Subject: Landing Gear System - Brake Carbon Disks Damages

Affected Flight Alert

This Flight Alert (FA) cancels and supersedes the Flight Alert Nr. 06/2011, dated August 18, 2011 and is being issued to include an additional maintenance action that should be included in the operator's maintenance program.

Purpose

To inform owners and operators of ERJ 170/175 and ERJ 190/195 airplanes about the possibility of carbon disk brake failure during normal operation and consequent runway contamination by carbon disk brake debris.

Background

Damages leading to unscheduled brake assembly removals have been reported by North American and European operators. The main issue of these events is the loosening of the carbon disk brake lugs attachment in rotors, due to cracking in the anti-nest groove. In some events detached lugs were found on the taxiway due to cracking propagation.

Debris on the runway may be ingested by aircraft engines, resulting in engine failure. Debris can also become lodged in mechanisms, affecting the operation of landing gear, flaps etc. These hazards may be minimized by reducing the possibility of carbon disc brake damages.

In order to find a damaged brake assembly and, to preventively remove it from service before the occurrence of an undesirable carbon brake disintegration event, Embraer has revised the Airplane Maintenance

Manual (AMM) for the ERJ 170/175 and ERJ 190/195 airplanes to include instructions on how to inspect the carbon brake rotors and stators for damages, e.g., carbon chips and debris or crushed, flaked, soft, fractured carbon or missing carbon elements. This inspection should be performed at every main wheel change, independent of brake assembly P/N and accumulated flight cycles.

Recommended Actions

To prevent an undesirable brake failure event and the consequent runway contamination the ANAC recommends that all owners and operators of EMBRAER ERJ-170/175 and ERJ-190/195 airplanes do the following:

- Revise the Maintenance Program to include the revised AMM TASK 32-49-05-000-801-A Main Wheel – Removal, and 32-49-11-200-801-A Brake Assembly (Complete - Wheel removed from aircraft) – Inspection;

- During each main wheel removal, independent of assembly P/N and accumulated flight cycles, perform a detailed visual inspection of the carbon brake rotors and stators in accordance with the revised AMM TASK 32-49-11-200-801-A Brake Assembly (Complete - Wheel removed from aircraft) - Inspection; and,

- Include in the Maintenance Program the revised AMM TASK 32-49-11-210-801-A Brake Assembly Wear-Pin (Fast check - Wheel installed on aircraft) in order to prevent undesirable brake failure event and the consequent runway contamination.

Note: The AMM task 32-49-11-001- General Visual Inspection of Brake Wear Indicator and Brake Assembly, is required to be accomplished at

each 14 days or 120 FH, whichever occurs first, as per the Maintenance Review Board Report (MRBR) 1928 or MRBR 1621, as applicable.

Contact

For additional information regarding this subject please contact the Aeronautical Product Certification Branch (Gerência-Geral de Certificação de Produtos Aeronáuticos – GGCP) by phone at 55 (12) 3797-2525, by Fax at 55 (12) 3797-2330 or via e-mail at pac@anac.gov.br.