

[Federal Register: August 30, 2001 (Volume 66, Number 169)]
[Rules and Regulations]
[Page 45758-45760]
From the Federal Register Online via GPO Access [wais.access.gpo.gov]
[DOCID:fr30au01-7]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2000-NE-35-AD; Amendment 39-12421; AD 2001-17-30]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney JT9D-7R4 Series Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), that is applicable to Pratt & Whitney JT9D-7R4 series turbofan engines. This amendment requires initial and repetitive fluorescent penetrant inspection (FPI) of the high pressure turbine (HPT) 1st stage disk aft lugs, and if the aft lug(s) are cracked, replacement of the HPT 1st stage disk and HPT 1st stage airseals. Also, for certain configuration HPT disk assemblies, this amendment requires replacement of the HPT 1st stage airseals with newly designed airseals at the next accessibility. This amendment is prompted by reports of cracks in HPT 1st stage disk firtrees and failure of firtree lugs. The actions specified by this AD are intended to prevent 1st stage HPT disk firtree fracture, which could result in an uncontained engine failure, and damage to the airplane.

DATES: Effective date October 4, 2001.

ADDRESSES: The service information referenced in this AD may be obtained from Pratt & Whitney, 400 Main St., East Hartford, CT 06108; telephone (860) 565-6600, fax (860) 565-4503. This information may be examined at the FAA, New England Region, Office of the Regional 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: Peter White, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7128, fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that is applicable to Pratt & Whitney JT9D-7R4 series turbofan engines was published in the Federal Register on February 27, 2001 (66 FR 12440). That action proposed to require initial and repetitive fluorescent penetrant inspection (FPI) of the

high pressure turbine (HPT) 1st stage disk aft lugs, and if the aft lug(s) are cracked, replacement of the HPT 1st stage disk and HPT 1st stage airseals. Also, for certain configuration HPT disk assemblies, this action proposed to require replacement of the HPT 1st stage airseals with newly designed airseals at the next accessibility.

Comments

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

Clarifications Requested

One commenter addresses four issues:

- First, the commenter states that there is confusion regarding the phrase "before the latest of" which the commenter interprets to mean "whichever comes last." The commenter is correct. The phrase means whichever of the two cyclic limits occurs last.
- Secondly, the commenter states that clarification is needed for "initial F.P.I." because there is a difference between FPI as it is proposed in the NPRM and as it is described in applicable Pratt & Whitney service bulletins. The commenter wants to know if the standard SPOP84 full disk FPI inspection at HPT overhaul fulfills the requirements of the NPRM. It is the intent of this AD that the disk lug be inspected for cracks. The full disk FPI covers the requirement.
- Thirdly, the commenter states that the NPRM requires that airseal P/N 820121 must be installed on HPT part number (P/N) 787521 (powder metal disks) at the next hot section shop visit as described in Pratt & Whitney (PW) Service Bulletin (SB) JT9D-7R4-72-566. However, the commenter notes that the initial and repetitive inspection requirement of SB JT9D-7R4-72-567 remains unchanged. The commenter requests that the FAA delete the requirement to install the new airseals per SB JT9D-7R4-72-566. The FAA disagrees. The newer airseals offer a significant benefit in life over the older airseals. Though it is not stated explicitly in SB JT9D-7R4-72-567, there are no inspection limits for powder disks with the older sideplates, as it is assumed that they are all removed from service and replaced with the new sideplates per SB JT9D-7R4-72-566. Under this AD, there will be no requirement to inspect the older sideplates as they will be removed from service by paragraph (a) of this rule.
- Finally, this commenter and two others note that the compliance for airseal P/N 820121 installation is specified as "at the next hot section shop visit," which is further defined as "any time the HPT rotor is disassembled." However, SB JT9D-7R4-72-566 specifies installation at piece-part opportunity. The FAA agrees and paragraph (e) will be changed to "at disk piece-part opportunity."

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require 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.

Cost Analysis

There are approximately 324 engines of the affected design in the worldwide fleet. The FAA estimates that 47 engines installed on aircraft of U.S. registry would be affected by this proposed AD. Although forced engine removals are not anticipated the first year as a result of this proposed action, a maximum of two removals will be assumed. It would take approximately 86 work hours per engine to accomplish the proposed actions, and the average labor rate is \$60 per work hour. Based on these figures, the total labor cost impact of the proposed AD on U.S. operators the first year is estimated to

be \$24,520. Hardware costs the first year for HPT 1st stage airseals replaced by SB JT9D-7R4-72-566 are estimated to be \$128,000, based on replacement costs of \$147,110 per disk and \$45,143 for sideplates, discounted for average $\frac{1}{3}$ life lost at removal. Total combined labor and hardware costs for the first year are therefore estimated to be \$140,000.

The following year, it is estimated that inspections will result in a maximum of three engines requiring forced replacement of the HPT 1st stage disk and HPT 1st stage airseals due to cracking. Due to these forced removals, approximately $\frac{1}{3}$ of the disk life will be lost. The total combined hardware and labor cost is estimated to be approximately \$210,000. The total cost impact of this proposal on U.S. operators in the first two years is expected to be approximately \$350,000.

Regulatory Impact

This final rule does not have federalism implications, as defined in Executive Order 13132, because it would 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. Accordingly, the FAA has not consulted with state authorities prior to publication of this final rule.

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 the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) if promulgated, 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 by contacting the Rules Docket at the location provided under the caption ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, 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 U.S.C. 106(g), 40113, 44701.

Sec. 39.13 [Amended]

2. Section 39.13 is amended adding a new airworthiness directive to read as follows:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

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

We post ADs on the internet at "av-info.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) 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 14 CFR part 39, subpart 39.3).

2001-17-30 Pratt and Whitney: Amendment 39-12421. Docket 2000-NE-35-AD.

Applicability: This airworthiness directive (AD) is applicable to Pratt & Whitney (PW) JT9D-7R4 series turbofan engines. These engines are installed on, but not limited to, Boeing 747 and 767 series and Airbus A300 and A310 series airplanes.

Note 1: This 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 (f) 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: Compliance with this AD is required as indicated, unless accomplished previously.

To prevent high pressure turbine (HPT) disk firtree fracture, which could result in an uncontained engine failure, and damage to the airplane, accomplish the following:

HPT 1st Stage Airseal Replacement

(a) For engines that incorporate HPT 1st stage disk assembly part number (P/N) 787521, replace HPT 1st stage airseals with P/N 820121 at the next disk piece-part opportunity. Information on replacement of the HPT 1st stage airseal is contained in PW service bulletin (SB) JT9D-7R4-72-566, dated May 26, 2000.

Fluorescent Penetrant Inspection (FPI)

(b) Perform fluorescent penetrant inspection of the HPT 1st stage disk aft lug fillet radius for cracks according to the following Table 1 of this AD:

Table 1

HPT 1st stage disk assembly	HPT 1st stage disk	Initial inspection	Repetitive inspection interval
(1) P/N 787521.....	P/N 825701 or P/N 827201.	Before the latest of 4,000 CSN or 4,000 cycles since last HPT disk lug FPI(CSLI), or 500 CIS after the effective date of this AD.	Within 4,000 CSLI.
(2) P/N 797621.....	(i) P/N 829401 with air seals P/N's 797355, 796760, 803979, 797355-001 installed.	Before the latest of 5,000 CSN or CSLI or 500 CIS after, the effective date of this AD.	Within 4,000 CSLI.
	(ii) P/N 829401 with air seals P/N 820121 installed.	Before the latest of 5,000 CSN or 5,000 CSLI, or 500 CIS after the effective date of this AD.	Within 6,000 CSLI.

Additional inspection information can be found in Paragraph 4 of the Accomplishment Instructions of PW SB JT9D-7R4-72-567, dated May 26, 2000.

(c) Replace any disks that have crack indications. Information on replacement of the disk is contained in PW SB JT9D-7R4-72-568, dated May 26, 2000.

Terminating Action

(d) Installation of HPT disk P/N 820321 with redesigned HPT 1st stage airseal P/N 820121 is considered terminating action to the initial and repetitive inspection requirements of paragraph (b) this AD. Information on installation of the HPT disk is contained in PW SB JT9D-7R4-72-568, dated May 26, 2000.

Definition

(e) For the purpose of this AD, at disk piece-part opportunity is defined as any time the 1st stage HPT rotor is disassembled.

Alternative Methods of Compliance

(f) 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 (ECO). Operators must submit their request through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, ECO.

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

Special Flight Permits

(g) 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.

Effective Date of this AD

(h) This amendment becomes effective on October 4, 2001.

Issued in Burlington, Massachusetts, on August 21, 2001.

Donald Plouffe,

Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.

[FR Doc. 01-21893 Filed 8-29-01; 8:45 am]

BILLING CODE 4910-13-P