

平成 28 年 1 月 26 日
運輸安全委員会

米国連邦航空局に対する安全勧告に関するフォローアップについて

運輸安全委員会は、平成 21 年 3 月 23 日に成田国際空港滑走路で発生したフェデラル エクスプレス コーポレーション所属 MD - 11F 型機航空事故の調査において、平成 25 年 4 月 26 日に航空事故調査報告書の公表とともに米国連邦航空局（FAA）に対して安全勧告を行ったところですが、今般、安全勧告に対する措置状況について通知がありました。概要は以下のとおりです。

1. 安全勧告

同機の設計・製造者であるボーイング社に対して指導すべき措置

過大なバウンドへの対応及び操縦者のゴーアラウンドの判断に資するため、継続的に主脚が滑走路路上にあること、あるいはバウンドしていることを視覚表示装置及び音声警報装置により運航乗務員が容易に知ることができるように、MD-11 系列型機を改善すること。

2. 米国連邦航空局（FAA）からの通知（要約）

同機の設計・製造者であるボーイング社に対して指導すべき措置

FAA は、ボーイング社の Strut Extended Annunciation System (SEAS: 脚柱緩衝装置伸長表示システム) を 2014 年 12 月 17 日に承認した。

※ SEAS 機体接地後に両方の主脚緩衝装置が伸びきった状態から 0.5 インチ以内にあることをセンサーが検知した時（機体が地面から離れていることを示す）、コックピット内で青灯表示のみにより、運航乗務員に知らせるシステム



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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