

**BULLETIN ADDENDUM**

<b>AAIB File:</b>	<b>EW/A2003/03/01</b>
<b>Aircraft Type and Registration:</b>	Airbus A320-231, G-MEDA
<b>Date &amp; Time (UTC):</b>	31 March 2003 at 2338 hrs
<b>Location:</b>	On approach to Runway 25L, Addis Abeba Airport, Ethiopia

**AAIB Report published on the AAIB website in January 2008, pages 60-61 refer**

The investigation and subsequent report into the circumstances of this serious incident was the responsibility of the Ethiopian Civil Aviation Authority. The AAIB published the results of their own investigation, including six draft Safety Recommendations, on the internet with the expectation that the Ethiopian CAA, as the State of Occurrence, would include these Safety Recommendations as and when their official report was published.

The Ethiopian CAA final report has not yet been published and the AAIB has been given no timescales for this to take place. Therefore, as a number of safety deficiencies have been identified and require addressing, the AAIB is formally issuing these six Safety Recommendations.

**Safety Recommendations**

The systems which were fitted to the aircraft to provide a safety net against a CFIT<sup>1</sup> accident performed as they were designed but were ineffective in preventing this incident. Therefore, the safety of the aircraft during the ADS<sup>2</sup> VOR/DME approach procedure was entirely

dependent on the correct operation of the ADS VOR and its monitoring systems. For as long as the ADS VOR continued to radiate incorrect bearing information there was a risk that another aircraft could suffer the same problem. The following Safety Recommendations are made:

**Safety Recommendation 2010-020**

It is recommended that the Ethiopian Civil Aviation Authority review the quality mechanisms that govern maintenance and monitoring of the ground station facilities to ensure that the correct procedures and correct parts are used.

**Safety Recommendation 2010-021**

It is recommended that the Ethiopian Civil Aviation Authority review their procedures for the issuing of NOTAMs and other safety related information to ensure a more robust process.

**Safety Recommendation 2010-022**

It is recommended that the International Civil Aviation Organization review the methods by which the effectiveness of radio navigation aid ground station monitors are assured.

**Footnote**

<sup>1</sup> Controlled Flight Into Terrain.

<sup>2</sup> Addis Abeba VHF Omni-Directional Radio Range beacon and Distance Measuring Equipment.

Since the original standards for TAWS<sup>3</sup> were set the industry has improved the performance and understanding of the TAWS capabilities significantly beyond the required minimum standard. Due to the significance of these improvements the major aircraft manufacturers have encompassed many of these improvements into their new deliveries. However, there are no retrofit requirements and as long as non-GPS systems are present on aircraft there is a significant potential for a CFIT accident due to a navigation error.

**Safety Recommendation 2010-023**

It is recommended that the European Aviation Safety Agency and the Federal Aviation Administration review and revise the existing TAWS certification requirements with a view to ensuring that they protect against common mode failures that could induce a CFIT accident. Furthermore the minimum requirements for the navigational accuracy of sources used for TAWS should be tightened to reflect the needs of the system to perform its function. These revised standards should then be applied retrospectively to all aircraft required to be fitted with TAWS.

Both the FMS<sup>4</sup> and TAWS had sufficient information to identify that there was a problem with the ADS VOR and the derived position information but there is no mechanism or requirement to communicate this effectively to the crew.

**Safety Recommendation 2010-024**

It is recommended that the European Aviation Safety Agency and the Federal Aviation Administration study the issues relating to the use of TAWS so that where data source problems are identified by the system the flight crew can be alerted.

**Safety Recommendation 2010-025**

It is recommended that the European Aviation Safety Agency and the Federal Aviation Administration consider whether the crew should be alerted when a FMS has identified a recurrent problem with a particular navigation aid and furthermore consider whether the subsequent use of that navigation aid for position information is desirable.

**Footnote**

<sup>3</sup> Terrain Awareness Warning Systems.

**Footnote**

<sup>4</sup> Flight Management System.