



EASA
European Aviation Safety Agency

Follow-up of safety recommendations

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Results of safety recommendations

- Practical results of safety recommendations
 1. Airworthiness directive (AD) when urgent action is needed on in-service aircraft,
 2. Rulemaking process to prevent future accidents or incidents,
 3. Safety information bulletin (SIB) in other cases.
- Conclusion



Case 1: airworthiness directive (AD)

ADAS332 L2, G-REDL, 01 April 2009

AAIB Safety Recommendations (initial):

- An initial report on the circumstances of this accident was published by the AAIB on 10 April 2009; this report contained three Safety Recommendations (**2009-048, 2009-049, 2009-050**) relating to additional inspections and enhanced monitoring of the main rotor gearbox.*

EASA responded immediately to these recommendations by issuing the Emergency Airworthiness Directive No 2009-0087-E, dated 11 April 2009. This mandated a routine inspection of the epicyclic magnetic chip detector every 10 flight hours or after the last flight of the day. It also required operators to inspect their maintenance records to ensure that task 60.00.00.212 had been followed correctly following the discovery of particles on the epicyclic magnetic chip detector.

- Initial Report No. 2, dated **17 April 2009**, contained safety Recommendation **2009-051**:*
- It is recommended that Eurocopter, with the European Aviation Safety Agency (EASA), develop and implement an inspection of the internal components of the main rotor gearbox epicyclic module for all AS332 L2 and EC225LP helicopters as a matter of urgency to ensure the continued airworthiness of the main rotor gearbox. This inspection is in addition to that specified in EASA Emergency Airworthiness Directive 2009-0087-E, and should be made mandatory with immediate effect by an additional EASA Emergency Airworthiness Directive.*

The EASA responded by issuing Emergency Airworthiness Directive 2009-0095-E, **dated 17 April 2009**. In addition to the repeat inspection requirements of the epicyclic magnetic chip detection in AD 2009-0087-E, this mandated a one-time inspection of the MGB epicyclic module.



Case 2a: change in CS

- AAIB report 2004-107 (10-Jul-2004), AAIB Bulletin 8/2003 (11-Aug-2002) and other reports on aeroplane turned over with problems for occupants to escape
- Safety Recommendation requested EASA to check and amend at that time current Certification Specifications in respect to turn over with aeroplanes having a canopy, as there is the risk of trapped persons on board in case of turn over.
- EASA initiated RMT VLA.004 Exits resulting in Amendment 1 to CS-VLA (05-Mar-2009)
- **Delay for complete rulemaking process: 5 years.**



Case 2a: change in CS

S92-A, C-GZCH, 12 March 2009

TSB Safety Recommendations:

A11-01:

- *The Federal Aviation Administration, Transport Canada and the European Aviation Safety Agency remove the "extremely remote" provision from the rule requiring 30 minutes of safe operation following the loss of main gearbox lubricant for all newly constructed Category A transport helicopters and, after a phase-in period, for all existing ones.*

A11-02:

- *The Federal Aviation Administration assess the adequacy of the 30 minute main gearbox run dry requirement for Category A transport helicopters.*

Following the accident report including the above recommendations, a working group was set up between FAA, EASA and TC to discuss the need for changes to Part / CS 29. The Rulemaking Group RMT.0608 was formed and is now developing an NPA which will change the philosophy of 29.927(c) to achieve confidence in a run-on capability after loss of oil for at least 30 minutes, resulting in significant extra certification / development work for the applicant. In addition 29.917(a) and (b) will be supplemented to fully address safety assessment of lubrication systems.



Case 2b: change in industrial standard

➤ Accident occurred on 25th June 2011, followed by AAIB report 5/2012 issued on **13-01-2012**.

➤ Safety Recommendation requested:

EASA to amend 'Certification Specifications for Light Sport Aeroplanes' (CS-LSA) to require the installation of a strainer at the fuel tank outlet, to reduce the risk of foreign objects in the fuel tank restricting the fuel supply.

➤ EASA requested ASTM to change standard resulting in Rev F2245-12d (**01-12-2012**)

➤ EASA published NPA 2013-05 (**15/04/2013**)

➤ CS-LSA was revised **30-07-2013**



Case 3: ATR propeller blades (1/3)

- Since 2008, several ATR 72-212A experienced broken or cracked blade trunnion pin.
- All events occurred in initial descent.
- This resulted in sudden and severe propeller vibrations
 - some flight crews had difficulty in identifying the affected engines.
 - some cabin crew reported difficulties to walk in the cabin as a result of vibrations.



Case 3: ATR propeller blades (2/3)

- No accident, but several incidents.
- Failure mode not addressed by the ATR certification basis.
- Complex technical issue, root cause not established, involving several approval holders (airframe, engine, propeller).
- Issue under close scrutiny as part of the EASA / ATR continued airworthiness monitoring.



Case 3: ATR propeller blades (3/3)

- BEA investigating most recent events.
- After several meetings with EASA, ATR and UTAS, BEA published several safety recommendation's (FRAN-2014-016, -017, -018).
- In reply, EASA published SIB 2015-03.
- The SR issuance prompted SIB issuance and allowed fruitfull coordination among all parties.



Case3: Boeing MD-83 Mali accident

- Accident in July 2014.
- Malian / BEA investigation concluded ice crystal might have blocked engine EPR sensors.
- Several similar events
- BEA recommendations addressed by:
 - SIB (general applicability on high altitude stalls)
 - AD (AFM procedure / training), very close to the concept of operationnal AD.



Conclusion

- Focussed recommendations falling in the remit of the Agency are easier to process. They will result in:
 - ADs, urgent safety concern,
 - Change in CSs for future products;
- Other recommendations are more difficult to process,
 - A safety information bulletin (non MCAI) is issued when the Agency needs to take action but when the reco is not fully in its remit,
 - Operational directives will improve the situation;
- Unfocussed recos should be avoided.



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