

## SYNOPSIS

Operator:	Spanair
Aircraft:	McDonnell Douglas DC-9-82 (MD-82); registration EC-HFP
Date and time of accident:	20 August 2008; at 14:24 h <sup>1</sup>
Accident site:	Madrid-Barajas Airport (Spain)
Persons onboard and injuries:	172 (6 crew & 166 passengers); 154 fatal (6 crew & 148 passengers) & 18 seriously injured
Type of flight:	Commercial Air Transport – Regular – Domestic – Passengers
Phase of flight:	Takeoff – Takeoff run
<b>Date of approval:</b>	26 July 2011

### Summary of accident

The Civil Aviation Accident and Incident Investigation Commission was notified of the accident 14:43 on 20 August 2008 by means of a telephone call placed from the Airport Operations Office (AOO) at Barajas Airport. A team consisting of six investigators, as well as the President of the Commission, immediately proceeded to Barajas.

In keeping with international regulations, the NTSB of the United States of America was notified as the representative of the State of design and manufacture of the aircraft. Also informed were national civil aviation authorities, the European Aviation Safety Agency (EASA) and the International Civil Aviation Organization (ICAO). The NTSB appointed an accredited representative to participate in the investigation, assisted by experts from the NTSB, the FAA, Boeing, as successor of the rights and obligations of the original aircraft manufacturer, and from Pratt & Whitney, the engine manufacturer. Spanair, the operator of the aircraft, participated in and cooperated with the investigation, providing experts on operations, airworthiness and maintenance. Spain's DGAC and the Aviation Safety Agency<sup>2</sup>, as well as the European Aviation Safety Agency, also collaborated in supplying information and were kept apprised of the more important aspects of the investigation.

The investigation has determined that the accident occurred because:

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<sup>1</sup> Unless otherwise specified, all times in this report are local times in the Spanish mainland. To obtain UTC, subtract two hours from local time. The local time in the Canary Islands is one hour less than in the mainland.

<sup>2</sup> Spain's civil aviation authority is comprised jointly by the Civil Aviation General Directorate (DGAC) and Spain's National Aviation Safety Agency (AESA).

The crew lost control of the airplane as a consequence of entering a stall immediately after takeoff due to an improper airplane configuration involving the non-deployment of the slats/flaps following a series of mistakes and omissions, along with the absence of the improper takeoff configuration warning.

The crew did not identify the stall warnings and did not correct said situation after takeoff. They momentarily retarded the engine throttles, increased the pitch angle and did not correct the bank angle, leading to a deterioration of the stall condition.

The crew did not detect the configuration error because they did not properly use the checklists, which contain items to select and verify the position of the flaps/slats when preparing the flight. Specifically:

- They did not carry out the action to select the flaps/slats with the associated control lever (in the “After Start” checklist);
- They did not cross check the position of the lever or status of the flaps and slats indicating lights when executing the “After Start” checklist;
- They omitted the check of the flaps/slats when doing the “Takeoff Briefing” in the “Taxi” checklist;
- During the visual check performed as part of the “Final Items” in the “Takeoff Imminent” checklist, the actual position of the flaps/slats as shown on the cockpit instruments was not verified.

The CIAIAC has identified the following contributing factors:

- The absence of a takeoff configuration warning resulting from the failure of the TOWS to operate, which thus did not warn the crew that the airplane’s takeoff configuration was not appropriate. The reason for the failure of the TOWS to function could not be reliably established.
- Improper crew resource management (CRM), which did not prevent the deviation from procedures in the presence of unscheduled interruptions to flight preparations.

As a result of the investigation, 33 recommendations on operational safety have been issued to the International Civil Aviation Organization (ICAO), the Federal Aviation Administration (FAA) of the United States, the European Aviation Safety Agency (EASA), Spain’s Aviation Safety Agency (AESA), the provider of airport and air navigation services in Spain, AENA (Spanish Airports and Air Navigation), and to the operator, Spanair, as appropriate.