

[Federal Register: May 6, 2008 (Volume 73, Number 88)]  
[Rules and Regulations]  
[Page 24864-24866]  
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[DOCID:fr06my08-5]

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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2007-0371; Directorate Identifier 2007-NM-269-AD; Amendment 39-15511; AD 2008-10-05]**

**RIN 2120-AA64**

#### **Airworthiness Directives; BAE Systems (Operations) Limited Model BAe 146 and Model Avro 146-RJ Airplanes**

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

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for the products listed above. This AD results from service history of incidents and accidents involving transport category turbojet airplanes without leading edge high lift devices. This service history shows that even small amounts of frost, ice, snow, or slush on the wing leading edges or forward upper wing surfaces can cause an adverse change in the stall speeds and stall characteristics, and can negate the protection provided by a stall protection system. While there have been no accidents or incidents related to wing contamination associated with the BAE Systems (Operations) Limited Model BAe 146 and Model Avro 146-RJ airplanes, these airplanes are also transport category turbojet airplanes without leading edge high lift devices, and therefore may be similarly sensitive to small amounts of wing contamination. This AD requires revising the airplane flight manual to include a new cold weather operations limitation. We are issuing this AD to prevent possible loss of control on takeoff resulting from even small amounts of frost, ice, snow, or slush on the wing leading edges or forward upper wing surfaces. We are issuing this AD to require actions to correct the unsafe condition on these products.

**DATES:** This AD becomes effective June 10, 2008.

**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:** Todd Thompson, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-1175; fax (425) 227-1149.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM was published in the Federal Register on December 26, 2007 (72 FR 72968). That NPRM proposed to require revising the airplane flight manual to include a new cold weather operations limitation.

### **Comments**

We gave the public the opportunity to participate in developing this AD. We have considered the comment received.

### **Request to Withdraw NPRM or Revise Paragraph (e)**

BAE Systems (Operations) Limited, type certificate holder for Model BAe 146 and Model Avro 146-RJ airplanes, states that it has reviewed the NPRM and is preparing advice in an expanded flight crew operations manual (FCOM) to explain the importance of a "clean wing" prior to takeoff. The information in that manual, including the use of tactile checks, permits operators and de-/anti-icing service providers to develop procedures to suit local arrangements. BAE Systems states that this approach is consistent with other regional aircraft types for which airplane flight manual (AFM) revisions have not been mandated. While BAE Systems fully supports safety initiatives aimed at minimizing wing contamination, BAE Systems asserts that a safety concern does not exist on the Model BAe 146 and Model Avro 146-RJ airplanes for the following reasons:

- No accidents or incidents due to upper surface contamination have occurred on Model BAe 146 and Model Avro 146-RJ airplanes (this information was not included in the Summary of the NPRM).
- The different wing shape on Model BAe 146 and Model Avro 146-RJ airplanes make them less susceptible to the effects of leading edge and upper surface contamination.
- There is no evidence that small/visually imperceptible amounts of ice on the wing of these airplanes would lead to loss of control during takeoff.

BAE Systems asks that if we amend 14 CFR part 39 to require the additional limitations in the AFM, we revise paragraph (e) "Reason" of the NPRM to include the words: "Whilst there is no service history that indicates the BAe146 and Avro 146-RJ will be similarly affected. \* \* \*"

We acknowledge BAE Systems' concerns, and partially agree with its requests. We agree that no accidents or incidents due to upper surface contamination have occurred on Model BAe 146 and Model Avro 146-RJ airplanes. We have revised the AD to include that acknowledgement in the Summary and in paragraph (e).

However, we disagree that a safety concern does not exist on the Model BAe 146 and Model Avro 146-RJ airplanes and therefore, by implication, that we should withdraw the NPRM.

Section 39.1 of the Federal Aviation Regulations (14 CFR 39.1) states:

"This part prescribes airworthiness directives that apply to aircraft \* \* \* when—

- (a) An unsafe condition exists in a product; and
- (b) That condition is likely to exist or develop in other products of the same type design."

The Model BAe 146 and Model Avro 146-RJ airplanes share common type design characteristics with airplanes that have been involved in takeoff accidents and incidents resulting from small amounts of wing leading edge or upper surface contamination. The accident and incident history shows that transport category turbojet airplanes without leading edge high lift devices have been involved in a number of takeoff accidents and incidents where undetected upper wing ice contamination has been cited as the probable cause or sole contributing factor. Although BAE Systems contends that differences between the wings of the Model BAe 146/Avro 146-RJ airplanes

and the wings of the airplane types involved in the accidents and incidents make the Model BAe 146/Avro 146-RJ airplanes less susceptible to the effects of wing leading edge and upper surface contamination, BAE Systems has not supplied data that directly address the FAA's safety concern. We evaluated all relevant information, including information submitted by BAE Systems before and after issuance of the NPRM, and determined the unsafe condition is likely to exist or develop in Model BAe 146 and Model Avro 146-RJ airplanes.

BAE Systems' proposal to include advice in an expanded FCOM to explain the importance of a clean wing prior to takeoff, while commendable, is insufficient to address the potential unsafe condition. Mandatory tactile checks of the wing leading edges and upper surfaces in potential ground icing conditions are needed to address the potential unsafe condition, and advice provided in an FCOM is not mandatory. An airplane operating limitation provided in the AFM is necessary to ensure the tactile check is performed. Contrary to BAE Systems' assertion that their proposed FCOM approach is consistent with the action taken on some other regional airplane types, the only instances where similar operating limitations have not been instituted on transport category turbojet airplanes without leading edge high lift devices have been where the airplane manufacturer provided data showing that adequate safety margins would be retained for takeoffs with small amounts of undetected wing upper surface contamination.

For these reasons we do not find it necessary to withdraw the NPRM and we have not changed the AD in this regard. However, under the provisions of paragraph (g)(1) of the AD, we will consider requests for approval of an alternative method of compliance if sufficient data are submitted to substantiate that the alternative method would provide an acceptable level of safety.

### **Request to Revise Number of Airplanes of U.S. Registry**

BAE Systems states that, although the "Costs of Compliance" section gives realistic costs for revising the AFM, it gives an incorrect number of airplanes of U.S. Registry. The NPRM states that there is only one affected airplane on the U.S. Register; BAE Systems understands that the FAA registry currently shows up to 25 examples of the affected airplane types.

We agree with BAE systems that there are additional U.S.-registered airplanes affected by this AD. A detailed review shows that several airplanes that appear in certain databases to be U.S.-registered are instead registered in other countries. Certain other airplanes have been scrapped. Therefore, although there are not 25 U.S.-registered airplanes, we do agree that there is more than 1 airplane of U.S. registry. Therefore, we have revised the Costs of Compliance to include the costs for the 10 airplanes that we estimate are on the U.S. Register.

### **Request to Include Costs for Ongoing Actions**

BAE Systems also states that the "Costs of Compliance" section excludes any assessment of the ongoing cost to operators for the time taken to conduct the visual and tactile pre-flight inspections. BAE Systems notes that access to the high wings on these airplanes requires a tall ladder and that the inspection will take approximately 30 minutes. BAE Systems estimates that the conditions where tactile checks would be required could exist up to 60 days per year, depending on the operator's geographical location and route structure, which could cause U.S. operators to incur up to 240 additional work hours per airplane per year.

We disagree with adding costs for the pre-flight check to the AD. We recognize that when accomplishing the requirements of any AD, operators might incur costs in addition to the direct costs that are reflected in the cost analysis presented in the AD preamble. However, the cost analysis in AD rulemaking actions typically does not include these incidental costs.

In the case of this AD, for example, the requirements are to revise the AFM to include certain information. Further, because ADs require specific actions to address specific unsafe conditions, they appear to impose costs that would not otherwise be borne by operators. However, because of the

general obligation of operators to maintain and operate their airplanes in an airworthy condition, this appearance is deceptive. Attributing those costs solely to the issuance of this AD is unrealistic because, in the interest of maintaining and operating safe airplanes, prudent operators would accomplish the required actions even if they were not required to do so by the AD.

We have not changed the AD in this regard.

### **Explanation of Change to Summary**

We have revised the Summary to clarify that not all airplanes are equipped with a stall protection system (by using the word "a" instead of "the"). We have also clarified that the affected airplanes are transport category turbojet airplanes without leading edge high lift devices, and therefore may be similarly sensitive to small amounts of wing contamination.

### **Conclusion**

We reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the change described previously. We determined that this change will not increase the economic burden on any operator or increase the scope of the AD.

### **Costs of Compliance**

This AD affects about 10 products of U.S. registry. We estimate that it takes about 1 work-hour per product to comply with this AD. The average labor rate is \$80 per work-hour. Based on these figures, we estimate the cost of the AD on U.S. operators to be \$800, or \$80 per product.

### **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 that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866;
- (2) Is not a "significant rule" under 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, 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:



**2008-10-05 BAE Systems (Operations) Limited (Formerly British Aerospace Regional Aircraft):** Amendment 39-15511. Docket No. FAA-2007-0371; Directorate Identifier 2007-NM-269-AD.

**Effective Date**

- (a) This airworthiness directive (AD) becomes effective June 10, 2008.

**Affected ADs**

- (b) None.

**Applicability**

- (c) This AD applies to all BAE Systems (Operations) Limited Model BAe 146-100A, -200A, and -300A series airplanes, certificated in any category; and all Model Avro 146-RJ70A, 146-RJ85A, and 146-RJ100A airplanes, certificated in any category.

**Subject**

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

**Reason**

(e) This AD results from service history of incidents and accidents involving transport category turbojet airplanes without leading edge high lift devices, that shows that even small amounts of frost, ice, snow, or slush on the wing leading edges or forward upper wing surfaces can cause an adverse change in the stall speeds and stall characteristics, and can negate the protection provided by a stall protection system. While there have been no accidents or incidents related to wing contamination associated with the BAE Systems (Operations) Limited Model BAe 146 and Model Avro 146-RJ airplanes, these airplanes are also transport category turbojet airplanes without leading edge high lift devices, and therefore may be similarly sensitive to small amounts of wing contamination. We are issuing this AD to prevent possible loss of control on takeoff resulting from even small amounts of frost, ice, snow, or slush on the wing leading edges or forward upper wing surfaces.

**Actions and Compliance**

(f) Within 14 days after the effective date of this AD, revise the Limitations Section of the Airplane Flight Manual (AFM) to include the following statement. This may be done by inserting a copy of this AD in the AFM.

"1. Takeoff is prohibited with frost, ice, snow, or slush adhering to the wings, control surfaces, engine inlets, or other critical surfaces.

2. A visual and tactile (hand on surface) check of the wing leading edge and the wing upper surface must be performed to ensure the wing is free from frost, ice, snow, or slush when the outside air temperature is less than 42 degrees F (6 degrees C), or if it cannot be ascertained that the wing fuel temperature is above 32 degrees F (0 degrees C); and

- a. There is visible moisture (rain, drizzle, sleet, snow, fog, etc.) present; or
- b. Water is present on the wing; or
- c. The difference between the dew point and the outside air temperature is 5 degrees F (3 degrees C) or less; or
- d. The atmospheric conditions have been conducive to frost formation."

Note 1: When a statement identical to that in paragraph (f) of this AD has been included in the general revisions of the AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM.

### **Other FAA AD Provisions**

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

(1) Alternative Methods of Compliance (AMOCs): The Manager, International Branch, Transport Airplane Directorate, ANM-116, 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: Todd Thompson, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-1175; fax (425) 227-1149. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

(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, the Office of Management and Budget (OMB) has approved the information collection requirements and has assigned OMB Control Number 2120-0056.

### **Related Information**

(h) None.

### **Material Incorporated by Reference**

(i) None.

Issued in Renton, Washington, on April 8, 2008.

Ali Bahrami,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. E8-9876 Filed 5-5-08; 8:45 am]