.

Status – Fully Accepted – Closed

CAA Action

A CAA/SRG Working Group liaised with Heathrow Airport Limited, BAA plc and the HSE. The issues were discussed in the joint Industry/CAA Working Group that produced and is developing CAP 642, Airside Safety Management. Advice to airlines and aerodrome licensees has been published in both Notice to Aerodrome Licence Holders (NOTAL 2/98) and Flight Operations Department Communication (11/98) formats.

RECOMMENDATION 96-47

The CAA, in conjunction with the HSE, should liaise with BAA plc in its investigations under Recommendation 96-13 and ensure that any lessons learned are brought to the attention of non-BAA plc operated airports so that appropriate procedures may be incorporated into those airports' safety management systems.

Status – Fully Accepted – Closed

CAA Action

A CAA/SRG Working Group liaised with Heathrow Airport Limited, BAA plc and the HSE. The Issues were discussed in the joint Industry/CAA Working Group that produced and is developing CAP 642, Airside Safety Management. Advice to airlines and aerodrome licensees has been published in both Notice to Aerodrome Licence Holders (NOTAL 2/98) and Flight Operations Department Communication (11/98) formats.

BAC 1-11	Belfast (Aldergrove) Airport	13Feb96	Incident

References: Bulletin 2/97 dated 6 Feb 97
FACTOR F7/97 dated 1 May 97

RECOMMENDATION 96-48

British Aerospace Airbus Ltd, in conjunction with the CAA, should take action to require inspection of BAC 1-11 aircraft for abrasion damage to the structural braiding of landing gear walking joint flexible brake hoses, particularly in the hidden region within the lower support bush, and to require replacement of all damaged hoses found.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts the intent of this Recommendation. The Authority will liaise with British Aerospace Airbus Ltd regarding the inspection of BAC 1-11 aircraft landing gear walking joint flexible brake hoses, and the replacement of all damaged hoses found.

CAA Action

BAC 1-11 Service Newsletter 32/115, 'Main Landing Gear Walking Joint Flexible Hoses' has been issued by British Aerospace Airbus Ltd. This Newsletter clarifies the installation and inspection procedures for the walking joint hoses and advises operators to inspect the hoses at the earliest possible opportunity.

Boeing B757; Airbus A340	London Heathrow Airport	23Nov95	Accident

References: Bulletin 7/96
FACTOR F4/97 dated 5 Oct 97

RECOMMENDATION 96-43

The CAA should, in liaison with the appropriate ICAO committees, consider what action may be taken in the longer term to ensure that flight crews of large public transport aircraft are better able to achieve a positive clearance between their aircraft and others while manoeuvring on the ground.

Status – Fully Accepted – Closed

CAA Action

The Authority has raised the issue with the UK ICAO Navigation Commission in Montreal, which has tasked their Airport Design Study Group to develop appropriate guidance. In addition, the Authority has issued a handbook, CAP 637, which reiterates guidance to pilots on the interpretation of aerodrome visual aids, including taxiway markings.

Boeing 737-200	Nr Bournemouth	22Oct95	Incident

References: AIR 1/98 dated 19 Feb 98
FACTOR F1/98 dated 19 Feb 98

RECOMMENDATION 97-61

The CAA with the FAA review FARs and JARs with a view to requiring that the location of electronic equipment be arranged during the aircraft design so as to minimise the potential for contamination by fluid ingress, with the intention of ensuring that the equipment, connectors and wiring are provided with protection consistent with reliable operation less heavily dependant on maintenance practices.

Status – Not Accepted – Closed

CAA Response

The Authority does not accept this Recommendation.

The type certification basis of the Boeing 737-200 did not contain specific requirements in respect of minimisation of fluid ingress, nor was there any guidance material available at the time of initial certification in July 1968. Guidance material which addressed the issue of fluid contamination was first published in FAA Advisory Circular (AC) 25.1309-1 in September 1982, and hence did not apply to this type.

The Authority is satisfied that the current JARs contain adequate guidance to protect against contamination of electronic equipment by fluid ingress. In particular, ACJ No 2 to JAR 25.1309 and AMJ 25.1309 7e(3) contain specific guidance material. FAA Advisory Circular AC 25.1309-1A paragraph 7e(3) contains equivalent guidance material to that provided in AMJ 25.1309.

Fokker F27 MK500	Belfast City Airport	4Aug95	Accident

References: Bulletin 4/96 dated 1 Apr 96
FACTOR F14/96 dated 15 Aug 96

RECOMMENDATION 96-11

The CAA should review other Rolls Royce Dart powered turboprop aircraft to determine whether engine operating procedures require changing to minimise the risk of turbine 'burnout' as a result of propeller pitch lock malfunction.

Status – Fully Accepted – Open

CAA Action

It is intended that an agreement with the Type Certificate holder for the Viscount 800 Series aircraft to produce an appropriate amendment to the Flight Manual will be obtained by the 31st December 1998.

MD83	Manchester Airport	27Apr95	Accident

References: AAR 1/97 dated 6 Feb 97
FACTOR F6/97 dated 6 Feb 97

RECOMMENDATION 97-01

The FAA/CAA promote and co-ordinate an industry study into developing suitable surface treatment processes for highly loaded, high tensile steel components to achieve fatigue resistance and surface protection without the introduction of surface stress raising features.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation.

The Authority has approached the FAA proposing a joint study into the effects of surface treatment on the fatigue properties of high strength steel components with particular reference to current industry practice and to the objectives of this Recommendation.

CAA Action

In response to this Recommendation, the FAA have studied the AAIB report, and other relevant reports from the manufacturers of the MD-83 aircraft and landing gear. Their conclusions were that shot peening and grit blasting is not considered by Industry to be an adverse process and that there was not sufficient evidence to warrant study on the effects of grit blasting on the fatigue properties of high strength steel components at this time. Thus the FAA are not intending to join CAA in a study of surface treatment processes for highly loaded high tensile steel components.

Notwithstanding the FAA position, the Authority has taken independent action and has commissioned a research study, to be completed within the 1998-99 budget period, to promote and co-ordinate an industry survey that will determine what surface treatment processes and methodologies are used in the production of high strength steel components. The study will also evaluate the surface features produced by the normal methodologies with regard to the fatigue properties of the steel. This will allow the Authority to make informed decisions about the need for future regulatory action.

Boeing B737-400	Nr Daventry	23Feb95	Incident

References: AIR 3/96 dated 25 Jul 96
FACTOR F18/96 dated 25 Jul 96

RECOMMENDATION 96-30

The CAA in conjunction with the JAA should review the requirements of JAR-145, relating to the monitoring of available manpower of maintenance organisations, to enable Authorities to retrospectively sample the availability of correctly qualified staff for the conduct of aircraft maintenance performed.

Status – Fully Accepted – Open

CAA Action

The Authority completed a review of Joint Aviation Requirement-145 (JAR-145) and, on 14 March 1997, submitted proposals to amend the current manpower advisory material contained in Acceptable Means of Compliance-145.30(b), together with a request to the Joint Aviation Authorities (JAA) for a review of the adequacy and the interpretation of the requirements in the light of this Safety Recommendation. The JAA HQ was reminded on the 20 February 1998 that the Authority has yet to receive a response to these proposals. The Authority's future position will be determined when a response from the JAA has been received.

RECOMMENDATION 96-31

The CAA, with the JAA, consider issuing advice to aircraft maintenance organisations that, where practical, work which can effect the (sic) airworthiness of an engine should not be conducted on all of the powerplant installations of an aircraft at one point in time by the same personnel.

Status – Fully Accepted – Open

CAA Action

The Authority has issued advice regarding the potential safety benefits of applying aspects of the Extended Range Twin Operations (ETOPS) maintenance philosophy to multi-system aircraft. This advice, published as Airworthiness Notice Number 72, dated 16 March 1998, has been issued to Aircraft Owners, Licensed Engineers and Organisations Approved under the Air Navigation Order. Additionally, Flight Operations Department Communication 7/98, dated 16 March 1998, issued similar advice to holders of Air Operator Certificates.

Following publication of this advice, the Authority formally invited the Joint Aviation Authorities (JAA), on 19 March 1998, to consider publication of similar guidance in the most appropriate Joint Aviation Requirement (JAR) maintenance code as 'good maintenance practice' material. The Authority's future position will be determined when a response from the JAA has been received.

RECOMMENDATION 96-33

The CAA, in conjunction with the JAA, review JAR-145 with a view to requiring a common standard of task documentation for Base and Line maintenance activity.

Status – Fully Accepted – Open

CAA Action

The Authority completed a review of Joint Aviation Requirement-145 (JAR-145), and on 14 March 1997, submitted proposals to amend the current manpower advisory material contained in Acceptable Means of Compliance-145.45(b), together with a request to the Joint Aviation Authorities (JAA) for a review of the adequacy and the interpretation of the requirements, in the light of this Safety Recommendation. The JAA HQ was reminded on the 20 February 1998 that the Authority has yet to receive a response to these proposals. The Authority's future position will be determined when a response from the JAA has been received.

RECOMMENDATION 96-35

The CAA, when conducting reviews of maintenance organisations for JAR-145 approval should monitor the work definition for maintenance supervisory staff and ensure that it avoids them undertaking tasks which are inconsistent with their managerial role.

Status – Partially Accepted – Open

CAA Action

The Authority made specific proposals to the Joint Aviation Authorities (JAA), on 14 March 1997, which if adopted into Joint Aviation Requirement-145 (JAR-145) would clearly define the responsibilities of supervisory staff and ensure avoidance of them undertaking tasks inconsistent with their managerial role. The JAA HQ was reminded on the 20 February 1998 that the Authority has yet to receive a response to these proposals. The Authority's future position will be determined when a response from the JAA has been received.

RECOMMENDATION 96-39

The CAA in conjunction with the JAA review JAR-145 to require, where aircraft maintenance or inspection tasks require elements of preparation for access, and incorrect restoration of these preparatory actions might result in airworthiness hazards, these restorative actions are individually defined to be signed as completed on the document which constitutes the Quality Assurance audit for airworthiness.

Status – Partially Accepted – Open

CAA Action

The Authority completed a review of Joint Aviation Requirements-145 (JAR-145) and, on 14 March 1997, submitted proposals to amend the current task documentation, interpretative and explanatory material contained in Interpretative and Explanatory Material-145.45(b), together with a request to the Joint Aviation Authority (JAA) for a review of the adequacy and the implementation of the requirements in the light of this Safety Recommendation. The JAA HQ was reminded on the 20 February 1998 that the Authority has yet to receive a

response to these proposals. The Authority's future position will be determined when a response from the JAA has been received.

RECOMMENDATION 96-41

The CAA should ensure that, when job specific Task Cards are produced by either a maintenance organisation or a manufacturer, any action which is required to be performed which has a particular airworthiness risk associated with it, should be described fully together with the potential risk and not just referred to in another document.

Status – Partially Accepted – Closed

CAA Action

The Joint Aviation Authorities (JAA) has circulated to full member authorities a proposal, dated 24 November 1997, to amend Joint Aviation Requirement-145 (JAR-145). If adopted, the amendment will require maintenance organisations to comply with any standard practice recognised by a full member Authority as a good standard maintenance practice. For the UK, CAA Airworthiness Notices are such good standard maintenance practices.

The Authority has issued Airworthiness Notice Number 72, dated 16 March 1998, to all Aircraft Owners, Licensed Engineers and Organisations Approved under the Air Navigation Order. This Airworthiness Notice advises those concerned with the compilation of scheduled and non-scheduled task documentation that procedures should be established to provide maintenance and planning personnel with guidance on the identification and accomplishment of safety critical tasks. Following publication of this Airworthiness Notice, the Authority formally invited the Joint Aviation Authorities (JAA), on 19 March 1998, to consider publication of similar advice in the most appropriate Joint Aviation Requirement (JAR) maintenance code.

RECOMMENDATION 96-42

The CAA review what they have heretofore regarded as acceptable arrangements for Quality Assurance to meet the requirements of the regulations currently governing the conduct of aircraft maintenance within the UK, with the intent of ensuring that airworthiness is not compromised. This initiative has international significance and the CAA is urged to enlist support from the other JAA Authorities and the FAA in this comprehensive re-appraisal of aircraft maintenance practices.

Status – Partially Accepted – Open

CAA Action

The Authority established a technical review team, with balanced representation from the Authority, Industry and independent individuals to analyse the effectiveness of the Joint Aviation Requirement-145 (JAR-145) for approved maintenance organisations and in particular the required Quality System. Arising from the work of the team, the Authority has issued CAA Paper number 97011 Report on the Work of the JAR 145 Quality Assurance Review Team which contains 32 recommendations and the Authority's responses.

The Authority, as part of its actions in response to the recommendations made in CAA Paper number 97011, has formulated a Notice of Proposed Amendment to Joint Aviation Requirement-145 (JAR-145). This was submitted for adoption to the Joint Aviation

Authorities' Joint Steering Assembly on 20 February 1998. The Authority will monitor the progress of this proposal and determine its future position when a response from the JAA has been received.

Boeing B737-2D6C	Willenhall, Coventry	21Dec94	Accident

References: AAR 1/96 dated 7 Dec 95
FACTOR F1/96 dated 10 Jan 96

RECOMMENDATION 95-22

The CAA should ensure that weather reporting at UK airfields used for Public Transport aircraft operations be made at half hourly intervals, and disseminated accordingly.

Status – Fully Accepted – Open

CAA Action

The Authority is currently reviewing the safety requirements applicable to air traffic control units. It is expected that this requirement will be introduced in the next major revision to these requirements which is expected to be published in Autumn 1998. In the interim, the Authority has strongly recommended that all aerodrome licensees and air traffic control service providers review their procedures for the observation and dissemination of meteorological information to ensure that the needs (in respect of meteorological information) of operators of public transport flights are satisfied.

RECOMMENDATION 95-23

The CAA should examine the post-qualification training and supervision of newly qualified Meteorological Observers to ensure that this is adequately carried out.

Status – Fully Accepted – Open

CAA Action

The Authority is continuing to work with the Meteorological Office in the development of a common training syllabus appropriate to the production of aerodrome weather reports and a means of evaluating the competence of observers.

Airbus A320-212	**London Gatwick Airport**	**26Aug93**	**Incident**

References: AAR 2/95 dated 24 Jan 95
FACTOR F2/95 dated 24 Jan 95

RECOMMENDATION 94-42

The Civil Aviation Authority should review the requirements for the conduct of duplicate inspections and consider the practicality of requiring the engineer conducting the duplicate inspection to review the task as detailed in the Maintenance Manual so as to come to an independent assessment of the scope of the duplicate inspection.

Status – Fully Accepted – Closed

CAA Action

The Authority has reviewed the requirements associated with the conduct of duplicate inspections. As a consequence the Authority has amended British Civil Airworthiness Requirements Chapters A6-2 and B6-2 by issuing Grey Papers A889 and B889, dated 21 January 1998. The amendment includes changes to specifically require engineers conducting duplicate inspections to independently review the complete task, as detailed in the Maintenance Manual.

Cessna 550 Citation II	**Southampton Eastleigh Airport**	**26May93**	**Accident**

References: AAR 5/94 dated 12 Jul 94
FACTOR F17/94 dated 12 Jul 94

RECOMMENDATION 94-15

The CAA should review all UK licensed airfields to identify potential safety hazards beyond current RESAs and determine the need for, and practicality of installing, ground arrester systems.

Status – Fully Accepted – Open

CAA Action

Following extensive work, a guidance document has been developed to assist aerodrome management's in the identification of hazards and assessment of risks associated with overruns beyond currently required Runway End Safety Areas.

The document is in the final stage of drafting and will be published during the summer of 1998.

Boeing 737-400	Nr Kegworth	8Jan89	Accident

References: AAR 4/90 dated 18 Oct 90
FACTAR F4/90 dated 23 Oct 90

RECOMMENDATION 4.23

The CAA should require that, for aircraft passenger seats, the current loading and dynamic testing requirements of JAR 25.561 and .562 be applied to newly manufactured aircraft coming onto the UK register and, with the minimum of delay, to aircraft already on the UK register. (Made 30 March 1990).

Status – Fully Accepted – Closed

CAA Action

The CAA sponsored Notice of Proposed Amendment (NPA) No. 26-4 proposes an addition to JAR-26 Subpart B, Additional Airworthiness Requirements for Operations – Aeroplanes, that will require all aircraft with a Maximum Take-off Mass (MTOM) of 10 tonnes or more to be provided with passenger and cabin crew seats complying with the latest JAR-25 standards for occupant protection. This NPA has now completed the internal consultation procedure within CAA. It was agreed by the Airworthiness Requirements Board on 27 November 1997 and was submitted to the Joint Aviation Authorities (JAA) on 1 December 1997. It is now with JAA Headquarters awaiting completion of internal and external consultation.

RECOMMENDATION 4.31

The CAA consider improving the airworthiness requirements for transport aircraft to require some form of improved latching to be fitted to overhead stowage bins and this should also apply to new stowage bins fitted to existing aircraft. (Made 30 March 1990).

Status – Fully Accepted – Closed

CAA Action

The Authority has agreed with the International Cabin Safety Team that regulatory action is required, and this is now being pursued in the JAA Cabin Safety Study Group, the Group responsible for the Cabin Safety design, construction and equipment requirements for large aeroplanes.

Boeing 737-236	Manchester Airport	22Aug85	Accident

References: AAR 8/88 dated 15 Dec 88
FACTAR F5/89 dated 13 Mar 89

RECOMMENDATION 4.20

The balance of effort in aircraft fire research should be restored by increased effort directed towards fire hardening of the hull, the limitation of fire transmission through the structure and the prevention of structural collapse in critical areas. Short term measures should be devised for application to existing types but, in the long term, fire criteria should form a part of international airworthiness requirements.

Status – Fully Accepted – Open

CAA Action

The Consortium, formed to study fuselage burnthrough, involving the major European airframe manufacturers, the CAA and various research organisations, submitted a proposal to the European Commission under Brite Euram III. This proposal failed to get EC funding. However, the consortium members are to fund the project themselves and the two year project is now underway. Close links are to be maintained between this study and other work in the field being carried out in North America. In due course the Authority will, in co-operation with the JAA and FAA, determine what, if any, new requirements are necessary.

PART 2 – AAIB Recommendations relating to all Rotorcraft

AS332L Super Puma	Aberdeen Airport	6Mar97	Accident

References: Bulletin 10/97 dated 9 Oct 97
FACTOR F33/97 dated 22 Dec 97

RECOMMENDATION 97-38

It is recommended that the CAA ensure that periodic checking of stiffnut locking function is applied within the maintenance schedule for all removable panels on the AS332L.

Status – Partially Accepted – Closed

CAA Response

The Authority partially accepts this Recommendation. Maintenance of civil registered aircraft can only be certified when in compliance with the Type Certificate (TC) holder's airworthiness documentation or approved alternative. Eurocopter France, as the AS332L TC holder, specifies that only certain types of self-locking fasteners (stiffnuts) can be re-used.

Where Eurocopter permits the re-use of self-locking fasteners (stiffnuts), it is required that they be checked for serviceability during the re-fitting procedure, in accordance with the criterion specified in the Eurocopter Standard Practices Manual. The re-fitting procedure is equally applicable to both scheduled and non-scheduled tasks. Although it is not considered that an additional standalone scheduled task would be either practicable or effective, it is accepted that maintenance schedule general inspection standards should further highlight the need for compliance with TC holders' standard practices.

Therefore, the Authority undertakes to amend its General Inspection Standards contained within Standard Maintenance Practices 9,19,20 and 21 (CAAIP Book 2 Part 14). These are associated with the approval of maintenance schedules for all aircraft. The amendment will further highlight the need for compliance with standard practices specified by the Type Certificate holder. This action will be complete by July 1998.

Additionally, Airworthiness Notice 12 Appendix 52 already reminds Licensed Aircraft Maintenance Engineers and Authorised Certifying Staff that they do not have authority to deviate from maintenance documentation or procedures.

CAA Action

Maintenance of civil registered aircraft should only be certified when in compliance with the Type Certificate (TC) holder's airworthiness documentation or approved alternative. Eurocopter France, as the AS332L TC holder, specifies that only certain types of self-locking fasteners (stiffnuts) can be re-used.

Where Eurocopter permits the re-use of self-locking fasteners (stiffnuts), these should be checked for serviceability during the re-fitting procedure, in accordance with the criterion specified in the Eurocopter Standard Practices Manual. The re-fitting procedure is equally applicable to both scheduled and non-scheduled tasks. Although it is not considered that an

additional standalone scheduled task would be either practicable or effective, it is accepted that maintenance schedule general inspection standards should further highlight the need for compliance with TC holders' standard practices.

Therefore, the Authority undertakes to amend its General Inspection Standards contained within Standard Maintenance Practices (SMPs) 9, 19, 20 and 21 (CAAIP {CAP 562} Book 2 Part 14 refers). These are required for the CAA approval of maintenance schedules for all aircraft. The amendment will further highlight the need for compliance with standard practices specified by the Type Certificate holder. The next revision to CAP 562 is scheduled for publication on 22 June 1998 and will include the amended SMPs.

Additionally, Airworthiness Notice Number 72, which deals with safety critical maintenance tasks, issued on 16 March 1998, further emphasises that maintenance programmes should contain the inspection standards to be followed during scheduled maintenance.

RECOMMENDATION 97-39

It is recommended that the CAA should formally remind operators, engineers and maintenance organisations of their responsibility in the routine checking and maintenance of stiffnuts and other self-locking fasteners.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. The Authority will issue a reminder to operators, engineers and maintenance organisations regarding their responsibility in the routine checking and maintenance of stiffnuts and other self-locking fasteners. Airworthiness Notice 12, Appendix 17, will be amended to emphasise 'good maintenance practice' in this regard. The revised Airworthiness Notice, to be issued by April 1998, will be sent to all Licensed Aircraft Engineers, Approved Maintenance Organisations and Air Operator Certificate Holders.

CAA Action

The Authority has revised Airworthiness Notice Number 12, Appendix 17, to remind those concerned with the maintenance of aircraft of their responsibility in the routine checking and maintenance of stiffnuts and other self-locking fasteners. The revised Appendix, dated 16 March 1998, has been sent to all Licensed Aircraft Engineers, Approved Maintenance Organisations and Owners of Aircraft.

Agusta Bell 206B Jetranger	**Ledbury, Herefordshire**	**16Dec96**	**Accident**

References: Bulletin 9/97 dated 9 Sep 97
FACTOR F30/97 dated 17 Nov 97

RECOMMENDATION 97-22

The CAA should re-examine the recommendation made as a result of the accident to Agusta A109 helicopter, which occurred on 27 June 1990 with a view to producing guidance material, such as a Code of Conduct, for Corporate helicopter operators which should take into account all those aspects of public transport operations referred to in the Air Navigation (No 2) Order which are appropriate to a minimum safety standard for corporate operators.

Status – Fully Accepted – Open

CAA Response

The Authority accepts this Recommendation. The Authority, with the participation of the British Helicopter Advisory Board, will, by May 1998, produce guidance material, such as a Code of Conduct, for corporate helicopter operators which will take into account those aspects of public transport operations which are appropriate to a minimum safety standard for corporate operators.

CAA Action

A draft Code of Conduct, based on CAP 649 Specimen A to B Standard Operations Manual (Helicopters), was sent to the British Helicopter Advisory Board for their comments. These were received at the end of March 1998. The Authority will publish CAP 686 – Corporate Code of Practice (Helicopters) by the end of July 1998.

AS355F1 Twin Squirrel	**Middlewich, Cheshire**	**22Oct96**	**Accident**

References: AAR 4/97 dated 27 Nov 97
FACTOR F35/97 dated 27 Nov 97

RECOMMENDATION 97-54

The requirements of the following JAR-OPS 3 regulations, as formulated in the original 22.5.95 edition, should be adopted by the UK as soon as practicable:

(a) Paragraph 3.652
(b) Paragraph 3.655
(c) Sub paragraph (b)(1) of Paragraph 3.940
(d) Sub paragraph (a)(2) of Appendix 1 to Paragraph 3.940
(e) Paragraph 3.950

Status – Fully Accepted – Open

CAA Response

The Authority accepts this Recommendation. The Authority will seek to implement, within the UK, those requirements listed in the Recommendation, as soon as possible and in any event before the introduction of JAR-OPS3 which is presently planned for October 1998.

RECOMMENDATION 97-55

The UK should continue to prohibit any helicopter from carrying out night commercial air transportation under VFR within UK airspace.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. The Authority will continue to prohibit any helicopter from carrying out night commercial air transportation under VFR within UK airspace.

Everett Gyroplane	**Cumbernauld**	**2Oct96**	**Accident**

References: Bulletin 2/97 dated 11 Feb 97
FACTOR F9/97 dated 27 Mar 97

RECOMMENDATION 96-85

It is recommended that the Civil Aviation Authority review the design and installation of the propeller attachment on Everett Gyroplane Volkswagen engines.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation.

The Authority has reviewed the design of the propeller attachment and the locking method of the attachment bolt on Everett Gyroplanes powered by Volkswagen engines and considers them to be acceptable.

However. the installation of the propeller attachment is to be assessed through a Mandatory Permit Directive (MPD) which will require the removal and non-destructive testing of the hollow attachment bolt for condition, corrosion and cracking. The MPD will require reassembly using an approved locking method. The results of the inspection and the means used to lock the bolt are required to be reported to the Authority.

CAA Action

The Authority issued a Mandatory Permit Directive (MPD) No. 1997-007 on 18 April 1997 which requires the removal and non-destructive testing of the hollow attachment bolt for condition, corrosion and cracking before further flight.

Sikorsky S61N	**Claymore Accom. Platform, N Sea**	**18Aug95**	**Accident**

References: Bulletin 3/96 dated 1 Mar 96
FACTOR F17/96 dated 15 Jul 96

RECOMMENDATION 96-01

The CAA jointly with the Health and Safety Executive (Offshore Safety Division) and representatives of the oil industry, should together consider the need to commission research into the effects that wind flow, turbine exhaust and flare exhaust emissions have on the helidecks of installations that are positioned adjacent and in close proximity to one another. This research should concentrate initially on the CAP/CPP installation and should be applied to other combined installations already commissioned or about to enter service.

Status – Fully Accepted – Open

CAA Action

A tendering exercise for the preliminary study was completed and a contract signed for the research study to establish the nature and extent of the problem and to review the techniques and technology that could be deployed. Work was started in July 1997 under joint Civil Aviation Authority/Health and Safety Executive (Offshore Safety Division) funding and is now nearing completion. A small extension to the contract is currently being arranged to establish an appropriate turbulence limit to add to Civil Air Publication 437, Offshore Helicopter Landing Areas – Guidance on Standards. The final report will be delayed to allow the inclusion of the results of this additional work. Target date for publication of the final report, in the form of a Civil Aviation Authority Paper, is 31 December 1998.

AS350 Squirrel	**Lochgilphead**	**5May95**	**Accident**

References: AAR 4/96 dated 29 Aug 96
FACTOR F21/96 dated 29 Aug 96

RECOMMENDATION 96-58

It has been recommended that the CAA, in conjunction with the DGAC, should require reassessment of the crashworthiness of the AS350 forward seat and its floor attachments,

including consideration of seat rail reinforcement, relevant aspects of the helicopter bottom structure strength and floor mounting of the shoulder strap inertia reel, with the aim of preventing seat detachment from the floor in a survivable impact. A similar assessment should be made for the AS355 helicopter which has an identical seat.

Status – Fully Accepted – Open

CAA Action

The Authority continues to press Eurocopter France (ECF) to produce a Service Bulletin that would provide improved structural integrity of the seat, the seat attachments and the floor of the AS350 and AS355 helicopters.

Schweizer 269C	**Oxford Kidlington Airport**	**27Mar95**	**Accident**

References: Bulletin 8/95
FACTOR F17/95 dated 27 Nov 95

RECOMMENDATION 95-12

It is recommended that for UK registered Schweizer 269 helicopters, to prevent overboard release of fuel after an accident where the helicopter comes to rest on its side but the fuel system remains undamaged, the CAA consider the need for:

1 Reconfiguration of the fuel tank vent system to prevent fuel release through the vent outlet.

2 Measures aimed at ensuring the integrity of fuel tank filler cap seals.

Status – Fully Accepted – Open

CAA Action

The Authority has pursued with the FAA its argument that modification action is necessary and to date the FAA has provided no evidence to alter the Authority's belief that hazardous fuel spillage will result from a Schweizer 269 roll-over.

The FAA and Schweizer have been advised that in the absence of such evidence the Authority must consider taking independent action to address the safety concern and both have been requested to comment upon the Authority's proposed course of action.

AS332L Super Puma	Nr Brae 'A' Platform, N Sea	19Jan95	Accident

References: AAR 2/97 dated 9 Sep 97
FACTOR F28/97 dated 9 Sep 97

RECOMMENDATION 97-29

The CAA should ensure that the North Sea helicopter operating companies include in their very effective recurrent training for crews discussion and, where possible, 'hands on' practice of the procedures necessary to accomplish a successful evacuation from a floating helicopter following a ditching or alighting on the sea.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. The Authority will require operators to review their Emergency and Survival training methods to ensure that they include discussion and, where possible, 'hands on' practice of the procedures necessary to accomplish a successful evacuation from a floating helicopter following a ditching or alighting on the sea. Target date: 30 November 1997.

CAA Action

The Authority has completed a review of the operations manuals of North Sea helicopter operators to ensure that they contain the necessary procedures to accomplish a successful evacuation from a floating helicopter following a ditching or alighting on the sea.

RECOMMENDATION 97-31

The CAA should call for a survey of jettisonable doors, of composite construction, fitted to North Sea public transport helicopters to determine if they are initially buoyant on jettison and, if so, to inspect such doors for projections likely to puncture floating helirafts, taking into account damage likely to occur to door mountings during jettison in rough sea conditions.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation.

The Authority will conduct a review of the design and construction of jettisonable doors fitted to North Sea public transport helicopters to identify those types with doors considered to be initially buoyant and which feature projections likely to puncture floating helirafts. Following this review, the Authority will consult with the relevant manufacturers through their Primary Certificating Authorities to determine any required action. It is intended to complete this review by 31st December 1997.

CAA Action

The Authority has completed its review of the design and construction of jettisonable doors fitted to North Sea public transport helicopters.

A number of doors and hatches on four helicopter types have been identified which are considered to be initially buoyant and which feature projections likely to puncture floating helirafts.

The Authority is consulting with the relevant manufacturers through their primary certificating authority to confirm the findings of the review and to determine any required actions.

RECOMMENDATION 97-32

In order to prevent the premature cessation of electrical power supply to helicopter combined voice/flight data recorders (CFDRs) caused by abnormal excessive vibration effects on associated 'G' switches, it is recommended that the CAA:

1 require operators to render inoperative CVFDR 'G' switches, as an interim measure, and

2 take action to identify a more suitable method of stopping such flight recorders during crash impact.

Status – Fully Accepted – Open

CAA Response

The Authority accepts the intent of this Recommendation. However, since requiring operators to render inoperative CVFDR G' switches in existing installations where they are powered from the aircraft batteries may allow these recorders to continue running after a crash impact, thereby erasing pre-impact data.

Current operating requirements and corresponding Minimum Operation Performance Specifications for FDR and CVR Systems (ED55 and ED56A) already identify other more suitable means of stopping flight recorders after accidents, although the use of 'G' switches is not prohibited.

The Authority, therefore, will review the CVFDR installations to determine the need for and the practicality of providing alternative means of stopping flight recorders, before taking any specific action. This review will be completed by 31st December 1997.

CAA Action

The investigation into the feasibility and effects of rendering inoperative CVFDR 'G' switches is continuing. There are in the order of 220 aircraft that would be involved in any interim action. European Organisation for Civil Aircraft Electronics (EUROCAE) Working Group 50 on Data Link Recording has on its agenda the task of defining a more suitable means of stopping recorders during a crash impact.

The action in response to Item 1 of the Recommendation will now be completed by 30 June 1998 and to Item 2 by 31 December 1998.

RECOMMENDATION 97-35

The CAA, in conjunction with the appropriate industry committees, should review aircraft lightning certification requirements, and the advisory nature of AC20-53A, to introduce the following more stringent requirements for rotary wing aircraft with composite rotor blades:

1 Increase in the specified Zone 1A action integral from 2 x 106A2s to a level compatible with the highest energy positive polarity lightning discharges likely to be encountered in service.

2 Replace the existing 98% probability assurance with 100% probability target.

3 Addition of specified arc attachment points to be used in the lightning certification tests on rotor blades, to include: leading edge tip; tip weight bolt(s) if used; trailing edge tip; trailing edge up to 0.5 metres inboard of tip.

4 Specified use of representative blade root attachment assemblies during all lightning tests to simulate related current flow/thermal affects on root structure.

In addition. the CAA and appropriate committees should review lightning certification requirements with regard to any corresponding, or other, improvements which may be deemed necessary for fixed wing aircraft with significant composite material structural elements.

Status – Not Accepted – Closed

CAA Response

The Authority does not accept the details of this Recommendation.

The Authority is not satisfied that G-TIGK encountered a lightning strike more severe than the lightning threat test levels defined in AC20-53A and does not believe that there is sufficient evidence for more stringent requirements to be introduced for rotary wing aircraft with composite rotor blades. Furthermore, the Authority does not accept that AC20-53A is only intended to provide protection against 98% of negative cloud/ground lightning strikes.

Nevertheless, the Authority intends to present all the information arising from this lightning encounter to the appropriate international committee, EUROCAE Working Group 31 (Lightning), for its consideration in relation to the stringency of the aircraft lightning certification criteria contained in AC20-53A.

Subsequent testing of the AS332L tail rotor blades as installed on G-TIGK at the time of this accident shows that they were unable to withstand the lightning threat test levels currently specified in AC20-53A. Consequently, AS332L tail rotor blades have now been modified in accordance with an Airworthiness Directive DGAC 96-099-059 which specifies improved resistance to lightning strikes.

Bell 214ST	East Shetland Basin, N Sea	6Dec94	Incident

References: AIR 5/95 dated 31 Oct 95
FACTOR F15/95 dated 31 Oct 95

RECOMMENDATION 95-33

It was recommended to the CAA that recency requirements for pilots employed on night offshore operations should be reviewed.

Status – Fully Accepted – Closed

CAA Action

The review of recency requirements for pilots employed on night offshore operations is now complete. One operator has made proposals with a view to conducting training and recency requirements onshore. The Authority has advised the operator that such proposals are inappropriate and that the industry norm should be followed. However, the Authority remains willing to receive and evaluate any further such proposals.

AS332L Super Puma	Gryphon 'A' Platform, N Sea	22Dec93	Incident

References: Bulletin 6/94 dated 8 Jun 94
FACTOR F21/94 dated 5 Oct 94

RECOMMENDATION 94-20

It is recommended that the airworthiness authorities ensure that future certification of engine/airframe intake combinations includes testing throughout the critical temperature range described in paragraph 6.4.1.9B of the AGARD Advisory Report No 223 in representative conditions of falling and recirculating snow.

Status – Fully Accepted – Open

CAA Action

The Authority has conducted a more detailed investigation of the requirements for testing in snow conditions, consulting with a major helicopter manufacturer and Defence Evaluation and Research Agency.

It has been concluded that the Advisory/Interpretative material for JAR 27 and JAR 29 should be improved and the Authority is now processing its proposals for change with the intent of submitting a Notice of Proposed Amendment (NPA) to the JAA. It is expected that the NPA will be submitted by 31 July 1998.

Bell 206; Tornado	Nr Kendal	23Jun93	Accident

References: AAR 2/94 dated 5 May 94
FACTOR F15/94 dated 7 Jun 94

RECOMMENDATION 94-04

The Ministry of Defence should give a high priority to the development and introduction of technology which provides low flying military FJs with an aircraft collision warning system and the CAA should give similar priority to the research project for an electronic strobe detector.

Status – Fully Accepted – Open

CAA Action

In 1993 the CAA commissioned a feasibility study to consider detection systems. In 1994 further work was commissioned to carry out ground and airborne measurements to confirm theoretical predictions. Further work to answer outstanding issues was completed in 1995 and a system was produced and fitted to a Piper Cadet in 1996. An extended operational evaluation was carried out in 1997 which proved the effectiveness of the system. An independent assessment published in 1998 by the Defence Evaluation and Research Agency (DERA) for the RAF confirmed the operational effectiveness of the system. CAA would like to licence the technology for a nominal fee and discussions are continuing with potential manufacturers.

AS355 Twin Squirrel	Nr Liverpool	6Jan93	Accident

References: Bulletin 5/93
FACTOR F26/93 dated 3 Dec 93

RECOMMENDATION 93-37

Require for UK registered AS350 and AS355 helicopters, the fitment of a system to provide unmistakable cockpit indication to the pilot of improperly latched engine or MGB bay doors.

Status – Partially Accepted – Open

CAA Action

The manufacturer has produced a Service Bulletin (SB) but only for the AS355F series helicopters. The subject of the SB is equally applicable to the AS355N and AS350 helicopters. Accordingly, the Authority required the applicability of the SB to be extended to these other models, but the manufacturer and the Primary Certification Authority has declined to do so.

It is the Authority's intention to discuss ways of locally extending the applicability of the AS355F SB with UK operators of the AS355N and AS350 helicopters. It is expected that this will be accomplished by 30 June 1998.

AS332L Super Puma	Cormorant Alpha, N Sea	14Mar92	Accident

References: AAR 2/93 dated 27 May 93
FACTOR F14/93 dated 27 May 93

RECOMMENDATION 93-22

The current study within the CAA on the subject of cockpit workload should be given a high priority with a view to reducing the workload, in particular administrative matters, of flight crews whilst airborne or engaged in the shuttling task. Meanwhile, standard operating procedures should ensure that flight administration and flight planning must be completed, so far as is practical, before each movement takes place.

Status – Fully Accepted – Open

CAA Action

The report into cockpit workload was published in July 1997 by the Defence and Evaluation Research Agency (DERA) Centre for Human Sciences. Follow-up work is being actively pursued through the Helicopter Management Liaison Committee (HMLC). A sub-group has been formed and its terms of reference defined. The sub-group is due to make its recommendations to the full HMLC by 30 September 1998.

RECOMMENDATION 93-25

In further pursuance of the HARP Recommendation No 1, the CAA should commission a study into 'human error' helicopter accidents. The study should include recommendations for programmes of research and co-ordination of the industry's effort. The possibility of international collaboration should also be examined.

Status – Fully Accepted – Closed

CAA Action

Further action on this Recommendation has been dependent on the actions on Recommendation 93-22.

In response to Recommendation 93-22 a sub-group of the Helicopter Management Liaison Committee has been formed and tasked with making its recommendations by September 1998. These will be reported under Recommendation 93-22.

RECOMMENDATION 93-26

The CAA should consider amending certification requirements for public transport helicopters operating over the sea to include a suitable system for manual and automatic inflation of emergency hull flotation equipment and that this requirement should also apply to helicopter types currently in service.

Status – Fully Accepted – Open

CAA Action

The Authority's sponsored research into the crashworthiness of helicopter emergency flotation systems is expected to be completed towards the end of 1998. The results of this work will be discussed at a new FAA/JAA working group, recently formed to review helicopter water impact, ditching design and crashworthiness. This group will be supervised by the FAA/JAA Joint Harmonisation Working Group and is tasked with producing an initial report within one year. The first meeting is expected to take place in mid-1998.

Part 3 – AAIB Recommendations relating to Aeroplanes below 5700kg MTWA and Others, (eg. Balloons)

Beech B60 Duke	**Southampton (Eastleigh) Airport**	**9Jun97**	**Accident**

References: Bulletin 9/97 dated 9 Sep 97
FACTOR F29/97 dated 5 Nov 97

RECOMMENDATION 97-28

In order to avoid adverse operating effects on landing gear systems which have been repainted, the CAA should amend Airworthiness Notice No. 38, paragraph 6, to include warnings of the possible effects of painting and related preparation treatments on landing gear lubricated mechanism during 'in-situ' painting operations on aircraft.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. The Authority will amend paragraph 6 of Airworthiness Notice No. 38, (Painting of Aircraft), to include warnings of the possible effects of painting and related preparation treatments on landing gear lubricated mechanisms during 'in-situ' painting operations on aircraft. Target date for the amendment is 31st March 1998.

CAA Action

The Authority has revised Airworthiness Notice Number 38 to include warnings of the possible effects on flight control and landing gear mechanisms by preparation treatments and paint. This revised version of Airworthiness Notice Number 38, dated 16 March 1998, has been issued to Aircraft Owners, Licensed Engineers and Organisations Approved under the Air Navigation Order.

Cessna 150M	**Nr Cumbernauld Aerodrome**	**6May97**	**Accident**

References: Bulletin 1/98 dated 12 Jan 98
FACTOR F6/98 dated 9 Feb 98

RECOMMENDATION 97-52

It is recommended that the Medical Department of the CAA Safety Regulation Group should obtain advice from an appropriate source as to the measures they should employ to detect toxic heart or other organ damage when examining candidates for medical certificates who have been treated for cancer.

Status – Partially Accepted – Open

CAA Response

The Authority partially accepts this Recommendation.

The Authority considers that sufficient evidence exists to classify cancer treatments into two categories, those that may give rise to potentially incapacitating toxic heart or other organ damage and those that are considered most unlikely so to do.

With regard to cancer treatments that may give rise to potentially incapacitating heart or other organ damage, expert opinion is being sought to determine appropriate investigations for the detection of such damage in those applicants who have been so treated.

The Authority does not consider it appropriate to utilise resources to determine the toxic effects of cancer treatments which are considered to be most unlikely to cause an increased risk of incapacitation.

It is anticipated that conclusions will be reached by June 1998. If appropriate, these will be brought to the attention of the JAR-FCL Medical Sub-Committee for consideration of amendment of JAR-FCL Part 3 (Medical).

RECOMMENDATION 97-53

It is recommended that the CAA should consider suitable regulations relating to the conduct of aerial photography of a commercial nature in order to eliminate the dual role of pilot and photographer.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. The Authority will make it a condition of any low flying permission relating to the conduct of aerial photography of a commercial nature that a second person is carried to undertake the aerial photography task.

Piper PA34 Seneca	**Nr Southend Airport**	**6Mar97**	**Accident**

References: Bulletin 12/97 dated 9 Dec 97
FACTOR F5/98 dated 9 Feb 98

RECOMMENDATION 97-56

It is recommended that the CAA, irrespective of any delays in the adoption of other elements of JAR-OPS, adopt the changes to the Instrument Rating test in line with the proposed JAR FCL with effect from 1 January 1998.

Status – Fully Accepted – Open

CAA Response

The Authority accepts this Recommendation.

As part of the JAR-FCL implementation process, the JAR-FCL instrument rating skill test for aeroplanes has been introduced from 1 January 1998 for initial tests and is planned to be extended to renewal flight tests by December 1998 in conjunction with the introduction of JAR-FCL aircraft class and type rating renewal arrangements.

Cessna 172P Skyhawk	**Compton Abbas**	**21Nov96**	**Accident**

References: Bulletin 5/97 dated 8 May 97
FACTOR F23/97 dated 22 Sep 97

RECOMMENDATION 96-84

In order to restrict sudden inadvertent aft movement of pilots' seats on Cessna 172 aircraft with the attendant possibility of over-pitching of such aircraft the CAA, in conjunction with the FAA, should expedite the following:

1 Re-assessment of the seat track pin engagement dimensional criteria for Cessna 172 aircraft fitted with the pre-1983 type pins and formulation, in conjunction with the manufacturer, of urgent corrective action to achieve safe and reliable seat position locking in service.

2 A review of the status of Cessna SEB 89-2 Revision 2 with a view to making the embodiment of the secondary seat stop mandatory, as clearly intended by the manufacturer in the Service Bulletin.

3 Alert associated aircraft maintenance engineers of the potential for deflection of seat track locking pins to occur in service and require associated inspection and replacement of any bent pins found pending the outcome of (1).

4 Alert Cessna 172 pilots of the need for care when adjusting their seat positions on the associated tracks in order to avoid bending of the seat track locating pins.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts all four parts of this Recommendation. The Authority's response to the individual parts is as follows:

1 The Authority has approached the FAA and the manufacturer both to re-assess seat track pin engagement criteria and to formulate urgent corrective action to achieve safe and reliable seat position locking in service.

2 The Authority has requested information from the FAA concerning the rationale behind the current status of Cessna Single Engine Bulletin 89-2 Revision 2. Once this information has been received, the Authority will determine whether the embodiment of the secondary seat stop should be made mandatory.

3 Associated aircraft maintenance engineers will be alerted accordingly by 31 December 1997.

4 The Authority will, in the December 1997 issue of the General Aviation Safety Information Leaflet (GASIL), publish an alert to Cessna 172 pilots of the need for care when adjusting their and their passenger's seat positions on the associated tracks in order to avoid bending of the seat track locating pins. The subject will also be publicised at CAA Safety Evenings.

CAA Action

1 The Authority's enquiries have revealed that the seat retention system installed on G-BMZV is common to 16 distinct Cessna and Reims-Cessna types, and the Authority considers that any action arising from the re-assessment of this system should be applied to all of these aircraft types. The FAA position is that FAA AD 87-20-03R2 is effective in controlling this hazard. Following correspondence with the manufacturer on the practicality of achieving particular tolerances and/or interchanging parts, the Authority intends to raise an Additional Airworthiness Directive (AAD) to add to the demands of FAA AD87-20-03R2.

2 The Authority has reviewed the status of Cessna SEB 89-2 Revision 2, and has decided that its installation should not be made mandatory. Installation of the Secondary Seat Stop does not address the cause of the seat-sliding incidents, which lies with the primary locking system. It also does not address the case where the pilot in command is in the right hand seat. In addition, the installation of the Secondary Seat Stop can impede evacuation of the aircraft in an emergency.

3 A new appendix to Airworthiness Notice 12 was published on 16th March.

4 The Authority published in the December 1997 issue of the General Aviation Safety Information Leaflet (GASIL), an alert to Cessna 172 pilots of the need for care when adjusting their and their passenger's seat positions on the associated tracks in order to avoid bending of the seat track locating pins. The subject is also being publicised at CAA Safety Evenings.

RECOMMENDATION 97-11

The CAA and FAA should seriously consider issuing Airworthiness Directives to make manufacturers' strong recommendations to modify components a mandatory requirement where it is apparent that failure to modify such components could result in a potentially major hazard to the safety of affected aircraft

Status – Not Accepted – Closed

CAA Response

The Authority does not accept this Recommendation.

Both CAA and FAA already have procedures for identifying hazards to aircraft that need to be addressed by mandatory action. While these procedures take full account of manufacturer's recommendations, the Authority makes its own independent assessment of the need for mandatory action.

In the case of aircraft such as the Cessna 172 which are accepted onto the UK register without a detailed design investigation (in accordance with BCAR Section B Chapter B2-2 paragraph 4.2.1) it is only in extreme cases that the Authority would consider taking mandatory action in respect of a manufacturer's Service Bulletin independently of the Primary Certification Authority, in this case the FAA.

Piper PA28-140	**Southport, Lancs**	**25Sep96**	**Accident**

References: Bulletin 3/97 dated 11 Mar 97
FACTOR F10/97 dated 21 May 97

RECOMMENDATION 97-05

The CAA should bring to the attention of UK owners and operators of the PA28-140 the existence and content of Piper Service Bulletin No 753

Status – Partially Accepted – Closed

CAA Response

The Authority partially accepts this Recommendation. The Authority's preferred method of informing owners and operators of the type of information contained in Piper Service Bulletin No 753 is by means of a Flight Manual change rather than a Service Bulletin. The Authority will ensure that an appropriate approved Flight Manual Revision is produced.

CAA Action

The Primary Certificating Authority decided not to amend the Flight Manual, as recommended by Safety Recommendation 97-07. Consequently, the Authority has published it own mandatory UK Flight Manual Supplement which addresses the essential elements of Piper Service Bulletin No 753. All the applicable Flight Manuals were amended on 30th December 1997.

RECOMMENDATION 97-06

The CAA should make mandatory any manufacturers Service Bulletin which addresses important aspects of aircraft flying qualities or handling techniques.

Status – Not Accepted – Closed

CAA Response

The Authority does not accept this Recommendation. It is normal practice that information addressing important aspects of aircraft flying qualities and handling techniques is given in the Flight Manual and not by Service Bulletins. The Authority is satisfied that the reasons for Piper Service Bulletin No. 753 not being issued as a Flight Manual revision were due to exceptional circumstances relating to the actual content of the particular Flight Manual concerned.

Yak 50	**Deenthorpe**	**24Sep96**	**Accident**

References: Bulletin 1/97 dated 9 Jan 97
FACTOR F8/97 dated 10 Mar 97

RECOMMENDATION 96-77

In view of the questionable durability of the lightweight cotton fabric applied to the flying control surfaces of YAK 50 and 52 aircraft in the country of manufacture, it is recommended that prior to the issue of a UK Permit to Fly, or Certificate of Airworthiness, the CAA require such aircraft to have their control surfaces re-covered with a heavier grade material of a type that is in common use in the UK.

Status – Partially Accepted – Closed

CAA Action

The CAA Mandatory Permit Directive (MPD) No. 1997-019 was issued on 11 December 1997. This Directive requires that the control surfaces of all Yak 50 and 52 aeroplanes are recovered with a suitable fabric within 6 months from the effective date of the MPD. Furthermore, the Directive mandates an internal inspection of flying control surfaces for corrosion and condition at periods not exceeding 5 years, commencing at the date of recovering.

Piper PA38-112	**Nr Nantwich, Cheshire**	**26Aug96**	**Accident**

References: Bulletin 9/97 dated 9 Sep 97
FACTOR F31/97 dated 1 Dec 97

RECOMMENDATION 97-36

It is recommended that the FAA and the CAA review their procedures for classifying airworthiness improvement measures published by aircraft or equipment manufacturers when they are recommended or categorised as mandatory by the manufacturer. Consideration of the improvement measures should take account of the manufacturer's

known service experience. It is proposed that the CAA should require that such measures are incorporated on UK registered aircraft or publish its reasons for leaving them as optional to assist owner/operators in exercising their discretion.

Similar AAIB Recommendations were made in 1994 (No 94-30, AAIB Report 6/94) and 1997 (No 97-6, AAIB Bulletin 3/97 and No 97-11, AAIB Bulletin 5/97).

Status – Not Accepted – Closed

CAA Response

The Authority does not accept this Recommendation.

Conventional piston engined aircraft, of foreign manufacture, below 2730kg and their equipment are accepted for certification onto the UK register without an Authority design investigation (in accordance with BCAR Section B Chapter B2-2 paragraph 4.2.1) provided that the Primary Certificating Authority (e.g. the FAA) has been accepted by the Authority as having airworthiness controls broadly equivalent to UK standards.

Such Primary Certificating Authorities are accepted as having appropriate procedures for identifying hazards to aircraft that need to be addressed by mandatory action. While these procedures take full account of manufacturers' recommendations, the Primary Certificating Authority will make its own independent assessment of the need for mandatory action.

The Authority monitors Primary Certificating Authorities' standards in a number of ways and only in extreme cases would the Authority consider taking mandatory action in respect of a manufacturer's Service Bulletin independently of the Primary Certification Authority (in this case the FAA). This course of action would only be followed after gaining a full understanding of their views on the issues.

Cessna 152	**Lydd Airport**	**31May96**	**Accident**

References: Bulletin 9/97 dated 9 Sep 97
FACTOR F32/97 dated 1 Dec 97

RECOMMENDATION 97-37

It is recommended that the FAA and the CAA reconsider Cessna Service Bulletin SEB95-3 with a view to making it mandatory.

Status – Not Accepted – Closed

CAA Response

The Authority does not accept this Recommendation.

The Authority reviewed Cessna Service Bulletin SEB95-3 in accordance with the procedures specified in its response to Recommendation 97-57. It was concluded that the maintenance

schedule CAA/LAMS/FW/1978 published by CAA as CAP411 already satisfactorily addressed flap mechanisms and flap asymmetry protection and that, therefore, there was no need to mandate this Service Bulletin. Furthermore, as there was no positive evidence to indicate that flap asymmetry was a causal factor in this accident, the Authority believes that there is no need to reassess this position.

RECOMMENDATION 97-57

It is recommended that the FAA and the CAA review their procedures for classifying airworthiness improvement measures published by aircraft or equipment manufacturers when they are recommended or categorised as mandatory by the manufacturer. Consideration of the improvement measures should take account of the manufacturer's known service experience. It is proposed that the CAA should require that such measures are incorporated on UK registered aircraft or publish its reasons for leaving them as optional to assist owner/operators in exercising their discretion.

Similar AAIB Recommendations were made in 1994 (No 94-30, AAIB Report 6/94) and 1997 (No 97-6, AAIB Bulletin 3/97 and No 97-11, AAIB Bulletin 5/97).

Status – Not Accepted – Closed

CAA Response

The Authority does not accept this Recommendation.

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Such Primary Certificating Authorities' are accepted as having appropriate procedures for identifying hazards to aircraft that need to be addressed by mandatory action. While these procedures take full account of manufacturer's recommendations, the Primary Certificating Authority will make its own independent assessment of the need for mandatory action.

The Authority monitors Primary Certificating Authorities' standards in a number of ways and only in extreme cases would the Authority consider taking mandatory action in respect of a manufacturer's Service Bulletin independently of the Primary Certification Authority (in this case the FAA). This course of action would only be followed after gaining a full understanding of their views on the issues.

Piper PA28-161	Nr Shoreham Airport	31May96	Accident

References: Bulletin 3/97 dated 11 Mar 97
FACTOR F15/97 dated 14 Jul 97

RECOMMENDATION 96-87

The Civil Aviation Authority should seek assurance that the magnetic particle crack detection techniques utilised within the UK aviation industry are fully capable of reliably detecting cracks that are present in any orientation in the component being inspected.

Status – Not Accepted – Closed

CAA Response

The Authority does not accept this Recommendation.

In common with other NDT techniques, magnetic particle crack detection has threshold limitations: it is not therefore possible to detect all cracks, irrespective of size or orientation, in a component.

It is the responsibility of the manufacturer – in this case Lycoming – to specify appropriate NDT equipment and techniques to be used during overhaul work. In this particular case, the equipment in use was capable of detecting the cracking but the technique specified by the manufacturer was incomplete. This shortcoming is addressed in Safety Recommendation 96-86.

RECOMMENDATION 96-88

The Civil Aviation Authority should require that only personnel qualified in accordance with paragraph 2 and paragraph 9 of Airworthiness Notice 94 are permitted to conduct NDT examinations.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. The Authority considers that its present policy, defined in paragraph 5 of Airworthiness Notice 94, regarding personnel who carry out NDT inspections and certifications conforms with this Safety Recommendation. The Authority has written to all CAA Approved Maintenance Organisations and 'D' Licensed Maintenance Engineers to remind them of the policy and the need to ensure that NDT inspections are only carried out by appropriately qualified personnel.

RECOMMENDATION 96-89

The Civil Aviation Authority should ensure that all holders of authorisations granted by them in accordance with paragraph 4.3 of Airworthiness Notice 94 are aware that such authorisations expired in November 1995.

Status – Fully Accepted – Closed

CAA Response

The Authority accepts this Recommendation. Airworthiness Notices (ANs) are distributed to all Approved Maintenance Organisations and United Kingdom Licensed Aircraft Maintenance Engineers: they are for information and all persons concerned with the airworthiness of civil aircraft should be aware of their content. With regard to limited authorisations granted in accordance with Paragraph 4.3 of Airworthiness Notice 94, it is also clearly stated that such authorisations would not exceed five years from the date of the notice which was issued on the 12 November 1990.

In the light of this Safety Recommendation, the Authority has written to all CAA Approved Maintenance Organisations and 'D' Licensed Aircraft Maintenance Engineers to remind them that any authorisation issued by the Authority in accordance with Paragraph 4.3 of Airworthiness Notice 94 expired in November 1995 and to ensure that all staff involved in NDT inspection and certification are advised accordingly.

Denney Kitfox Mk2	**Waverdon, Bucks**	**30Jun95**	**Accident**

References: Bulletin 11/95 dated 7 Nov 95
FACTOR F4/96 dated 19 Feb 96

RECOMMENDATION 95-36

It is recommended that the CAA in conjunction with the PFA collect and collate for UK registered Kitfox aircraft an assessment of the fuel system and consider the need for:

1 The fitment of a system to provide clear warning of a low fuel level in the header tank.

2 Mandatory modification aimed at ensuring automatic fuel feed in all circumstances.

3 Action for other aircraft types that may suffer from similar effects.

Status – Fully Accepted – Closed

CAA Action

The PFA have approved a number of modifications on an optional/recommended basis. They have published a letter to operators explaining the problem, and also publicised the matter via the Kit Fox Owners Club. Since these actions have been taken, no further occurrences have been reported.

Piper PA28R-200 Cherokee-Arrow II	**Skiddaw**	**13Feb92**	**Accident**

References: AAIB letter dated 8 May 92
CAA Letter dated 25 Jun 92

RECOMMENDATION 92-32

The CAA consider ways of enhancing the training content of the IMC Rating, to bring it closer to the ICAO minimum standard for IFR operations. This should include the incorporation of a full navigation flight test, with increased emphasis on the use of radio aids for en route navigation, and including a descent to minimum safe altitude and diversion due to (simulated) adverse weather conditions.

Status – Fully Accepted – Open

CAA Action

Full external consultation on the Instrument Weather Rating and necessary law changes is now underway and the outcome should be known by September 98.

Jaguar; Cessna 152	**Carno**	**29Aug91**	**Accident**

References: AAR 2/92 dated 29 Apr 92
FACTAR F2/92 dated 16 Jun 92

RECOMMENDATION 92-07

Together with the Ministry of Defence, NATS should examine methods of making available, on a daily basis, information concerning areas where high intensity military low flying will take place, so that civil operators may plan to avoid or overfly these areas.

Status – Fully Accepted – Open

CAA Action

The entry into service of ALFENS (Automated Low Flying Entry and Planning Notification System) has been delayed by one year to Summer 1998 and, therefore, target dates have been adjusted accordingly. Once the equipment is proved in operational use the Directorate of Airspace Policy will investigate, in conjunction with the Ministry of Defence, the possibility of creating the 'advice desk' called for by the Recommendation.

Cessna 172	Southport	21Mar91	Accident

References: AAIB Letter dated 5 Nov 91
CAA Letter dated 14 May 92

RECOMMENDATION 4.04

It is recommended that the CAA require the fitment of a warning system to alert pilots of induction system icing on future types of aircraft certificated in the UK, and consider a similar requirement for types currently certificated.

Status – Fully Accepted – Closed

CAA Action

The CAA instigated a research programme to investigate the viability of a simple device to warn the pilot that he may be in icing conditions. Such a device could have been fitted to all relevant aircraft without modification of engine or carburettor. Unfortunately the work has concluded that current humidity sensor capability is insufficient to produce a cost effective instrument.

Considerable effort has been expended in publicising the dangers of carburettor icing within the General Aviation community and the fatal accident rate has shown considerable improvement, only one such accident being recorded since 1992.

An optical probe modification for the detection of icing within the most commonly used carburettor types has recently become available. However, the improved accident statistics over several years leads the Authority to the view that Mandatory action requiring the fitment of such a device is not warranted.

Piper PA28-181	Stanmore	18Apr91	Accident

References: AAIB Letter dated 23 Aug 91
CAA Letter dated 1 Nov 91

RECOMMENDATION 4.01

The CAA initiate action to amend the Air Navigation Order Article 52, such that when a person is involved in an accident or incident or is suspected of an offence under the Article, the person may be required to submit to appropriate tests and provide samples.

Status – Fully Accepted – Open

CAA Action

The amendment to the Air Navigation Order will not be possible until the Civil Aviation Act has been suitably amended to give the primary legislation power for the Authority to amend the Order. The Department of the Environment, Transport and the Regions has consulted widely regarding the content of the proposed amendment and the consultation period closed in late 1996.

The new Government is currently considering the response to the consultation and amendment of the Air Navigation Order will depend upon their conclusions.

The 20mgs per 100ml of blood alcohol limit when on duty is included in JAR-OPS 1. The implementation of JAR-OPS 1 is awaiting EC Regulation action, the date of which has yet to be specified.

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PART 3 – AAIB RECOMMENDATIONS RELATING TO AEROPLANES BELOW 5700KG MTWA AND OTHERS, (eg. BALLOONS)