

5 Airline's response to Safety Recommendations

5.1 Safety Recommendation 2005-116

British Airways Maintenance Organisation should take suitable action to ensure that maintenance tasks are certified for in a sequential and timely manner. All maintenance staff should also be reminded of their professional responsibilities, the limit of their authorisation, and that approval from the appropriate authority is required when it becomes necessary to deviate from approved instructions and procedures.

- Recommendation agreed and implemented.

The Airline has taken the following actions:

- *A briefing was given to all staff in base maintenance regarding the necessity of certifying task cards sequentially and in a timely manner.*
- *Measures have been taken to raise awareness of incidents that occur during maintenance and provide open forums to discuss preventative action taken, including:*
 - *LAE Safety Symposium, attended by over 600 certifying staff and their local management*
 - *Systems and Procedures booklet issued to all 6,000 staff in Engineering describing systems for safeguarding maintenance standards*
 - *Examples of maintenance errors included in bi-annual Continuation Training for certifying staff as awareness of human error events*
 - *Distribution of a monthly Airworthiness Bulletin to all staff in Engineering which discusses key issues of maintenance error and its causes*
 - *Addition of an engineering related section in the 'Flywise' periodical issued to all flight crew to review significant maintenance issues.*

5.2 Safety Recommendation 2005-117

British Airway's Maintenance Organisation should review job card rack placement ergonomics to ensure that their position does not have a detrimental effect on the sequential and timely certification of maintenance tasks.

- Recommendation reviewed and implemented.

British Airways carefully reviewed this recommendation, but overall remain concerned that implementing a number of locally controlled card locations as a solution rather than a central card control system is considered as a higher risk strategy, which is more than likely to lead to mis-laid or overlooked task cards.

Since the incident on G-CPER, the 'TBD' maintenance hangar has been closed and the maintenance relocated. During the facility refurbishment the location of all task card racking was given careful consideration to ensure that it is placed in the most effective position on and around the maintenance docking. This review addresses the ergonomics issue highlighted.

On completion of the facility upgrade, a risk assessment was carried out by the Quality department to ensure that all relevant areas of the EASA Part 145 code were reviewed and outcomes found to be acceptable before start up of the new facility.

5.3 Safety Recommendation 2005-118

British Airways Maintenance Organisation should review their 'Maintenance Error Investigation' process, in order to ensure consistency, traceability and accountability in it's application, with a view to restoring the confidence of maintenance staff in the process.

- Recommendation reviewed and implemented.

All staff in Engineering have been apprised of the MEI process in a booklet distributed to each individual. The process has been reviewed and clarity provided for management and staff as to how and when MEI is applied.

The amended process chart now clearly identifies when the MEI procedure is invoked as part of the event investigation process, and is only carried out by staff trained in its use.

The Maintenance Safety Group previously described to the AAIB, has discussed and endorsed the amended process, which has been formally adopted in Engineering procedures available on-line to all Engineering staff.

5.4 Safety Recommendation 2005-119

British Airways Maintenance Organisation should review the level of supervision on the 'shop floor' to satisfy itself that it is adequate to maintain the required standards of airworthiness.

- Recommendation reviewed and implemented.

All full review regarding the role and responsibilities for enhanced supervision of maintenance standards has been carried out. The review has included the scope of technical decision-making, responsibilities for team leadership and supervision of maintenance standards. Additionally a review of feedback from LAE's following maintenance incidents, together with visits to other BA partner airlines, to carry out 'best practice' reviews of LAE duties has been carried out.

Implementation of the enhanced supervisory role is expected in Autumn 2005, this will provide a clear definition regarding the scope of LAE responsibilities, including renaming of the grade as 'Maintenance Supervisor' to differentiate from other certifying grades who are licence holders. The supervisory function will provide team leadership and technical guidance to less experienced maintenance staff, and will ensure that all activities are certified at the appropriate level by the staff involved in maintenance tasks. Formally recognising the supervisory level as part of the management of maintenance activity will also provide a defined line of communication between hangar management and staff performing tasks on the aircraft.

5.5 Safety Recommendation 2005-120

British Airways should review their structure and procedures for the management of quality, to satisfy themselves that there is sufficient degree of centralised control over the standards of quality within each section of the organisation.

- Recommendation reviewed and implemented.

Since the incident, Safety Services as a department has been expanded to include Corporate Quality and has been renamed as Corporate Safety & Quality. The Corporate Quality activities have included the creation of the Operational Safety & Quality Management Manual (OSQMM), which has been accepted as the Airline's JAR-Ops Quality Manual by the CAA. This first issue was published on 30 June 2004. Corporate Quality has also revised and re-issued the Airline's Safety & Quality Policy Manual on behalf of the Chief Executive.

Following the publication of the OSQMM, Corporate Quality has instigated Safety & Quality reviews of operational and related departments in the Airline. To date, reviews have been conducted in Ground Operations, Cargo, Inflight Service (Cabin Crew and Catering), Engineering and Flight Operations. Reviews are also underway with Procurement (purchasing) and Training. The summary report of these reviews, delivered to the Accountable Manager's Meeting in May 2005, proposed further review of the Safety & Quality organisations across the Airline due to the differences in structures. This review is currently underway with benchmarking visits to a number of large airlines in the UK and Europe. This review will report to the next Accountable Manager's Meeting in September 2005 and intends to include proposed plans for implementing changes to the Airline organisation and responsibilities.

5.6 Safety Recommendation 2005-121

British Airways Maintenance Organisation should review its maintenance planning and production control procedures, for the servicing of B757 engine oils, to ensure compliance with the Aircraft Maintenance Manual at all times, in both operational and heavy maintenance environments.

- Recommendation reviewed and implemented.

- a) Maintenance procedures have been reviewed and amended to provide clear instructions on requirements for oil servicing in the operating area and following extended periods when the engine has not been operating.*
- b) To remove any ambiguity for oil servicing, modification 10002944 has been embodied to provide clear markings on the oil level sight glass, and mod 10002961 embodied fitting an explanatory decal.*
- c) To provide our crew with improved guidance on scope for acceptable engine oil levels during the operating day, the B757*

Operations Manual (Flying Manual) has been amended as below to ensure that engineers are not called upon to unwittingly overfill the engines.

- d) *A focus for engineers on problems of B757 engine oil servicing has been provided through a series of Quality Alert Bulletins issued by the Quality department.*

The following summary is provided of Quality oversight of maintenance practices. Several actions have been taken within British Airways Engineering to address concerns raised over B757 oil servicing since G-CPER's diversion into LGW on the 07/09/03, following reports of oil smells on the flight deck.

Immediately following the incident, a Technical News was issued by the Powerplant Technical department to advise all certifying Engineers of the need to adhere to the following:

- Service engine oils between defined time intervals after engine shutdown.*
- Awareness that British Airway's full limits are one litre less than the manufacturers full limit.*
- Awareness that oil servicing requirements are contained in Alert Temporary Revisions.*
- Ensure that oil uplifts are correctly recorded in the Technical log.*

In addition, Engineers attention was drawn to the Alert Temporary Revisions for oil servicing through awareness on the monthly Fleet 1 Quality hangar displays in September and November 2003.

In February 2004, a task audit conducted by Fleet 1 Quality sampled engine oil servicing standards at Terminal 1 and highlighted that defined time intervals for servicing (between 10 and 60 mins after engine shut-down) were not being adhered to in all cases. Non-conformances were duly responded to, which included a corrective action for Engineers to make a certifiable Technical log entry to record engine shutdown and oil servicing times. The B757 Daily Check sheets were amended to incorporate this requirement and a Quality Alert Bulletin, together with a further article on the April 2004 Fleet 1 Quality hangar display, were issued to raise awareness of the new requirement.

In September 2004, Powerplant issued a further Technical News, which publicised the following:

- *Incorporation of colour coding on the engine sight glass through incorporation of a British Airways Service Bulletin to minimise servicing errors.*
- *Amendment to the British Airways maximum oil level of two litres down from full.*
- *Amendment of the Alert Temporary Revisions to incorporate the above requirements.*

In conjunction with the Technical News, Powerplant also carried out a series of presentations to Production areas to raise awareness of the issues surrounding B757 oil servicing.

Although reports of oil smells in-flight dramatically reduced, two further task audits carried out by Fleet 1 Quality in January and May 2005 highlighted that some Engineers at both LHR and European Line Stations were not making the requisite Technical log entry for engine shutdown and oil servicing times. In addition, some recorded uplifts were still being recorded above the British Airways limit, as specified in the Alert Temporary Revisions. These audits have been closely monitored at the Fleet 1 Quality Forum and through awareness and oversight by the Terminal 1 and Line Maintenance Managers, sufficient improvements to oil recording have been made to allow the action for regular oversight to be closed at the July 2005 Forum. Standards will continue to be monitored during the quarterly production area audits.

5.7 Safety Recommendation 2005-122

British Airways Maintenance Organisation should take suitable actions to ensure that the Engineering Quality Services department has a better oversight and understanding of the day to day practices in the areas where maintenance is carried out.

- Recommendation reviewed and implemented.

The AAIB investigation report states that ½ day per month, on average, is spent in the work area by Quality Department staff. This statement does not fully reflect the actual time spent by Quality Department staff in the completion of oversight duties in the work area. The current

audit schedule regarding tasks during maintenance and the audits previously reported identify that approximately 30% of the departments manpower is allotted to audit activity - the 2004 schedule identified 73 aircraft audits carried out as an example.

It should be noted that the report comment regarding compliance auditing does not appear entirely accurate, as this type of audit focuses on maintenance processes, rather than necessarily how tasks are performed.

Due to promotions and retirements resulting in staff movements, manpower in the Quality department is currently under review to ensure that optimum numbers are maintained. Accordingly the department is currently engaged in recruitment of additional staff to ensure that appropriate resources are available to conduct and maintain adequate levels of surveillance within the maintenance areas (ie in the actual work place as suggested).

To ensure that all maintenance areas have a good understanding of where working practices can be improved, feedback from Quality Audits is provided at monthly Quality Forums, chaired by the respective owning General Manager. As an additional focal point a Key Quality Initiative was raised on common audit findings which is regularly reviewed at the weekly GM Safety and Quality meeting and this links to actions taken by owning General Manager's for each of the areas concerned.

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