



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRAZIL

BRAZILIAN AIRWORTHINESS DIRECTIVE

AD No.: 2020-07-01R01

Effective Date: 26 Mar. 2021

The following Brazilian Airworthiness Directive (AD), issued by the Agência Nacional de Aviação Civil (ANAC) in accordance with provisions of Chapter IV, Title III of Código Brasileiro de Aeronáutica - Law No. 7.565 dated 19 December 1986 - and Regulamento Brasileiro da Aviação Civil (RBAC) 39, applies to all aircraft registered in the Registro Aeronáutico Brasileiro. No person may operate an aircraft to which this AD applies, unless it has previously complied with the requirements established herein.

AD No. 2020-07-01R01 - YABORÃ / 39-1479.

APPLICABILITY:

(a) This Airworthiness Directive (AD) is applicable to Yaborã Indústria Aeronáutica S.A. airplanes model ERJ 190-400 equipped with FADEC software version 9.5.6 or previous versions.

CANCELLATION / REVISION:

This AD cancels and supersedes the AD No. 2020-07-01- YABORÃ / 39-1465 and it is being revised to require the Electronic Engine Control software upgrade.

REASON:

It has been found the occurrence of in-flight shutdown (IFSD) in an engine model with a similar hardware of PW1900. Similarities in type design make the PW1900 engines, which are installed in the airplane model ERJ 190-400, susceptible to the same unsafe condition. The IFSD events were caused by failure in the low-pressure compressor rotor 1 and operation in high altitude at high thrust settings is a contributor. The unsafe condition, if not addressed, could result in uncontained release of the LPC R1 with damage to the engine, damage to the airplane, and subsequent loss of control of the airplane.

Since this condition may occur in other airplane of the same type and affects flight safety, a corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

REQUIRED ACTION:

To modify the Airplane Flight Manual – AFM to incorporate a new limitation and to modify the normal procedures section in the AFM, to limit the engine N1 setting for flights above 33000 ft.

EEC (Electronic Engine Control) software upgrade to version 9.5.6.7 or later versions approved by ANAC.

COMPLIANCE:

Required as indicated below, unless already accomplished.

Part I - AD 2020-07-01 Retained Requirements

(b) Within 30 days after July 15th, 2020, the effective date of AD 2020-07-01:

(1) Amend the applicable AFM, section 2 – “LIMITATIONS”, block 2-40 “POWER PLANT”, to incorporate the following limitation:

Engine operating limits

Above 33000 ft, the maximum N1 setting is 96% N1.

Note: This new operating limit is just applicable to normal operations.

During emergency or abnormal operational conditions the above limitation is not applicable

(2) Amend the applicable AFM, section 3 – “NORMAL PROCEDURES” to climb and cruise phases of flight be performed with CLB2 mode for flights above 33000 ft, according to the following procedure:

CLIMB

At 10000 ft AFE:

MCDU PRESS TRS BUTTON

- On the LSK 2R, verify or select CLB2 as active climb thrust mode;
- Select CLB2 on the LSK 4L. This action reverts from AUTO to MANUAL rating selection.

CAUTION: MAINTAINING CLB 2 RATING THROUGH ALL THE FLIGHT WILL LIMIT THE AUTOTHROTTLE OPERATION. IF THE AUTOTHROTTLE IS DISENGAGED, ABOVE 33000 FT MAINTAIN N1 BELOW 96%



Figure 1 – MCDU configuration after accomplishing the procedure

Note: The AFM alteration required by this AD may be accomplished by inserting a copy of this AD into the Aircraft Flight Manual.

Part II - New requirements of this AD

(c) EEC (Electronic Engine Control) software upgrade

(1) Within 12 months after the effective date of this AD, upgrade de EEC software to version 9.5.6.7 or later versions approved by ANAC. For version 9.5.6.7 installation use the Embraer Service Bulletin N° SB190E2-73-0003, original issue or further revisions approved by ANAC. For later software versions, use the applicable service bulletin as recommended by the manufacturer.

(2) Actions required by this paragraph terminate the requirements of paragraph (b) of this AD. After compliance with the requirement of paragraph (c)(1), AFM modifications required by the paragraph (b) of this AD must be removed.

(d) Interim action

This AD is considered an interim action. ANAC may consider further mandatory actions resulted from the investigation into the failures in the engine model with similar type design of PW1900.

(e) Alternative method of compliance (AMOC)

(1) A different method or a different compliance time, with the requirements of this AD, may be used if approved by the Manager of the Continuing Airworthiness Technical Branch (Gerência Técnica de Aeronavegabilidade Continuada - GTAC).

(2) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (e)(2)(i) and (e)(2)(ii) of this AD apply.

(i) The steps labeled as RC, including substeps under a RC step and any figures identified in a RC step, must be done to comply with the AD. If a step or substep is labeled "RC Exempt," then the RC requirement is removed from that step or substep. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(f) Material incorporated by reference

You must use Service Bulletin Embraer N° SB190E2-73-0003, original revision, dated November 24, 2020, or further revisions approved by the ANAC, to do the actions required by this AD.

CONTACT:

For additional technical information, contact:

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APPROVAL:

Original in Portuguese language available at the Continuing Airworthiness Technical Branch (GTAC) of the National Civil Aviation Agency (ANAC). Signed by:

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ANAC