

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

The Japan Transport Safety Board received the additional 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 JTSB 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.

#### **Actions to Be Taken by the Federal Aviation Administration**

- a. Although the MD-11 airplane was certified to the requirement 14 CFR 25.721(a) under the interpretation at the time of certification, its design would not meet the present interpretation of the requirement since the design allows the possibilities of causing severe damage to the airplane structure in the failure mode under an overload condition where the vertical load is the primary component, resulting in the fire due to fuel spillage. As this kind of design should not be certified from now on, the airworthiness regulation rather than the guidance material should be revised to mandate the assumption of the assumption of the overload condition in which the vertical load is the primary component.



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

Office of the Administrator

800 Independence Ave., S.W.  
Washington, D.C. 20591

Attachment

JUN 25 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 Safety Recommendation 13.060 issued by the Japan Transport Safety Board (JTSB) to the Federal Aviation Administration (FAA) 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 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.

13.060. Although the MD-11 airplane was certified to the requirement 14 CFR § 25.721(a) under the interpretation at the time of certification, its design would not meet the present interpretation of the requirement since the design allows the possibilities of causing severe damage to the airplane structure in the failure mode under an overload condition where the vertical load is the primary component, resulting in the fire due to fuel spillage. As this kind of design should not be certified from now on, the airworthiness regulation rather than the guidance material should be revised to mandate the assumption of the overload condition in which the vertical load is the primary component. [JTSB 6.1(a)]

FAA Comment. As noted in our letter dated August 28, 2013, the FAA published a Notice of Proposed Rulemaking, which proposed revising Title 14, Code of Federal Regulations Section 25.721(a), to require consideration of side loads in addition to upward and aft loads. On October 2, 2014, we issued the final rule for § 25.721, Harmonization of Airworthiness Standards—Miscellaneous Structures Requirements (78 FR 13835), which became effective on December 1, 2014. The final rule can be found at the following Web site:

<https://federalregister.gov/a/2014-23373>.

The revised rule states, "The landing gear system must be designed so that when it fails due to overloads during takeoff and landing, the failure mode is not likely to cause spillage of enough fuel to constitute a fire hazard. The overloads must be assumed to act in the upward and aft directions in combination with side loads acting inboard and outboard."

The accompanying FAA Advisory Circular (AC) 25-30, Fuel Tank Strength in Emergency Landing Conditions, issued on October 7, 2014, states, "Failure of the landing gear due to overload should be considered, assuming the overloads act in any reasonable combination of vertical and drag loads..." AC 25-30 can be found at the follow Web site:

[http://rgl.faa.gov/REGULATORY\\_AND\\_GUIDANCE\\_LIBRARY/REGADVISORYCIRCULAR.NSF/0/81bd3117524854b286257d6b00703c07/\\$FILE/AC\\_25-30.pdf](http://rgl.faa.gov/REGULATORY_AND_GUIDANCE_LIBRARY/REGADVISORYCIRCULAR.NSF/0/81bd3117524854b286257d6b00703c07/$FILE/AC_25-30.pdf).

The revised rule and guidance provided in the new AC will ensure that failure of the landing gear due to a primarily vertical overload will be considered in the design of future transport category airplanes.

I believe that the FAA has effectively addressed Safety Recommendation 13.060 and consider our actions complete.

The FAA would like to thank the JTSB for submitting FAA Safety Recommendation 13.060 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