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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39 [62 FR 600 NO. 3 01/06/97]**

**[Docket No. 96-ANE-39; Amendment 39-9875; AD 97-01-05]**

**RIN 2120-AA64**

**Airworthiness Directives; Williams International, L.L.C. Model FJ44-1A Turbofan Engines**

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** This amendment adopts a new airworthiness directive (AD) that is applicable to Williams International, L.L.C. Model FJ44-1A turbofan engines. This action requires initial and repetitive eddy current inspections (ECI) for possible cracks in high pressure turbine (HPT) disk blade retention posts. In addition, this AD requires the installation of advanced design HPT disks as terminating action to the inspection requirements of this AD. This amendment is prompted by two incidents of HPT disk blade retention post separations. The actions specified in this AD are intended to locate possible cracks in HPT disk blade retention posts, thereby preventing the separation of these posts and the liberation of the turbine blades that they retain, and a subsequent loss of engine power. In addition, the actions specified in this AD are intended to prevent the possible high disk speed uncontained liberation of disk posts and turbine blades, which could cause aircraft damage.

**DATES:** Effective January 21, 1997.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of January 21, 1997.

Comments for inclusion in the Rules Docket must be received on or before March 7, 1997.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), New England Region, Office of the Assistant Chief Counsel, Attention: Rules Docket No. 96-ANE-39, 12 New England Executive Park, Burlington, MA 01803-5299. The service information referenced in this AD may be obtained from Mr. John Teeter, Manager, Customer Support, Williams International, 2280 West Maple Road, P.O. Box 200, Walled Lake, MI 48390-0200; telephone (810) 624-5200, fax (810) 669-9515. This information may be examined at the FAA, New England Region, Office of the Assistant Chief Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

**FOR FURTHER INFORMATION CONTACT:** Eugene H. Messal, Aerospace Engineer, Chicago Aircraft Certification Office, FAA, Small Airplane Directorate, 2300 East Devon Avenue, Des Plaines, Illinois, 60018; telephone (847) 294-7011, fax (847) 294-7834.

**SUPPLEMENTARY INFORMATION:** The Federal Aviation Administration (FAA) has verified two reports of inflight HPT disk post separations on Williams International Model FJ44-1A turbofan engines. One of these inflight post separations was uncontained. The investigation revealed that in both cases, high pressure turbine (HPT) disk blade retention posts separated due to cracking caused by material creep/fatigue. This condition, if not corrected, could result in other engines experiencing HPT disk blade retention post separations and turbine blade liberations, and subsequent losses of engine power. In addition, this condition could, if not corrected, result in other engines experiencing high disk speed uncontained liberation of disk posts and turbine blades, which could cause aircraft damage. The FAA has reviewed and approved the technical contents of Williams-Rolls Alert Service Bulletin (ASB) No. FJ44-A72-30, dated November 6, 1996, that describes procedures for eddy current inspections (ECI) for possible cracks in HPT disk blade retention posts; and ASB No. FJ44-A72-31, dated November 4, 1996, that describes procedures for replacement of existing HPT disks with advanced design HPT disks.

Since an unsafe condition has been identified that is likely to exist or develop on other engines of the same design, this AD is being issued to locate possible cracks in HPT disk blade retention posts, which could lead to the liberation of the turbine blades that they retain, and subsequent loss of engine power. In addition, this AD is being issued to prevent the separation of HPT disk posts that could lead to a high disk speed uncontained liberation of disk posts and turbine blades, which could result in aircraft damage. This AD requires initial and repetitive ECI for possible cracks in HPT disk blade retention posts. The inspection population is divided into two groups, with the higher risk group listed by engine serial number (S/N). This group of HPT disks is at a higher risk due to a lower stress rupture strength characteristic. In addition, this AD requires replacement of the existing HPT disks, Part Number (P/N) 48629, with advanced design HPT disks, P/N 55291, by July 1, 1997, as terminating action to the inspection requirements of this AD. The calendar end-dates for this AD were determined based upon each suspect disk group's time to crack initiation, subsequent crack propagation rate, and its failure probability. In addition, the total in-service cycles and hours of each of the suspect disks of both groups, and the ASB replacement parts availability were contributing factors for determining the end-dates. These actions are required to be accomplished in accordance with the ASBs described previously.

Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days. Comments Invited Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket number and be submitted in triplicate to the address specified under the caption "ADDRESSES." All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket. Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 96-ANE-39." The postcard will be date stamped and returned to the commenter.

The regulations adopted herein will not have substantial direct effects 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. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in aircraft, and is not a "significant regulatory action" under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A copy of it, if filed, may be obtained from the Rules Docket at the location provided under the caption "ADDRESSES."

#### **List of Subjects in 14 CFR Part 39**

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

#### **Adoption of the Amendment**

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

#### **PART 39 – AIRWORTHINESS DIRECTIVES**

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

Authority: 49 USC 106(g), 40113, 44701. §39.13 - [AMENDED]

2. Section 39.13 is amended by adding the following new airworthiness directive:

# AIRWORTHINESS DIRECTIVE

Aircraft Certification Service  
Washington, DC



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Federal Aviation Regulations, Part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference FAR Subpart 39.3).

**97-01-05 Williams International, L.L.C.:** Amendment 39-9875. Docket 96-ANE-39.

**Applicability:** Williams International L.L.C. Model FJ44-1A turbofan engines, with serial numbers 1001-1179, 1196, and 1197, installed on, but not limited to, Cessna Citation Model 525 aircraft.

**Note 1:** This airworthiness directive (AD) applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For engines that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (c) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

**Compliance:** Required as indicated, unless accomplished previously.

To prevent possible high pressure turbine (HPT) disk blade retention post separations and the release of their retained turbine blades, subsequent loss of engine power, and possible high disk speed uncontained liberation of disk posts and the turbine blades, which could cause aircraft damage, accomplish the following:

(a) Perform initial and repetitive eddy current inspections (ECI) for cracks in HPT disks, Part Number (P/N) 48629, blade retention posts in accordance with the following schedule and requirements:

<b>ENGINE SERIAL NUMBERS</b>	<b>INITIAL COMPLIANCE REQUIRED</b>	<b>REPETITIVE INSPECTION REQUIRED</b>
1001, 1004 - 1010, 1016, 1017, 1020, 1023 - 1026, 1031, 1033, 1036, 1039, 1041, 1042, 1043, 1046 - 1048, 1051 - 1056, 1063, 1069, 1071, 1072, 1076, 1080, 1082, 1091, 1092, 1095 - 1098, 1107, 1108, 1111, 1125, 1127 - 1129, 1133, 1134, 1165, 1172, 1178.	Within 50 cycles after the effective date of this AD or by February 1, 1997, whichever occurs first.	Thereafter, at intervals not to exceed 125 cycles in service (CIS) since last inspection.
Remaining serial number engines with 575 CIS or more as of April 1, 1997.	No later than May 1, 1997.	Thereafter, at intervals not to exceed 125 CIS since last inspection.

(1) Perform the initial and repetitive eddy current inspections for cracks in HPT disk blade retention posts in accordance with Williams-Rolls Alert Service Bulletin (ASB) No. FJ44-A72- 30, dated November 6, 1996.

(2) Remove from service HPT disks that do not meet the "return to service" criteria stated in Williams-Rolls ASB No. FJ44-A72-30, dated November 6, 1996, and replace them with serviceable HPT disks, P/N 48629, that meet the required ASB "return to service" criteria, or replace them with advanced design HPT disks, P/N 55291, in accordance with paragraph (b) of this AD.

(b) No later than July 1, 1997, replace all existing HPT disks, P/N 48629, with advanced design HPT disks, P/N 55291, in accordance with Williams-Rolls ASB No. FJ44-A72-31, dated November 4, 1996. Installation of this advanced design HPT disk constitutes terminating action to the repetitive inspection requirements of this AD.

(c) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Chicago Aircraft Certification Office. The request should be forwarded through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Chicago Aircraft Certification Office.

Note 2: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the Chicago Aircraft Certification Office.

(d) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the aircraft to a location where the requirements of this AD can be accomplished.

(e) The actions required by this AD shall be done in accordance with the following Williams-Rolls ASBs:

<b>Document No</b>	<b>Pages</b>	<b>Date</b>
FJ44-A72-30	1-7	November 6, 1996
Total pages: 7		
FJ44-A72-31	1-7	November 4, 1996
Total Pages: 7		

This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Mr. John Teeter, Manager, Customer Support, Williams International, 2280 West Maple Road, P.O. Box 200, Walled Lake, MI 48390-0200; telephone (810) 624-5200, fax (810) 669-9515. Copies may be inspected at the FAA, New England Region, Office of the Assistant Chief Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(f) This amendment becomes effective on January 21, 1997.