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InFO

Information for Operators

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http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info

An InFO contains valuable information for operators that should help them meet certain administrative, regulatory, or operational requirements with relatively low urgency or impact on safety.

Subject: Bombardier CL-600-1A11 (CL-600), CL-600-2A12 (CL-601, and CL-600-2B16 (CL-601-2A, CL-601-3R, and CL-604) Mistrim Takeoffs

Purpose: To alert operators of Bombardier's CL-600 series of airplanes, listed above, the importance of proper takeoff stabilizer-trim settings and the mistrim-takeoff characteristics of the airplane.

Background: On February 2, 2005 a Bombardier Challenger CL-600-1A11 ran off the departure end of runway 6 at Teterboro Airport (TEB), Teterboro, New Jersey. In addition to injuries, the airplane was destroyed. The National Transportation Safety Board (NTSB) determined that the probable cause of the accident was the flightcrew's attempt to take off with the center of gravity (CG) well forward of the forward takeoff limit, which prevented the airplane from rotating at the expected rotation speed.

Discussion: During the investigation of the accident, the rotation and takeoff characteristics of the CL-600 under a variety of CG and stabilizer trim settings, including the accident conditions, were evaluated on a crew-training simulator and an engineering simulator. The simulation results indicated that the rotation characteristics of the airplane with the CG at the most forward limit and with the horizontal stabilizer at the nose-down limit of the takeoff green band were very similar to the rotation characteristics of the airplane under the accident conditions. The simulator test for this condition was compared to flight testing at the similar conditions. The comparison showed that the simulator results were reasonable and allows a conclusion that mistrimming in this way could cause delayed rotation on the order of 15 to 20 kts beyond the scheduled rotation speed. The delayed rotation characteristics associated with this condition, if encountered during an actual takeoff, may make pilots believe that the airplane will not fly and lead them to abort the takeoff at speeds well above V₁, with possible catastrophic results.

Recommended Action: Directors of safety, directors of operations, trainers and check airmen for operators flying CL-600 series of airplanes, listed above, should make known to their flightcrews the mistrim takeoff characteristics described above. This information should emphasize the potential for a catastrophic accident, especially when operational constraints, such as a balanced field length are also present. This information should be included in manuals and in all phases of training and checking. Managers at training centers conducting pilot training should ensure that their instructors clearly point out to pilots in training the necessity of having an accurate aircraft CG, trim setting and the characteristics of a mistrim takeoff.

Contact: Questions or comments concerning this InFO should be addressed to the Air Carrier Training Branch, AFS-210, at (202) 267-8166.