

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [62 FR 4900 NO. 22 02/03/97]

[Docket No. 94-ANE-49; Amendment 39-9898; AD 97-02-13]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney JFTD12A Series and T73 Series Turboshift Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to Pratt & Whitney JFTD12A series and T73 series turboshift engines, that requires initial and repetitive fluorescent penetrant inspections (FPI) of compressor hubs, disks, spacers, and bolted on (rotating) airseals for cracks, and replacement, if necessary, with serviceable parts. This amendment is prompted by reports of extensive compressor rotor part cracking. The actions specified by this AD are intended to prevent disk rupture, an uncontained engine failure, and possible damage to the aircraft.

DATES: Effective April 4, 1997.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of April 4, 1997.

ADDRESSES: The service information referenced in this AD may be obtained from Pratt & Whitney, Publications Department, Supervisor Technical Publications Distribution, M/S 132-30, 400 Main St., East Hartford, CT 06108; telephone (860) 565-7700, fax (860) 565-4503. This information may be examined at the Federal Aviation Administration (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: Barbara Caufield, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (617) 238-7146, fax (617) 238-7199.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to Pratt & Whitney (PW) JFTD12A series and T73 series turboshift engines was published in the Federal Register on October 20, 1995 (60 FR 54203). That action proposed to require initial and repetitive fluorescent penetrant inspections (FPI) of compressor hubs, disks, spacers, and bolted on (rotating) airseals for cracks, and replacement, if necessary, with serviceable parts, in accordance with PW Alert Service Bulletin (ASB) No. 5856, Revision 1, dated December 13, 1991.

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

One commenter states specific part numbers (P/N's) for all parts affected by the AD should be added to the compliance section, in order to eliminate the need to revise the AD if future part modifications occur that negate the necessity for inspection. The FAA does not concur. As written, the AD applies to all JFTD12A-4A, -5A, T73-P-1, and -P-700 engines regardless of the hardware installed. The note following the applicability paragraph clarifies that if a future part modification occurs, the operator must request an alternative method of compliance in order to comply with the AD. The operator cannot make the determination to not comply with the AD independently. There may not be a need to revise or supersede the AD since an alternative method of compliance may be available.

The commenter also states that a specific inspection of the third stage disk tiebolt holes utilizing eddy current techniques in accordance with a Pratt & Whitney approved procedure must be accomplished in addition to FPI. Cracks have only occurred in the third stage disk tiebolt holes and the second stage disk blade pin holes. The commenter takes specific exception to the use of FPI to detect these cracks as they have significant experience that the utilization of the highest sensitivity penetrant required by Pratt & Whitney does not consistently identify cracked disks. The FAA does not concur. The risk analysis used to determine the AD compliance interval takes into account the reliability of the FPI, including the probability that an FPI inspection will not identify all cracks. The FAA has determined that FPI is adequate for detecting cracks in the third stage disk tiebolt holes and second stage disk blade pin holes.

The commenter also states that the AD should only address second and third stage disks and allow all the other parts to remain at the overhaul inspection interval of 3,000 hours time in service (TIS). Cracks have been found only in the third stage disk tiebolt holes and the second stage disk blade pin holes. There has never been a crack found in first stage or fourth through ninth stage disks. Therefore, continued inspection of all other parts at 1,500 hour TIS intervals is unnecessary and an economic burden, especially due to the complexity of deblading all nine stages of compressor disks. The FAA concurs in part. The FAA agrees that the inspection of the first stage disk and fourth through ninth stage disks may be accomplished at a 3,000 hour TIS overhaul interval; this final rule has been revised accordingly. However, inspection of all other parts, including second and third stage disks, hubs, spacers and bolted on (rotating) airseals, must still be accomplished at 1,500 hour TIS intervals. The FAA has revised the AD accordingly.

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest the adoption of the rule with the changes described previously. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

There are approximately 120 engines of the affected design in the worldwide fleet. The FAA estimates that 47 engines installed on aircraft of U.S. registry will be affected by this AD, that it will take approximately 140 work hours per engine to accomplish the required actions, and that the average labor rate is \$60 per work hour. Required parts will cost approximately \$40,670 per engine. Based on these figures, the total cost impact of the AD on U.S. operators is estimated to be \$2,306,290.

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.

For the reasons discussed above, I certify that this action (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. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it 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).

97-02-13 Pratt & Whitney: Amendment 39-9898. Docket 94-ANE-49.

Applicability: Pratt & Whitney Models JFTD12A-4A and -5A, and T73-P-1 and -P-700 turboshaft engines, installed on but not limited to Sikorsky S-64 series and CH-54 series 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 (e) 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 disk rupture, an uncontained engine failure, and possible damage to the aircraft, accomplish the following:

(a) Perform a fluorescent penetrant inspection (FPI) of compressor hubs, second stage and third stage disks, spacers, and bolted on (rotating) airseals for cracks in accordance with PW Alert Service Bulletin (ASB) No. 5856, Revision 1, dated December 13, 1991, as follows:

(1) Prior to further flight, for engines that equal or exceed 2,200 hours time in service (TIS) since last FPI of affected parts on the effective date of this airworthiness directive (AD).

(2) At or before 2,200 hours TIS since last FPI of affected parts on the effective date of this AD, for engines that equal or exceed 1,500 hours TIS but have less than 2,200 hours TIS since last FPI of affected parts on the effective date of this AD.

(3) At or before 1,500 hours TIS since last FPI of affected parts on the effective date of this AD, for engines that have less than 1,500 hours TIS since last FPI of affected parts on the effective date of this AD.

(4) Prior to further flight, remove cracked compressor hubs, second and third stage disks, spacers, and bolted on (rotating) airseals, and replace with serviceable parts.

(b) Thereafter, except for engines described in paragraphs (c) and (d) of this AD, perform repetitive FPI of affected parts for cracks at intervals not to exceed 1,500 hours TIS since last FPI in accordance with PW ASB No. 5856, Revision 1, dated December 13, 1991.

(c) Perform FPI of compressor first stage and fourth through ninth stage disks for cracks, in accordance with PW ASB No. 5856, Revision 1, dated December 13, 1991, as follows:

(1) At or before 3,000 hours TIS since last FPI of affected parts on the effective date of this AD.

(2) Thereafter, perform repetitive FPI of affected parts for cracks at intervals not to exceed 3,000 hours TIS since last FPI, in accordance with PW ASB No. 5856, Revision 1, dated December 13, 1991.

(3) Prior to further flight, remove cracked compressor first stage and fourth through ninth stage disks, and replace with serviceable parts.

(d) For all engines inspected in accordance with paragraphs (a) or (b) of this AD that have zero time second and third stage compressor disks installed after the effective date of this AD, perform the next FPI of affected parts at or before 3,000 hours TIS since the last FPI performed in accordance with paragraph (a) or (b) of this AD, and thereafter perform repetitive FPI of affected parts for cracks at intervals not to exceed 1,500 hours TIS since the last FPI, in accordance with PW ASB No. 5856, Revision 1, dated December 13, 1991. Prior to further flight, remove cracked compressor disks, and replace with serviceable parts.

(e) 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, Engine 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, Engine 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 Engine Certification Office.

(f) 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.

(g) The actions required by this AD shall be done in accordance with the following PW ASB:

Document No	Pages	Revision	Date
No. 5856	1-3	1	December 13, 1991
	4	Original	June 16, 1989
	5-7	1	December 13, 1991

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 Pratt & Whitney, Publications Department, Supervisor Technical Publications Distribution, M/S 132-30, 400 Main St., East Hartford, CT 06108; telephone (860) 565-7700. 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.

(h) This amendment becomes effective on April 4, 1997.