



Safety recommendation no. 552

Date of the publication	25.02.2020
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Safety deficit	<p>On 15 July 2018, the scheduled flight from Porto (LPPR) to Geneva (LSGG) was carried out on the A220-300 commercial aircraft, registered as HB-JCC. Two pilots, three cabin crew members and 41 passengers were on board.</p> <p>When initiating takeoff, the pilot flying (PF) advanced the thrust levers, assuming that the autothrottle (AT) – which had already been armed – would now engage and would set the takeoff power to the required level (N1 rpm). As the thrust levers were only advanced to a thrust lever angle (TLA) of 20.6°, the AT remained armed without becoming engaged.</p> <p>After exceeding a wheel speed (WS) of 60 kt, the spoilers deployed by design.</p> <p>At an indicated airspeed of between 90 and 100 kt, the flight crew noticed that the power had been set too low. After advancing the throttles past the critical TLA of 23°, the spoilers retracted by design. During this time, the CONFIG SPOILER warning was displayed for four seconds.</p> <p>The aircraft took off approximately 1000 metres before the end of the runway, at a distance which was 1.5 times the length of the takeoff distance calculated, continued to climb and landed in Geneva without any further incidents.</p>
Safety recommendation	Together with the manufacturer, the National Aircraft Certification at Transport Canada (TC) should ensure that the spoilers are not automatically deployed when taking off with insufficient takeoff power.
Addressees	National Aircraft Certification at Transport Canada; National Transportation Safety Board
Stage of the implementation	<p>Partially implemented. By letter of 6 November 2020 the Transport Canada (TC) agrees with the Swiss Transportation Safety Investigation Board (STSB) Safety Recommendation and, in response, TC's National Aircraft Certification Continuing Airworthiness division required the development, by Airbus Canada, of a corrective action plan to address the hazard of automatic deployment of spoilers with insufficient takeoff power.</p> <p>As a result, Airbus Canada is conducting an evaluation of the A220 Ground Lift Dumping (GLD) control logic used during takeoff in order to determine if it must be modified to ensure that spoilers do not automatically activate inappropriately during takeoff. TC is monitoring this evaluation and, subject to its findings, will take safety action as needed. The evaluation is expected to be concluded by the end of June 2021.</p>

Prior to completion of the evaluation, and in order to reduce the possibility of inappropriate automatic deployment of spoilers during takeoff, the following corrective actions are performed or planned:

- A220 training material enhancement aimed at improving flight crew management of the auto throttle and understanding of the GLD control logic during takeoff. Airbus Canada's training team is working to schedule the simulator session which was identified as a prerequisite to acceptance of the training material, but was unable to secure Transport Canada Civil Aviation Flight Standards availability before late March or early April. The final details and scheduling are still being discussed.
- A220 Flight Crew Operating Manual (FCOM) Volume 2, procedures enhancement to better ensure correct setting of thrust levers for takeoff including a new Pilot Monitoring callout for correct engagement of the auto throttle were reviewed and published as part of FCOM Vol. 2 issue 016C (A220-100 and A220-300). The procedures are currently available on the Interactive Electronic Technical Publication (IETP).
- Additionally, a software update to improve annunciation of auto throttle status to flight crews is under development and is expected to be released in avionics build 8A3, currently planned for March 2023.

By letter of 26 April 2021 the Transport Canada (TC) informed that meanwhile TC and Airbus Canada held a simulator session and the training material is released and will be used by Airbus training center.

By letter of 30 June 2021 the Transport Canada (TC) informed that "Airbus Canada has completed its evaluation of the possibility to revise the GLD control logic during takeoff. Several technical concepts were considered, after which Airbus Canada selected a preferred approach to adapt the hysteresis thresholds in the GLD logic. This approach will limit exposure at takeoff under improper thrust settings, by reducing the TLA [throttle lever angle] upper threshold limit for spoiler deployment. It was determined during conceptual review that such a change was technically feasible without detrimentally affecting other protection functions within the GLD logic. Airbus Canada has initiated the detailed design work for the described software change and expects it to be available for implementation in the fleet by the end of 2024."

By letter of 27 January 2025 Airbus Canada Limited Partnership (ACLP) informed that

- SB BD500-270022 was issued on July 25, 2024, introducing the software update (PFCC-009) with revised Ground Lift Dump control logic. This SB has been mandated by TCCA AD CF-2024-36;
- ACLP will issue a SB introducing new avionics build "8.0A3 without FMS" by December 2025. The SB has been recommended for TCCA AD;
- Revised AT Hold indications will be addressed by avionics build "8.0A4" software up-date. The SB release date for build 8.0A4 will be finalized by ACLP by the end of Q1-2025;
- New CAS messaging and aural to communication for an improper TLA position will be addressed by RIU software update. The SB release date for the RIU SW update will be finalized by ACLP by the end of Q1-2025.

ACLP Corrective Action Review Board (CARB) will reconvene in March 2025 to assess readiness of the corrective action plan for the above-mentioned open items.

**Investigation report concerning
the safety recommendation**

