

## **The response from the FAA to the safety recommendation**

The Japan Transport Safety Board received the final response from the Federal Aviation Administration (FAA) of the United States of America to the safety recommendation issued April 26, 2013 as attached regarding an accident of N526FE (McDonnell Douglas MD-11F) operated by Federal Express Corporation at Narita International Airport, Japan on March 23, 2009.

### JTSB safety recommendation to the FAA

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On March 23 (Monday), 2009, about 06:49 JST (Japan Standard Time), a McDonnell Douglas MD-11F, registered N526FE, operated by Federal Express Corporation as the scheduled cargo flight FDX80, bounced repeatedly during landing on Runway 34L at Narita International Airport. During the course of bouncing, its left wing was broken and the airplane caught fire. The airplane rolled over to the left being engulfed in flames, swerved off the runway to the left and came to rest inverted in a grass area on the west side of the runway.

The airplane approached with a high sink rate, with its autothrottle “on” amid strong gusty winds and with unstable airspeed and attitudes. The late flare caused hard landing and the airplane bounced. Large nose-down elevator input just before and during the touchdown caused the second touchdown on the NLG with negative pitch attitude

developing into porpoising. Upon the third touchdown, the left wing structure fractured because it surrendered to an overload transferred from the left MLG.

As a result of the investigation of this accident, the JTSC makes the following recommendations to the Federal Aviation Administration of the United States of America to take the following measures to prevent the recurrence of similar accidents.

**Measures to Be Taken to Supervise the Boeing Company as the Airplane Manufacturer**

- b. In order to help pilots to conduct recovery operation from large bounces and judge the necessity of go-around, studies should be made to install a visual display and an aural warning system which show gear touchdown status on MD-11 series airplanes.



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

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DEC 14 2015

Norihiro Goto  
Chairman  
Japan Transport Safety Board  
2-1-2, Kasumigaseki  
Chiyoda-ku, Tokyo, 100-8918  
Japan

Dear Chairman Goto:

This is our final response to Federal Aviation Administration (FAA) Safety Recommendation 13.063 issued by the Japan Transport Safety Board (JTSB) on April 26, 2013. The JTSB issued this safety recommendation following its investigation of a McDonnell Douglas (now Boeing) MD-11F accident which occurred at Narita International Airport on March 23, 2009. A Federal Express (FedEx) Corporation MD-11F, operating as FedEx flight 80, bounced repeatedly while landing on Runway 34L. Impact forces incurred during the landing sequence broke the left wing which separated from the fuselage attach point. The aircraft caught fire, rolled to the left, and swerved off the left side of the runway. The aircraft came to rest inverted in a grassy area. The aircraft was destroyed, and both pilots received fatal injuries.

13.063. In order to help pilots to conduct recovery operation from large bounces and judge the necessity of go-around, studies should be made to install a visual display and an aural warning system which show gear touchdown status on MD-11 series airplanes. [JTSB 6.2(d)]

FAA Comment. The FAA certified the Boeing Off the Ground Advisory System (OGAS), later renamed Strut Extended Annunciation System (SEAS), on December 17, 2014. The SEAS system is available for operator retrofit, if desired, via Boeing Service Bulletin MD11-32-093, Main Landing Gear Struts Extended Annunciation System (SEAS), issued on December 15, 2014.

The SEAS is a system that provides an advisory only indication (a blue light) to the aircrew, which illuminates in the cockpit when the sensor detects both main landing gear struts are within 0.5 inches of full extension after touchdown (indicating the aircraft is off the ground). The blue light extinguishes when either the right or left main landing gear strut is compressed approximately 0.5 inches indicating the aircraft is on the ground. This system is designed to advise the crew that the nose should not be derotated and reverse thrust should not be applied during the landing phase if the blue light illuminates. In addition, the blue light may be used, in conjunction with other information, to inform the flying pilot's decision to either continue the landing or to initiate a go-around.

Prior to the SEAS, Boeing implemented in 2010 initial and recurrent enhanced landing training for two of the largest MD-11 operators, FedEx and United Parcel Service (UPS), and subsequently held bounced landing prevention seminars for all operators in 2012. In addition to the enhanced training, Boeing also highlighted the need for proper servicing of the main landing gear struts, which, if not accomplished properly, could contribute to bounced or skipped landings. Landing data was then analyzed from FedEx and UPS from both before and after the enhanced training and it was determined that the training, along with the enforcement of proper strut servicing, led to a substantial reduction in the frequency of hard landings. Since the implementation of these programs, operators of the current MD-11 have not reported any hard landings.

The FAA concluded that the MD-11 enhanced training along with correct strut servicing is effective at preventing hard landings. Based on the effectiveness of the training, the FAA does not intend to mandate installation of the SEAS on MD-11s.

I believe that the FAA has effectively addressed Safety Recommendation 13.063 and consider our actions complete.

The FAA would like to thank the JTSB for submitting FAA Safety Recommendation 13.063 and its continued interest in aviation safety. If you have any questions, or need additional information regarding this safety recommendation, please contact

(Name and Phone Number)

Sincerely,

(Original signed)

Director, Office of Accident Investigation  
and Prevention