ACCIDENT INVESTIGATION

DAVID LEARMOUNT / LONDON

NTSB gets tough on maintenance

Safety board demands post-service checks following probe into 1900D that crashed because of undetected error

A complete functional check should be carried out after maintenance on all "critical flight systems", says the US National Transportation Safety Board (NTSB). The board has made 25 recommendations following its investigation of the Air Midwest Raytheon Beech 1900D crash at Charlotte-Douglas airport, North Carolina on 8 January 2003.

The aircraft crashed out of control because of an undetected mistake during maintenance on the aircraft's elevator control system, according to NTSB investigators, and the two pilots and all 19 passengers were killed.

The NTSB has revealed that post-maintenance checks of flight-control functions were not previously required either by the aircraft's maintenance manual or by the US Federal Aviation Administration, and as a result the board has slammed both Raytheon and the FAA. It has recommended that such checks be included in all maintenance manuals, but also that they should be made mandatory by regulation. The FAA has not responded to the recommendations yet, but is required to do so within 90 days of the report.

Meanwhile, the airline and maintenance contractor Raytheon Aerospace have also been criticised for failing to provide adequate maintenance supervision and follow detailed established procedures.

The final accident report will be published in about five weeks, says the NTSB, but it released the probable cause, conclusions and recommendations after a board meeting last week. Newly revealed was the finding that the aircraft, which took off close to its maximum takeoff weight, had been loaded unevenly, giving it a centre of gravity well aft of limits, which was disastrous considering the nature of the maintenance error.

Operating as US Airways Express flight 3481, the aircraft took off from Charlotte-Douglas, quickly adopted a high nose-up attitude, lost speed, stalled, crashed and burned out. Maintenance work just completed had left the elevator control system mis-rigged, so that the maximum elevator-down (pitch-down command) movement available was 7°, "about one half of the downward travel specified by the aircraft manufacturer", says the report. This did not give the pilots enough pitch-down moment to overcome the effects of the tail-heavy loading. The manufacturer has since supplied to all 1900D operators a "travel board" - a template that can be used against control surfaces to check the correct degree of travel, which it says had always been available for purchase as a maintenance tool.

The FAA is at pains to point out that, although it has not responded to NTSB recommendations yet, it has already carried out a six-action programme to reduce the likelihood of a similar event. These include a 31 January 2003 emergency airworthiness directive to all operators of similarly rigged aircraft requiring a post-maintenance functional check to be carried out; increase of the mandatory assumed weight of carry-on baggage; and launch of a programme to establish how far above the assumed passenger weight the real average US passenger weight actually is.

**When history was repeated...**

The two pilots of a Colgan Air Beech 1900D were killed when it crashed shortly after take-off from Yarmouth, Massachusetts, after maintenance on 26 August last year. The NTSB interim report said elevator trim cables had just been replaced, and the FAA says instructions in the type maintenance manual have since been changed. Ambiguous instructions for the elevator trim rigging procedure are considered in the ongoing NTSB Colgan Air investigation, says the FAA. Then on 16 October the crew of a CommutAir 1900D aborted their take-off run at Albany, New York at rotate because the elevator control appeared to be jammed. This was also the first flight after maintenance. In this case the trim wheel had been removed to give the mechanic access to the throttle mechanism, and the NTSB reports that, upon replacing the wheel, it was not indexed, so the trim was nose-down when the trim wheel was set to neutral.

**FLEET RENEWAL**

Aeroflot switches to MD-11F

Aeroflot's directors have approved the replacement of its four McDonnell Douglas DC-10-40 freighters (above) with up to six Boeing MD-11Fs and Ilyushin Il-96-400T freighters. The new aircraft will operate scheduled services from Europe to Asia via Moscow, plus charters. The Il-96-400T will only be taken if the aircraft meets Ilyushin's technical performance and price guarantees, says Aeroflot. MD-11 deliveries will start early next year but a supplier is yet to be finalised. Meanwhile, the Tupolev Tu-204C freighter is being considered for European services, with 10 aircraft needed by 2010.

**CHARTER SUBSIDIARY**

Vasco leases An-38s for passenger flights

Vietnam Airlines' charter subsidiary, Vietnam Air Service (Vasco), is planning to launch scheduled passenger services using two Antonov An-38 turboprops wet-leased from the manufacturer. Vasco, which has until now been a charter passenger and cargo carrier, will take delivery of the Honeywell TPE331-powered aircraft next month on a two-year wet lease, says Vasco. The Ukrainian manufacturer is also providing pilots and mechanics, but in the longer term Vasco plans to train its own pilots, it says.

"We are leasing the aircraft first and if all checks out we plan to purchase the aircraft," it says. Vasco aims to operate the An-38s on short-haul routes from Ho Chi Minh to small cities in Vietnam such as Can Tho and Con Son. The carrier has no plans to launch international scheduled passenger services, he says. Vietnam Airlines also operates scheduled domestic passenger services, but focuses on the main trunk routes.

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