LUFTFARTSVERKET
Luftfartsinspektionen

LUFTVÄRDIGHETSDIREKTIV (LVD)

Flygplan
Embraer
LVD Nr 2377

Sektion 2. Utlandstillverkad flygmateriel

TITEL: **Kontroll / byte av styrrattens spindel**

GÄLLER: EMB 110 alla S/N.

ÅTGÄRD: För att undvika styrrattsseparation i luften utför åtgärder i enlighet med bifogad kopia av CTA DDA Nr 83-02-01R3.

TID FÖR ÅTGÄRD: I tid och intervall angivna i CTA DDA Nr 83-02-01R3, om ej tidigare utförts.

UNDERLAG: CTA DDA Nr 83-02-01R3.

REFERENS: CTA DDA Nr 83-02-01R3.

UTGIVNINGS-DATUM: 1991-10-03

LFS: 1991:23

Åtgärd enligt LVD utgör nödvändig förutsättning för ifrågavarende flygmateriels luftvärdighet. Referens BCL M 1.11. Anteckning om åtgärd, som vidtagits i enlighet med LVD, skall införas i teknisk journal för berörd flygmateriel med hänvisning till ifrågavarande LVD-nummer. Angivet underlag refererar till senaste gällande revision/utgåva. LVD utges i luftfartsverkets författningssamlingar LFS.

L 1563-1

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MINISTÉRIO DA AERONÁUTICA

DEPARTAMENTO DE AVIAÇÃO CIVIL

DIRETRIZ DE AERONAVEGABILIDADE

EFETIVIDADE:	DA Nº
AGO 05, 1991	83-02-01R3

The following Airworthiness Directive (AD), developed by the Centro Técnico Aeroespacial (CTA) and issued by the Departamento de Aviação Civil (DAC) in accordance with provisions of Chapter IV, Title III of Código Brasileiro de Aeronáutica - Ministerial Decree NR 7,565 as of 19 December 1986 - and Regulamento Brasileiro de Homologação Aeronáutica (RBHA) 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 NR 83-02-01R3 - EMBRAER - Amendment 39-679

APPLICABILITY:

This AD is applicable to all aircraft EMB-110 "BANDEIRANTE" in operation, which have not installed in accordance with AD 83-02-01R2 the pilot and copilot control wheel spindle P/N 111A-500-10-01-10-01 or P/N 110-500-10-01-10-04 or P/N 4A-500-10-01-10-03 of which a dimensional inspection prescribed by AD 83-02-01R2 has been considered satisfactory.

CANCELLATION/REVISION:

This AD supersedes totally the AD 83-02-01R2, Amdt 39-635, dated July 09, 1990.

This AD is being revised to impose the replacement of the control wheel spindle as agreed in the EMB-110 Aging Conference held at EMBRAER between 20 and 26 March 1991.

REASON:

It has been found a structural failure of the control wheel spindle P/N 4A-500-10-01-10-03 installed at the factory in the EMB-110 aircraft serial numbers 110001 thru 110224 and this fact provoked the detachment of the control wheel in flight.

Since this condition can affect flight safety and develop in other airplanes of the same type, immediate corrective action is required. Thus, sufficient reason exists to issue this Airworthiness Directive, without prior notice

REQUIRED ACTION:

Inspection and replacement of the control wheel spindles.

COMPLIANCE:

Compliance is required as follows:

1) After the receipt date of this AD or after the receipt date of advanced Telex Message dated February 08, 1983, all the operations of the air planes equipped with control wheel spindles P/N 4A-500-10-01-10-03 must be conducted by two qualified pilots on board. All the airplanes equipped with the control wheel spindle P/N 111A-500-10-01-10-01 are exempted of this requirements and also of the inspection requirements described in steps 2 and 3 of this AD.
In order to identify the part number installed in the airplane, remove the cover located in the posterior face of the control column and check the diameter of the threaded terminal of the control wheel spindle. If its diameter is 3/4 in, the spindle is of P/N 111A-500-10-01-10-01 and is therefore exempted of this AD. If the diameter is 3/8 in, the P/N is 4A-500-10-01-10-03 and is, therefore, affected by this AD.

2) Within the next 300 operating hours or 60 days, whichever occurs first , in all airplanes equipped with the affected control wheel spindles, unless the AD 83-02-01R2 or AD 83-02-01R1 or AD 83-02-01 has already been accomplished, carry out a dimensional inspection for the thickness of the shoulder face of the rear bearing (regarding the direction of flight) and for the thickness of the adjacent conical region in accordance with the detailed procedures established in the EMBRAER SB 110-027-0070 or later CTA/IFI approved revisions. Record the obtained values.

3) After this, carry out a careful inspection for cracks detection of the spindle in the same shoulder face, in both internal and external sides. The inspection of the external side must be accomplished using the magnetic particle inspection method (magnaflux) and the one of the internal side may be performed using the dye penetrant method or the fluorescent penetrant method if an ultraviolet lamp is available.
If any crack is found, the spindle must be rejected and replaced by other of P/N 4A-500-10-01-10-03 which has the minimum dimensions required or by an other of P/N 111A-500-10-01-10-01 or of P/N 110-500-10-01-10-04. The detailed procedures for the accomplishment of this inspection is described in the same SB above referred.

4) If after accomplishment of the dimensional inspection (step 2) the thicknesses found are at least 2.6mm in the bearing shoulder face and 2.0mm in the adjacent conical region, and after the inspection for cracks (step 3), no cracks are found, the aircraft may be delivered for operation, including with only one pilot on board when this fact is permitted by the applicable operational requirements. No further inspection is required.

5) If after the dimensional inspection (step 2) the thicknesses found are less than 2.6mm in the bearing shoulder face and 2.0mm in the adjacent conical region, and after for cracks (step 3) no cracks are found the aircraft may be delivered, provided that all the operations be performed with two qualified pilots on board.
The inspection for cracks must be repeated at each 300 operating hours after the last inspection accomplished in accordance with this AD.
These inspections may be performed up to December 31, 1991 limit date for accomplishing step 6.

6) Replace all control wheel spindles which have not been found in compliance with the dimensional inspection requirements or crack inspection

requirements with others of same P/N 4A-500-10-01-10-01 provided that those parts are in compliance with the dimensional requirements or replace with P/N 111A-500-10-01-10-01 or with the new of P/N 110-500-10-01-10-04.

N O T E 1

If the pilot's control wheel spindle is in compliance with both inspection criteria and the copilot's control wheel spindle is not, the aircraft may be delivered for operation, including operation with only one pilot when this is permitted by the applicable operational requirements.
It is evident that the copilot's control wheel spindle will be subjected to the repetitive inspections criteria from step 5 , however the control wheel spindle must be replaced with adequate one before December 31, 1991.

N O T E 2

The dimensional inspection required by this AD must be accomplished in a dimensional inspection room switable equipped of a certified organization.
The inspection for cracks required by this AD must be accomplished in a room equipped for NDT of a certified organization.
All the results of the inspections carried out in accordance of the steps 1, 2 and 3 of this AD, including the dimensional inspection values must be reported to the Divisão de Homologação Aeronáutica of IFI/CTA.

Make the proper log book entry that this AD hab been complied with.

CONTACT:

For additional information contact:

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EFFECTIVE DATE:

This AD (NR 83-02-01R3 - Amdt 39-679) becomes effective on AGO 05, 1991

Original in Portuguese signed by:

PAULO GASTÃO SILVA - Maj Eng
Chefe da Divisão de Homologação Aeronáutica
IFI/CTA

JOSÉ WALTER SOUZA TELLES - Ten Cel Av
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Note: Revision 2 was not published in English Language.