EASA	NOTIFICATION OF A PROPOSAL TO ISSUE AN AIRWORTHINESS DIRECTIVE
	PAD No.: 14-056 **Date: 25 March 2014** Note: This Proposed Airworthiness Directive (PAD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.

In accordance with the EASA Continuing Airworthiness Procedures, the Executive Director is proposing the issuance of an EASA Airworthiness Directive (AD), applicable to the aeronautical product(s) identified below.
All interested persons may send their comments, referencing the PAD Number above, to the e-mail address specified in the 'Remarks' section, prior to the consultation closing date indicated.

Design Approval Holder's Name:	**Type/Model designation(s):**
EMBRAER, S.A.	ERJ 170 and ERJ 190 aeroplanes

TCDS Numbers:	EASA.IM.A.001 and EASA.IM.A.071
Foreign AD:	None
Supersedure:	None

ATA 32	**Landing Gear – Wheel Brake Carbon Discs – Inspection / Replacement**
Manufacturer(s):	Embraer, S.A., Empresa Brasileira de Aeronautica, S.A.
Applicability:	Embraer ERJ 170-100 STD, ERJ 170-100 LR, ERJ 170-200 STD and ERJ 170-200 LR aeroplanes, all serial numbers (s/n); and Embraer ERJ 190-100 ECJ, ERJ 190-100 IGW, ERJ 190-100 LR, ERJ 190-100 SR, ERJ 190-100 STD, ERJ 190-200 IGW, ERJ 190-200 LR and ERJ 190-200 STD aeroplanes, all s/n.
Reason:	Unscheduled brake assembly removals have been reported by North American and European operators, due to damaged brakes with damaged or missing rotor lugs and cracking in the anti-nest groove. This damage has predominantly been observed in the Rotor 1. In some events, lugs were found on the taxiway, which had detached as a result of crack propagation. This condition, if not detected and corrected, could result in brake debris falling on the runway and being ingested by engines, resulting in engine failure. Debris can also become lodged in landing gear or flap mechanisms, possibly resulting in reduced control of the aeroplane and representing a potential threat for the aeroplane structure. In order to detect a damaged brake assembly and to remove it from service before carbon brake disintegration, Embraer revised the relevant task in the Aircraft Maintenance Manual (AMM), Task 32-49-11-210-801-A, Brake Assembly Wear-Pin (Fast check - Wheel installed on aircraft), to include repetitive inspections (fast check) of the brake assembly. In support of these inspections, a soft life limitation for the affected carbon brakes, Part Number

<table>
<tr><td></td><td>(P/N) 90000583-3PR (ERJ 170) and P/N 90002340-2PR (ERJ 190), has been elaborated for each affected operator based on specific consideration on operation and environment.

In October 2011 Meggitt Aircraft Braking Systems (MABS), the brake manufacturer, developed and applied an enhanced analysis method to ERJ 170 and ERJ 190 brakes, the results of which indicated that existing rotor design had negative margins for both rotor lug 1 shear and bearing stress. Subsequently, a new brake, P/N 90000583-5PR, became available in April 2013 for ERJ 170 aeroplanes, and a similar new brake P/N 90002340-4PR for ERJ 190 aeroplanes was approved in November 2013. Embraer issued Parts Information Letter (PIL) 170-32-0069 and PIL 190-32-0070 to inform operators about the availability of the new brakes. Existing brakes can be modified to the new standard per MABS Service Bulletin (SB) 90000583-32-08 (ERJ 170) and MABS SB 90002340-32-09 (ERJ190), respectively.

Despite the recommended inspections and defined soft time limits, several occurrences have continued to be reported by European operators, experiencing brake damage with parts found on the runway.

Prompted by continued occurrences and based on the available information, EASA consider it is no longer acceptable to rely on voluntary operator actions to apply the soft time limit to mitigate what are considered to be deficiencies in the design of P/N 90000583-3PR and P/N 90002340-2PR brake assemblies.

For the reasons described above, this AD requires repetitive inspections of the brake assembly and replacement of the carbon brakes with the new brakes, which terminates the repetitive inspections.</td></tr>
<tr><td>Effective Date:</td><td>[TBD: 14 days after final AD issue date]</td></tr>
<tr><td>Required Action(s) and Compliance Time(s):</td><td>Required as indicated, unless accomplished previously:

For ERJ 170 aeroplanes equipped with P/N 90000583-3PR carbon brakes, and for ERJ 190 aeroplanes equipped with P/N 90002340-2PR carbon brakes, accomplish the actions specified in paragraphs (1), (2) and (3) of this AD.

(1) Within 14 days after the effective date of this AD, and, thereafter, at intervals not to exceed 14 days or 100 flight cycles (FC), whichever occurs first, inspect the brake assembly for discrepancies.

This inspection can be accomplished in accordance with the instructions of Task 32-49-11-210-801-A, in the applicable AMM.

(2) If, during any inspection as required by paragraph (1) of this AD, discrepancies (as defined in the applicable AMM) are found, before next flight, replace the affected brake with a serviceable unit.

(3) Within the compliance time as specified in Table 1 of this AD, as applicable, remove each carbon brake P/N 90000583-3PR (ERJ 170) and P/N 90002340-2PR (ERJ 190) from the aeroplane and install the new carbon brake standard, P/N 90000583-5PR (ERJ 170) or P/N 90002340-4PR (ERJ 190), as applicable, in accordance with approved aeroplane modification instructions.

Table 1 – Carbon Brake Replacement

<table>
<tr><th>FC accumulated by the carbon brakes, on the effective date of this AD</th><th>Compliance Time</th></tr>
<tr><td>Less than 700 FC</td><td>Before exceeding 800 FC</td></tr>
<tr><td>700 FC or more</td><td>Within 100 FC after the effective date of this AD</td></tr>
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	Modification of the affected brakes to the new carbon brake standard, P/N 90000583-5PR (ERJ 170) or P/N 90002340-4PR (ERJ 190), as applicable, can be accomplished during brake overhaul in accordance with the instructions of MABS SB 90000583-32-08 (ERJ 170) or MABS SB 90002340-32-09 (ERJ190), as applicable. (4) Modification of an aeroplane as required by paragraph (3) of this AD constitutes terminating action for the repetitive inspections as required by paragraph (1) of this AD. (5) Do not install on any aeroplane carbon brakes having P/N 90000583-3PR (ERJ 170) or P/N 90002340-2PR (ERJ 190), as specified in paragraph (5.1) or (5.2) of this AD, as applicable. (5.1) For aeroplanes that have P/N 90000583-3PR (ERJ 170) or P/N 90002340-2PR (ERJ 190) carbon brakes installed: After modification of the aeroplane as required by paragraph (3) of this AD. (5.2) For aeroplanes that do not have P/N 90000583-3PR (ERJ 170) or P/N 90002340-2PR (ERJ 190) carbon brakes installed: From the effective date of this AD.
Ref. Publications:	MABS SB 90000583-32-08 dated 17 April 2013 (ERJ 170). MABS SB 90002340-32-09 dated 20 January 2014 (ERJ 190). The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.
Remarks:	1. This Proposed AD will be closed for consultation on 22 April 2014. 2. Enquiries regarding this PAD should be referred to the Safety Information Section, Executive Directorate, EASA. E-mail: ADs@easa.europa.eu. 3. For any question concerning the technical content of the requirements in this PAD, please contact Embraer continued airworthiness, E-mail continued.airworthiness@embraer.com.br.