



Special Airworthiness Bulletin

BEA 2024-07R1

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ATA 32 – Landing gear: shock absorber servicing.

This Special Airworthiness Bulletin (BEA) is intended to alert the civil aviation community about the best practices of Main Landing Gear (MLG) shock absorber servicing tasks.

This bulletin is informative, and the recommendations herein are not mandatory. Up to this time, there is no airworthiness concern that would warrant an Airworthiness Directive (AD) according to Regulamento Brasileiro da Aviação Civil (RBAC) nº 39.

Applicability:

EMBRAER S.A. airplanes model EMB-545 and EMB-550, all serial numbers.

Description:

After a MLG servicing of the airplane, it has been reported that the Landing Gear (LG) lever could not be moved to the up position immediately after a positive rate of climb was perceived. In subsequent flights, the operator reported some cases of LG levers that couldn't be moved from the down to up position, with some Crew Alerting System (CAS) messages during the flight.

The investigation has shown damages to LG doors and respective seals, which match the expected effects of a landing gear retraction with the shock absorber not fully extended. In this condition, the Weight on Wheels (WoW) sensors indicate the aircraft on the ground, which affects the airplane's control laws.

Evidence has shown that the MLG shock absorber ground servicing task might have been performed not according to manufacturer specifications, leading to incorrect amounts of nitrogen and oil. A nitrogen pressure under 10% of the nominal value, may affect the shock absorber capacity to fully extend, leading to a WoW incorrect indication.

The WoW incorrect indication causes a transition in airplane control laws and may result in an uncommanded pitch-up movement. In addition, the nitrogen and hydraulic fluid low pressure may affect the shock absorber's performance during airplane taxi, takeoff, and landing operations, reducing its ability to absorb impacts and vibrations.

Therefore, EMBRAER has revised the airplane MLG servicing task to allow the servicing only with the airplane on jacks according to the detailed instructions and procedures described in the Airplane Maintenance Manual (AMM) task 12-14-01-610-802- A - Main Landing Gear Shock Absorber with the Aircraft on Jacks – Servicing.

Recommendation(s):

1. Perform the MLG servicing task according to the detailed instructions and procedures described in the Airplane Maintenance Manual (AMM) task 12-14-01-610-802-A - Main Landing Gear Shock Absorber with the Aircraft on Jacks – Servicing.
2. If no jacks are available to perform this servicing task, contact the EMBRAER for an alternative disposition.

References:

1. EMBRAER Service Letter (SL) No. 550-32-0008, revision 01, dated August 13, 2024.
2. Airplane Maintenance Manual (AMM) task 12-14-01-610-802-A - Main Landing Gear Shock Absorber with the Aircraft on Jacks – Servicing, dated August 16, 2024, or further revisions

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