

[Federal Register: December 14, 2009 (Volume 74, Number 238)]
[Rules and Regulations]
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[DOCID:fr14de09-3]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2007-0083; Directorate Identifier 2006-NM-266-AD; Amendment 39-16137; AD 2009-26-02]

RIN 2120-AA64

Airworthiness Directives; Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model EMB-135BJ, -135ER, -135KE, -135KL, -135LR, -145, -145ER, -145MR, -145LR, -145XR, -145MP, and -145EP Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for the products listed above. This AD results from mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as:

It has been found the occurrence of engine anti-ice system valve failure, where the valve spring seat has broken and obstructed the anti-ice system venturi tube. * * * Therefore, should the aircraft encounter icing conditions, ice may accrete in the engine inlet lip and be ingested through the air inlet, resulting in possible engine damage and flame-out.

We are issuing this AD to require actions to correct the unsafe condition on these products.

DATES: This AD becomes effective January 19, 2010.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of January 19, 2010.

ADDRESSES: You may examine the AD docket on the Internet at <http://www.regulations.gov> or in person at the U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Sanjay Ralhan, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-1405; fax (425) 227-1149.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a second supplemental notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That second supplemental NPRM was published in the Federal Register on September 25, 2009 (74 FR 48877). That second supplemental NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

It has been found the occurrence of engine anti-ice system valve failure, where the valve spring seat has broken and obstructed the anti-ice system venturi tube. Aircraft dispatch with that failure may be allowed by the operator Minimum Equipment List (MEL), [if] the engine anti-ice system valve [is] locked in the OPEN position. However, there is no readily available means to make sure the anti-ice system tubing is free of debris, allowing unrestricted hot airflow to the piccolo tube on the engine inlet lip. Therefore, should the aircraft encounter icing conditions, ice may accrete in the engine inlet lip and be ingested through the air inlet, resulting in possible engine damage and flame-out.

The required actions include an inspection to determine the part number of the engine anti-icing system valves; repetitive inspections of certain engine anti-icing system valves and tubes to detect damage, and replacement of the valves if damage is found; and eventual replacement of certain anti-icing system valves. You may obtain further information by examining the MCAI in the AD docket.

Comments

We gave the public the opportunity to participate in developing this AD. We received no comments on the second supplemental NPRM or on the determination of the cost to the public.

Conclusion

We reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed.

Differences Between This AD and the MCAI or Service Information

We have reviewed the MCAI and related service information and, in general, agree with their substance. But we might have found it necessary to use different words from those in the MCAI to ensure the AD is clear for U.S. operators and is enforceable. In making these changes, we do not intend to differ substantively from the information provided in the MCAI and related service information.

We might also have required different actions in this AD from those in the MCAI in order to follow our FAA policies. Any such differences are highlighted in a Note within the AD.

Costs of Compliance

We estimate that this AD will affect 697 products of U.S. registry. We also estimate that it will take about 2 work-hours per product to comply with the basic requirements of this AD. The average labor rate is \$80 per work-hour. Based on these figures, we estimate the cost of this AD to the U.S. operators to be \$111,520, or \$160 per product.

We also estimate that the replacement specified in this AD will affect up to 306 parts. We estimate that it will take about 5 work-hours per part to comply with the replacement requirements of

this AD. (Some airplanes have no affected parts and other airplanes have either one or two affected parts.) The cost of each required part is \$27,507. Where the service information lists required parts costs that are covered under warranty, we have assumed that there will be no charge for these costs. As we do not control warranty coverage for affected parties, some parties may incur costs higher than estimated here. Based on these figures, we estimate the cost of the replacement specified in the AD on U.S. operators to be \$8,539,542, or \$27,907 per part.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. "Subtitle VII: Aviation Programs," describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701: General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this AD:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
3. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains the NPRM, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

PART 39–AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new AD:



2009-26-02 Empresa Brasileira de Aeronautica S.A. (EMBRAER): Amendment 39-16137.
Docket No. FAA-2007-0083; Directorate Identifier 2006-NM-266-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective January 19, 2010.

Affected ADs

- (b) None.

Applicability

(c) This AD applies to EMBRAER Model EMB-135BJ, -135ER, -135KE, -135KL, -135LR, -145, -145ER, -145MR, -145LR, -145XR, -145MP, and -145EP airplanes, certificated in any category, except airplanes having serial numbers 14500921, 14500928, 14500932, 14500949, 14500958, 14500971, 14500973 and up, which will have in-factory modification incorporated.

Subject

- (d) Air Transport Association of America Code 30: Ice and Rain Protection.

Reason

- (e) The mandatory continuing airworthiness information (MCAI) states:

It has been found the occurrence of engine anti-ice system valve failure, where the valve spring seat has broken and obstructed the anti-ice system venturi tube. Aircraft dispatch with that failure may be allowed by the operator Minimum Equipment List (MEL), [if] the engine anti-ice system valve [is] locked in the OPEN position. However, there is no readily available means to make sure the anti-ice system tubing is free of debris, allowing unrestricted hot airflow to the piccolo tube on the engine inlet lip. Therefore, should the aircraft encounter icing conditions, ice may accrete in the engine inlet lip and be ingested through the air inlet, resulting in possible engine damage and flame-out.

The required actions include an inspection to determine the part number of the engine anti-icing system valves; repetitive inspections of certain engine anti-icing system valves and tubes to detect damage, and replacement of the valves if damage is found; and eventual replacement of certain anti-icing system valves.

Actions and Compliance

- (f) Unless already done, do the following actions.

- (1) PART I—Within 500 flight hours or 3 months after the effective date of this AD, whichever occurs first, carry out a general visual inspection of both LH (left-hand) and RH (right-hand) engine anti-ice system valves to determine their P/N (part number).

(i) For engine anti-ice system valves with P/N C146009-2: No further action is required by paragraph (f)(1) of this AD.

(ii) For engine anti-ice system valves with P/N C146009-3: Before further flight, remove the valve and carry out a detailed inspection regarding its integrity; and carry out a special detailed inspection for an obstruction in the corresponding engine anti-ice system tubes; according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0049, dated June 28, 2006, or Revision 01, dated October 19, 2006; or Embraer Service Bulletin 145LEG-30-0016, dated June 28, 2006, or Revision 01, dated February 5, 2007; as applicable.

(A) If the valve is damaged or the tube is obstructed, before further flight: Replace the valve with a serviceable or new valve bearing P/N C146009-2, C146009-3, or C146009-4; or remove all obstructions; as applicable; in accordance with the Accomplishment Instructions of Embraer Service Bulletin 145-30-0049, dated June 28, 2006, or Revision 01, dated October 19, 2006; or Embraer Service Bulletin 145LEG-30-0016, dated June 28, 2006, or Revision 01, dated February 5, 2007; as applicable.

(B) If the valve is not damaged or the tube is not obstructed, re-install the valve or install a serviceable or new valve bearing P/N C146009-2, C146009-3, or C146009-4; or re-install the tube; in accordance with the Accomplishment Instructions of Embraer Service Bulletin 145-30-0049, dated June 28, 2006, or Revision 01, dated October 19, 2006; or Embraer Service Bulletin 145LEG-30-0016, dated June 28, 2006, or Revision 01, dated February 5, 2007; as applicable.

(iii) For engine anti-ice system valves with P/N C146009-4: No further action is required by paragraph (f)(1) of this AD. In this case, paragraphs (f)(2), (f)(3), (f)(4), (f)(7), and (f)(8) of this AD are not applicable. However, paragraphs (f)(5) and (f)(6) of this AD must be accomplished.

(2) PART II—Within 1,500 flight hours or 9 months after the effective date of this AD, whichever occurs first, and thereafter at intervals that do not exceed 1,000 flight hours or 6 months, whichever occurs first, carry out a detailed inspection for damage of both LH and RH engine anti-ice system valves bearing P/N C146009-2 or C146009-3; and a special detailed inspection for obstruction of the corresponding engine anti-ice system tubes; according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0049, dated June 28, 2006, or Revision 01, dated October 19, 2006; or Embraer Service Bulletin 145LEG-30-0016, dated June 28, 2006, or Revision 01, dated February 5, 2007; as applicable; and accomplish paragraphs (f)(2)(i) and (f)(2)(ii) of this AD, as applicable.

(i) If the valve is damaged or the tube is obstructed, before further flight: Replace the valve with a serviceable or new valve bearing P/N C146009-2, C146009-3, or C146009-4; or remove all obstructions; as applicable; in accordance with the Accomplishment Instructions of Embraer Service Bulletin 145-30-0049, dated June 28, 2006, or Revision 01, dated October 19, 2006; or Embraer Service Bulletin 145LEG-30-0016, dated June 28, 2006, or Revision 01, dated February 5, 2007; as applicable.

(ii) If the valve is not damaged, or the tube is not obstructed, before further flight: Re-install the valve or install a serviceable or new valve bearing P/N C146009-2, C146009-3, or C146009-4; or re-install the tube; as applicable; in accordance with the Accomplishment Instructions of Embraer Service Bulletin 145-30-0049, dated June 28, 2006, or Revision 01, dated October 19, 2006; or Embraer Service Bulletin 145LEG-30-0016, dated June 28, 2006, or Revision 01, dated February 5, 2007; as applicable.

(3) PART III—Any engine anti-ice system valve with P/N C146009-2 or C146009-3 that will be installed as a replacement, as provided for in paragraphs (f)(1) and (f)(2) of this AD, must undergo a detailed inspection for its integrity before installation, according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0049, dated June 28, 2006, or Revision 01, dated October 19, 2006; or Embraer Service Bulletin 145LEG-30-0016, dated June 28, 2006, or Revision 01, dated February 5, 2007; as applicable; and additionally adhere to paragraphs (f)(3)(i) and (f)(3)(ii) of this AD, as applicable.

(i) If the valve is damaged, replace it with a serviceable or new valve bearing P/N C146009-2, C146009-3, or C146009-4; in accordance with the Accomplishment Instructions of Embraer Service

Bulletin 145-30-0049, dated June 28, 2006, or Revision 01, dated October 19, 2006; or Embraer Service Bulletin 145LEG-30-0016, dated June 28, 2006, or Revision 01, dated February 5, 2007; as applicable.

(ii) If the valve is not damaged, installation is permitted.

(4) PART IV—Any engine anti-ice system tubes that will be installed on the airplane as a replacement, as provided for in paragraphs (f)(1) and (f)(2) of this AD, must undergo a special detailed inspection before installation, and all obstructions removed, according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0049, dated June 28, 2006, or Revision 01, dated October 19, 2006; or Embraer Service Bulletin 145LEG-30-0016, dated June 28, 2006, or Revision 01, dated February 5, 2007; as applicable.

(5) PART V—If any engine anti-ice system valve with P/N C146009-4 has been found during the inspection required by paragraph (f)(1) of this AD, do paragraphs (f)(5)(i) or (f)(5)(ii) of this AD, as applicable, within 500 flight hours or 6 months after the effective date of this AD, whichever occurs first.

(i) If the valve was installed according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0044, Revision 01, dated June 26, 2006, Revision 02, dated September 25, 2006, Revision 03, dated December 12, 2006, or Revision 04, dated May 14, 2008; or Embraer Service Bulletin 145LEG-30-0018, Revision 02, dated December 12, 2006, or Revision 03, dated May 14, 2008; as applicable: No further action is required by this AD.

(ii) If the valve was installed according to detailed instructions and procedures other than those specified in paragraph (f)(5)(i) of this AD: Carry out a special detailed inspection in the corresponding engine anti-ice system tubes, and repair all damage and remove all obstructions; according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0049, dated June 28, 2006, or Revision 01, dated October 19, 2006; or Embraer Service Bulletin 145LEG-30-0016, dated June 28, 2006, or Revision 01, dated February 5, 2007; as applicable. After doing the actions specified in paragraph (f)(5)(ii) of this AD, no further action is required by this AD.

(6) PART VI—Before aircraft dispatch with one or two engine anti-ice system valves inoperative (Master Minimum Equipment List (MMEL) 30-21-01), carry out a detailed inspection for damage of the affected engine anti-ice system valves; and a special detailed inspection for obstruction of the corresponding engine anti-ice system tubes; and replace all damaged valves and remove all obstructions before further flight. Do all actions according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0049, dated June 28, 2006, or Revision 01, dated October 19, 2006; or Embraer Service Bulletin 145LEG-30-0016, dated June 28, 2006, or Revision 01, dated February 5, 2007; as applicable; by accomplishing paragraph (f)(2) of this AD, unless the condition specified in paragraph (f)(6)(i) or (f)(6)(ii) of this AD has been met.

(i) Valves with P/N C146009-4 have been previously installed according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0044, dated October 31, 2005; Embraer Service Bulletin 145LEG-30-0018, dated June 26, 2006; or Embraer Service Bulletin 145LEG-30-0018, Revision 01, dated September 25, 2006; as applicable; and additionally, paragraph (f)(5)(ii) of this AD has been accomplished.

(ii) Valves with P/N C146009-4 have been previously installed according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0044, Revision 01, dated June 26, 2006, Revision 02, dated September 25, 2006, Revision 03, dated December 12, 2006, or Revision 04, dated May 14, 2008; or Embraer Service Bulletin 145LEG-30-0018, Revision 02, dated December 12, 2006, or Revision 03, dated May 14, 2008; as applicable.

(7) PART VII—Within 1,000 flight hours or 10 months after the effective date of this AD, whichever occurs first, install engine anti-ice system valves bearing P/N C146009-4 in the LH and RH engine positions, replacing P/N C146009-3, according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0044, Revision 01, dated June 26, 2006, Revision 02, dated September 25, 2006, Revision 03, dated December 12, 2006, or Revision 04, dated May 14, 2008; or Embraer Service Bulletin 145LEG-30-0018, Revision 02, dated December 12, 2006, or Revision 03, dated May 14, 2008; as applicable.

(8) PART VIII—Within 1,000 flight hours or 10 months after the effective date of this AD, whichever occurs first, install engine anti-ice system valves bearing P/N C146009-4 in the LH and RH engine positions, replacing P/N C146009-2, according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0044, Revision 01, dated June 26, 2006; Revision 02, dated September 25, 2006, Revision 03, dated December 12, 2006, or Revision 04, dated May 14, 2008; or Embraer Service Bulletin 145LEG-30-0018, Revision 02, dated December 12, 2006, or Revision 03, dated May 14, 2008; as applicable.

(9) PART IX—The installation of engine anti-ice system valves bearing P/N C146009-4 according to the detailed instructions and procedures described in Embraer Service Bulletin 145-30-0044, Revision 01, dated June 26, 2006, Revision 02, dated September 25, 2006, Revision 03, dated December 12, 2006; or Revision 04, dated May 14, 2008; or Embraer Service Bulletin 145LEG-30-0018, Revision 02, dated December 12, 2006, or Revision 03, dated May 14, 2008; as applicable; constitutes terminating action for this AD.

Note 1: For the purposes of this AD, a general visual inspection is: "A visual examination of an interior or exterior area, installation, or assembly to detect obvious damage, failure, or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to ensure visual access to all surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight, or droplight and may require removal or opening of access panels or doors. Stands, ladders, or platforms may be required to gain proximity to the area being checked."

Note 2: For the purposes of this AD, a detailed inspection is: "An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirror, magnifying lenses, etc., may be necessary. Surface cleaning and elaborate procedures may be required."

Note 3: For the purposes of this AD, a special detailed inspection is: "An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. The examination is likely to make extensive use of specialized inspection techniques and/or equipment. Intricate cleaning and substantial access or disassembly procedure may be required."

FAA AD Differences

Note 4: This AD differs from the MCAI and/or service information as follows (we have coordinated these differences with Agência Nacional de Aviação Civil (ANAC)):

(1) "Part V" of the MCAI specifies a compliance time of within "1,500 flight hours or 9 months." However, paragraph (f)(5) of this AD requires compliance "within 500 flight hours or 6 months" for the corresponding action.

(2) "Part VII" of the MCAI specifies a compliance time of "within 2,500 flight hours or 12 months." However, paragraph (f)(7) of this AD requires compliance "within 1,000 flight hours or 10 months" for the corresponding action.

(3) "Part VIII" of the MCAI specifies a compliance time of "within 6,000 flight hours or 30 months." However, paragraph (f)(8) of this AD requires compliance "within 1,000 flight hours or 10 months" for the corresponding action.

Other FAA AD Provisions

(g) The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, ANM-116, International Branch, Transport Airplane Directorate, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to ATTN: Sanjay Ralhan, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-1405; fax (425) 227-1149. Before using any approved AMOC on any airplane to which the AMOC applies, notify your principal maintenance inspector (PMI) or principal avionics inspector (PAI), as appropriate, or lacking a principal inspector, your local Flight Standards District Office.

(2) Airworthy Product: For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

(3) Reporting Requirements: For any reporting requirement in this AD, under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), the Office of Management and Budget (OMB) has approved the information collection requirements and has assigned OMB Control Number 2120-0056.

Related Information

(h) Refer to Brazilian Airworthiness Directive 2006-09-03R1, effective January 4, 2007; and the service bulletins listed in Table 1 of this AD; for related information.

Table 1 – Related Service Bulletins

Embraer Service Bulletin –	Revision –	Dated –
145-30-0044	01	June 26, 2006
145-30-0044	02	September 25, 2006
145-30-0044	03	December 12, 2006
145-30-0044	04	May 14, 2008
145-30-0049	Original	June 28, 2006
145-30-0049	01	October 19, 2006
145LEG-30-0016	Original	June 28, 2006
145LEG-30-0016	01	February 5, 2007
145LEG-30-0018	02	December 12, 2006
145LEG-30-0018	03	May 14, 2008

Material Incorporated by Reference

(i) You must use the applicable service information contained in Table 2 of this AD to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Empresa Brasileira de Aeronautica S.A. (EMBRAER), Technical Publications Section (PC 060), Av. Brigadeiro Faria Lima, 2170–Putim–12227-901 São Jose dos Campos–SP–BRASIL; telephone: +55 12 3927-5852 or +55 12 3309-0732; fax: +55 12 3927-7546; e-mail: distrib@embraer.com.br; Internet: <http://www.flyembraer.com>.

(3) You may review copies of the service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221 or 425-227-1152.

(4) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Table 2 – Material Incorporated by Reference

Embraer Service Bulletin –	Revision –	Dated –
145LEG-30-0016	Original	June 28, 2006
145LEG-30-0016	01	February 5, 2007
145LEG-30-0018	02	December 12, 2006
145LEG-30-0018	03	May 14, 2008
145-30-0044	01	June 26, 2006
145-30-0044	02	September 25, 2006
145-30-0044	03	December 12, 2006
145-30-0044	04	May 14, 2008
145-30-0049	Original	June 28, 2006
145-30-0049	01	October 19, 2006

Issued in Renton, Washington, on December 1, 2009.

Michael Kaszycki,
Acting Manager, Transport Airplane Directorate,
Aircraft Certification Service.