

Boeing 737-4Q8,
G-JMCR

En-route to
East Midlands Airport

12 October 2018

Serious Incident

Investigation Synopsis

The aircraft was operating a night flight to East Midlands Airport, with the left engine generator disconnected, and had just commenced its descent when the crew faced an unusual array of electrical failures on the flight deck. Despite the loss and degradation of a number of systems, the aircraft landed safely at East Midlands.

The electrical failures were caused by the right engine Generator Control Unit (GCU) which had been incorrectly secured in its mounting tray and had disconnected in flight. The investigation also uncovered a number of contributory factors including: the management of defects and Acceptable Deferred Defects (ADD), recording of maintenance, and a number of weaknesses in the operator's Safety Management System with regards to managing risk.

Five safety recommendations are made to the operator regarding its safety management system and one to the Civil Aviation Authority.

Safety Recommendation 2019-004

There was confusion as to what constituted a main operating base and the routine deviation from the operator's procedures on the use of the MEL and RIE might have partly been due to the operator's policy and procedures not being suitable for its routine operations.

Therefore, the following safety recommendation is made:

It is recommended that West Atlantic UK revises its policy and procedures for approving and clearing Minimum Equipment List entries and Rectification Interval Extensions to ensure that it conforms with the guidance contained within the European Union Aviation Safety Agency Acceptable Means of Compliance.

Date Safety Recommendation made: 29/08/2019

Response Status Adequate

Action Status Planned actions completed

Safety Recommendation status Closed

LATEST RESPONSE

Response received: 17/12/2019

Signatories for RIE have received additional training in RIE approval, including detailed analysis of FSR to ensure application is within the regulatory requirements.

MEL Revision 14, May 2019 updated to include: Changes to section 9.3.8 defining "maintenance bases" and "transit station" within a night program. Changes to section 9.5.3 giving the commander detail on the risk assessment of multiple defect within the context of the operation they expect.

A policy/organisational change has been implemented introducing a dedicated team of engineers tasked with monitoring on daily bases all deferred and repetitive defects (MEL). The defect control team is part of the Line Maintenance Control process and reports to the NPCA via the LMC Manager.

A Defect Control application was introduced called Chronic'X. In addition, all aircraft defects are recorded in the FSR with actions taken, risk assessment and recovery plan in place. The defect control team arrange parts, manpower and rectification plan to ensure rectification is completed expeditiously or before the open defect (MEL) expiry date.

This system gives full control on approving and clearing of MEL entries. At the weekly meeting the NPCA is briefed to ensure MEL oversight.

AAIB Assessment – Adequate - Closed

(EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

N/A

(SRIS Reference: GB.SIA-2019-003)

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Safety Recommendation 2019-005

The investigation identified maintenance activity which had been carried out on the aircraft and not recorded in accordance with the regulations.

Therefore, the following safety recommendation is made:

It is recommended that West Atlantic UK ensures that all work undertaken on its aircraft is documented in accordance with the requirements of Regulation (EU) No 1321/2014 (regarding continuing airworthiness).

Date Safety Recommendation made: 29/08/2019

Response Status Adequate

Action Status Planned actions completed

Safety Recommendation status Closed

LATEST RESPONSE

Response received: 26/06/2020

All maintenance completed on the aircraft are recorded on either the SRP (Sector Record Page), or a dedicated Work Order (WO).

In support of these documents, information related to the progression of the task is recorded in the FSR. This provides the LMC with a real-time running order of the maintenance being completed.

Where maintenance requires extensive investigation, LMC dictate the investigation tasks requiring the local engineer to document on the SRP parts that have been exchanged, and in the FSR, information on the outcome of the exchange providing LMC with information to analyse and direct the next maintenance action.

A review if the LMC operating procedures CoP 4.0 have been implemented. This includes a requirement to ensure adequate details of maintenance recording in the FSR is completed [CoP4.0/6.4] and early identification of repetitive defects [CoP4.0/12.0]

A review of line station maintenance contracts has been completed and the appointment of a new UK Part M maintenance manager whose primary role is to liaise with the Part 145 Line Maintenance Managers in respect of standards of service delivery.

Each day at 0845 [CoP4.0/12.0] an LMC meeting reviews the nights defects including the timely delivery of SRP and FSR updates. Where a line station has not met the standard, this is reviewed by the Part UK maintenance manager with the Line Station Engineer.

Since Nov 2019 we have employed a dedicated Part UK Quality Engineer to support the Part M Quality Manager. The Part M QE's primary task is to liaise with the Compliance Manger of each Part 145 organisation and reviews occurrence reports related to maintenance at line stations. West Atlantic UK has a high safety, non-punitive culture and provides for uninhibited reporting of occurrences. This includes where standards have not been met in terms of maintenance reporting.

West Atlantic UK are rolling out as of March 2020, training in procedures and Human Factors over Microsoft Teams. This allows the Part M organisation to not only provide initial procedures training and standards but

continuation training. Where an organisation has not meet standards, corrective action can now require mandatory training of local engineers overseen by the Part M Quality department in both procedural and human factors training.

With the implementation of Part CAMO, it is West Atlantic UK's proposal to supplement CBT HF training with MS Teams training that reviews occurrences within our operation to a deeper level by including cross mixing of departments on training sessions to encourage appreciation of the link between processes i.e. Maintenance Planning > Line Station > LMC > Technical Records. This provides, for example a line engineer appreciating that by not updating certain information, the knock-on effect that error has on departments that rely on that specific piece of information, e.g. failure to record maintenance actions.

Whilst it would have been preferable to have avoided the occurrence with G-JMCR, we have an excellent HF case to use as an example of why it is important to ensure accurate and full recording of maintenance data, and will be used in the Part CAMO

AAIB Assessment – Adequate - Closed

(EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

Response received:

17/12/2019

The work undertaken on the aircraft are either covered by an SRP (Sector Record Page) entry with action taken and action reference of via a dedicated Work Order (WO)

For Deferred Defects and or repetitive defects (MEL's) dedicated Work Orders are raised by LMC for defect trouble shooting as required to either give trouble shooting advise and or have spare parts available.

The procedure for issuing WO is laid down in CoP 4.0 chapter 12 in order to ensure work is properly documented and traceable in case of repetition.

The FSR Fleet status listing log and Chronic'X and LMC shift handover application are put in place to monitoring and control that the correct MEL references and Airworthiness documentation is applied

AAIB Assessment – Partially Adequate - Open

(EU Regulation 996/2010 article 18 refers). The response details the procedures that the operator has in place; however, it does not state how these procedures ensure compliance with Regulation (EU) No 1321/2014 (regarding continuing airworthiness). Further clarification is required on the actions taken or to be taken to ensure the required procedures are in place. The AAIB would like a further update by 01 June 2020.

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Safety Recommendation 2019-006

The investigation identified that the Defect Controller was only available during office hours. Other individuals who had the authority to prevent an aircraft flying in an unsafe condition might not be aware that the dynamic oversight is a key part of their job.

Therefore, the following safety recommendation is made:

It is recommended that West Atlantic UK revises its policy and procedures to ensure effective management of defects, and the undertaking of dynamic risk assessments of the airworthiness of aircraft during all hours of operation.

Date Safety Recommendation made: 29/08/2019

Response Status Adequate

Action Status Planned actions completed

Safety Recommendation status Closed

LATEST RESPONSE

Response received: 17/12/2019

A new risk assessment application integrated into the FSR requires a risk assessment in the event an aircraft develops multiple deferred defects.

The monitoring of deferred defect risk assessment is the responsibility of the LMC controller. LMC controller will take appropriate actions to mitigate identified hazards.

The process is described in CoP 4.0 chapter 13 The process is described in CoP 4.0 chapter 1

AAIB Assessment – Adequate - Closed

(EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

N/A

(SRIS Reference: GB.SIA-2019-0005)

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Safety Recommendation 2019-007

None of the three individuals involved had the full picture on the condition of the aircraft and a risk assessment was not carried out to determine if the aircraft was in a safe condition to continue flying with one generator inoperative.

Therefore, the following safety recommendation is made:

It is recommended that West Atlantic UK revises its policy and procedures for the tasking of maintenance activities by Line Maintenance Control and the sharing of relevant aircraft technical history to ensure that maintenance organisations undertaking work have access to all appropriate information.

Date Safety Recommendation made:

29/08/2019

Response Status

Adequate

Action Status

Planned actions completed

Safety Recommendation status

Closed

LATEST RESPONSE

Response received:

26/06/2020

The LMC have access to:

- > RAL [approved maintenance recording system – life history of aircraft]
- > FSR > Aircraft > Defect [Real-time maintenance status updates]
- > FSR > List [24 months historical AOG/ADD maintenance data]
- > ChronicX. [Maintenance data analysis tool]

Line stations have access to:

- > RAL (West Atlantic Part 145 Line Stations only) [approved maintenance recording system]
- > FSR > Aircraft > Defect [Real-time maintenance status updates]
- > FSR > List [6 months historical AOG/ADD maintenance data]

Since the AAIB report the LMC procedures have been extensively reviewed and rewritten to incorporate all technical systems for the analysis of defects. This includes full debrief by LMC of crew and local engineers on the defect [CoP4.0/14.2(b)] which includes a debrief guide [CoP4.0/Appendix 6.0].

All contracted 145 engineers must have access to the FSR. The current list of contracted engineers indicates 336 registered engineers are currently live and using the FSR.

The revised Part 145 maintenance contract includes a term that local engineers must be competent in the use of the FSR.

AAIB Assessment –Adequate - Closed

Line Maintenance Control (LMC) procedures have been extensively reviewed and rewritten to incorporate all technical systems for the analysis of defects.

This includes a full debrief by LMC of crew and local engineers on the defect [CoP4.0/14.2(b)] which includes a debrief guide [CoP4.0/Appendix 6.0].

All contracted 145 engineers must have access to the Flight Status Reporting system (FSR). The current list of contracted engineers indicates 336 registered engineers are currently live and using the FSR.

The revised Part 145 maintenance contract includes a term that local engineers must be competent in the use of the FSR. (EU Regulation 996/2010 article 18 refers)

RESPONSE HISTORY

Response received:

17/12/2019

The technical log records all maintenance defects actioned against each airframe and is transferred into RAL, our approved maintenance management system

The WAcloud application "FSR" is collects additional maintenance information on deferred maintenance activities.

The Chronic'x system access data in both RAL and the FSR to provide a comprehensive source of information and feedback on defect control to support line maintenance with trouble shooting.

The station engineers have access to the FSR for consultation if so required.

AAIB Assessment – Partially Adequate - Open

(EU Regulation 996/2010 article 18 refers). The response provides details of how West Atlantic records their maintenance and how this can be accessed by their own staff. However, it is not clear from the response how contracted engineers at outstations such as Amsterdam can access the relevant information. The AAIB would like a further update by 01 June 2020.

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Safety Recommendation 2019-008

This investigation identified safety issues across a number of areas that had not been identified or addressed by the Operator's SMS.

Therefore, the following safety recommendation is made:

It is recommended that West Atlantic UK revises its Safety Management System to meet the requirements of the scale and nature of their operation.

Date Safety Recommendation made:

29/08/2019

Response Status

Adequate

Action Status

Planned actions completed

Safety Recommendation status

Closed

LATEST RESPONSE

Response received:

17/12/2019

1. To support the Head of Risk, Safety and Compliance a full-time Part M Quality Engineer has been employed as of 1st November 2019. This will provide a dedicated resource with direct responsibilities for ensuring the policy of the Management System is effectively managed.
2. The Safety Management System has been modified to include additional quality assurance and verification processes to monitor corrective and preventative actions introduced to mitigate risks within the operation.
3. Four additional part-time auditors have been employed in support of the Compliance Monitoring programme.
4. Additional training courses have been implemented and delivered;
 - a) Advanced Safety and Compliance Course for Managers.
 - b) Internal Auditors Course.
 - c) Investigators Course

AAIB Assessment – Adequate - Closed

(EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

N/A

(SRIS Reference: GB.SIA-2019-0007)

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Safety Recommendation 2019-009

This investigation identified safety issues across a number of areas that had not been identified or addressed by the Operator's SMS.

Therefore, the following safety recommendation is made:

It is recommended that the Civil Aviation Authority assess West Atlantic UK's Safety Management System to ensure it meets the requirements of the scale and nature of their operation.

Date Safety Recommendation made: 29/08/2019

Response Status Adequate

Action Status Planned actions completed

Safety Recommendation status Closed

LATEST RESPONSE

Response received: 25/10/2019

The Civil Aviation Authority accepts this recommendation. The CAA has conducted an initial assessment of West Atlantic UK's Safety Management System and continues to monitor compliance and effectiveness of this element of the organisation's approval.

Further assessments, including effectiveness, are scheduled to be completed by no later than February 2020.

AAIB Assessment – Adequate - Closed

(EU Regulation 996/2010 article 18 refers).

RESPONSE HISTORY

N/A

(SRIS Reference: GB.SIA-2019-008)