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SAFO

Safety Alert for Operators

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https://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo/all_safos

A SAFO contains important safety information and may include recommended action. Besides the specific action recommended in a SAFO, an alternative action may be as effective in addressing the safety issue named in the SAFO. The contents of this document do not have the force and effect of law and are not meant to bind the public in any way. This document is intended only to provide clarity to the public regarding existing requirements under the law or agency policies.

Subject: Potential for Jammed or Restricted Rudder on Boeing Model 737 Series Airplanes Equipped with Optional Collins Aerospace SVO-730 Rudder Rollout Guidance Actuators (RRGA).

Purpose: This SAFO serves to notify Operators of Boeing model 737, 737 -600/-700,-800,-900,-900ER(737NG) and 737-8, -8200, and -9 (737 MAX) series airplanes equipped with Collins Aerospace SVO-730 RRGAs that the potential exists for limited or jammed rudder movement.

Background: A recent event occurred involving a Boeing 737-8, where the flightcrew was unable to move the rudder pedals during landing rollout. Based on post-incident investigation, it is believed that the Collins Aerospace SVO-730 RRGA was the source of the flight control restriction. The RRGA provides rudder inputs during landing rollout, where directional guidance is provided by the autoflight system after touchdown on CAT IIIB equipped airplanes. The airplane was equipped with the RRGA, but not electrically connected to the Digital Flight Control System (DFCS).

Preliminary findings suggest the jammed or restricted rudder was a result of moisture that had previously entered the actuator and froze during flight. Boeing 737 airplanes with the SVO-730 RRGA installed may be affected by this condition. This also includes airplanes with electrically deactivated actuators that remain mechanically connected to the upper portion of the rudder input torque tube per normal system installation. Airplanes which have the RRGA actuators removed are not affected.

Discussion: Operators of Boeing 737NG and 737MAX airplanes equipped with Collins Aerospace SVO-730 RRGA should instruct flightcrews that the rudder control system could potentially become jammed or restricted in flight or during landing due to moisture that could accumulate and freeze in the RRGA actuator.

If the rudder restriction condition is encountered in flight, Boeing recommends flightcrews follow the Jammed or Restricted Flight Controls Non-Normal Checklist (NNC). If this rudder restriction is encountered on the ground, use differential braking to maintain runway centerline. Avoid using nosewheel steering above 100 Knots Indicated Airspeed (KIAS) unless necessary for airplane control as a potential for overcontrol exists.

Recommended Actions: Operators should familiarize themselves with the information contained in this SAFO and Boeing's Multi-Operator Message (MOM) 24-0142-02B. This MOM references an Operations Manual Bulletin (OMB) to be provided to each operator to reiterate appropriate flightcrew guidance.

Per the Boeing OMB, restricted rudder may also be identified during a dual autopilot approach on airplanes equipped with Fail Operational Autoland systems with RRGA installed. The autoflight system conducts a test of the autopilot rudder servo after capturing the LOC or G/S and when below 1,500 feet radio altitude to verify servo functionality. A small movement of the rudder is applied during the test. The presence of a NO LAND 3 message will alert the flightcrew if there are any system anomalies or rudder restrictions.

Provided RRGA is installed and active, and destination airport has Instrument Landing System (ILS) in use for the active runway, the Federal Aviation Administration (FAA) recommends selecting dual autopilot ILS approach as applicable and appropriate to verify servo functionality (absence of NO LAND 3 message), regardless of the type of planned approach to be executed to landing.

During manual flight, any noticeable rudder restriction could be indicative of this problem and the NNC for Jammed or Restricted Flight Controls should be conducted at a safe altitude.

Contact: Direct questions or comments regarding this SAFO to the Aircraft Evaluation Division at 9-avs-afs-100@faa.gov.