[Federal Register: June 26, 2002 (Volume 67, Number 123)]
[Rules and Regulations]
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[DOCID:fr26jn02-1]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2000-NE-49-AD; Amendment 39-12787; AD 2002-12-15]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney PW4000 Series Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), that is applicable to Pratt & Whitney PW4000 series turbofan engines. That AD requires operators to perform initial and repetitive inspections for cracking of high pressure compressor (HPC) front drum rotors based on cycle usage. That AD also requires the removal from service of any cracked HPC front drum rotors. This amendment clarifies inspection requirements for cracking of HPC front drum rotors that have fewer than 1,000 cycles-since-new (CSN). This amendment is prompted by comments from operators seeking more clarity about the inspection requirements of paragraph (a)(1) of that AD. The actions specified by this AD are intended to prevent HPC drum rotor failure from cracks that could result in an uncontained engine failure and damage to the airplane.

DATES: Effective date July 31, 2002. The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of July 31, 2002.

ADDRESSES: The service information referenced in this AD may be obtained from Pratt & Whitney, 400 Main Street, East Hartford, CT 06108. This information may be examined, by appointment, at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA. This information may be examined, by appointment, at the Federal Aviation Administration (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: Tara Goodman, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington MA 01803-5299; telephone: (781) 238-7130, fax: (781) 238-7199.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD 2001-20-13, Amendment 39-12461 (66 FR 52023, October 12, 2001), which is applicable to Pratt & Whitney PW4000 series turbofan engines, was published in the Federal Register on January 15, 2002 (67 FR 1913). That action proposed to clarify inspection requirements for cracking of HPC front drum rotors that have fewer than 1,000 cycles-since-new (CSN), in accordance with Pratt & Whitney Alert Service Bulletin (ASB) PW4ENG A72-722, dated September 29, 2000 and ASB PW4ENG A72-722, Revision 1, dated June 7, 2001.

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.

Request for Inspection Clarification

Two commenters state that in proposed paragraph (a), the inspection requirements are not clear for HPC front drum rotors with fewer than 1,000 cycles-since-new (CSN). One of the commenters states that the requirements are not clear on how to fulfill the initial inspection for HPC front drum rotors with less than 1,000 CSN. The commenter states that proposed paragraph (a)(1) refers to an HPC front drum rotor with less than 1,000 CSN, but the front drum must have accumulated at least 1,000 CSN before an initial inspection can be carried out. Therefore, it is not possible to fulfill the AD. The commenter suggests changing the wording of paragraph (a)(1) to say that HPC front drum rotors must have accumulated at least 1,000 CSN before an inspection can be carried out as an initial inspection.

The FAA does not agree. Proposed paragraph (a)(1) states that HPC front drum rotors may have fewer than 1,000 cycles-since-new on the effective date of the AD, and further states that after the front drum rotors accumulate 1,000 cycles-since-new (CSN), the initial inspection must be done within 500 cycles-in-service. This is consistent with the requirements of Pratt & Whitney ASB PW4ENG A72-722, dated September 29, 2000 and ASB PW4ENG A72-722, Revision 1, dated June 7, 2001. Proposed paragraph (a)(1) addresses front drum rotors that have fewer than 1,000 cyles-since-new on the effective date of the AD in order to include them in the inspection program. Therefore, no changes are necessary and the proposed paragraph (a) is adopted without change.

Request for Same Effective Date

One commenter requests that the effective date of the superseding AD be the same as the effective date of ASB PW4ENG A72-722, Revision 1, dated June 7, 2001. The commenter expresses concern that the effective date of the superseding AD would require changing the operators' ongoing inspection program.

The FAA does not agree that the effective date of the superseding AD must be the same as the effective date of Revision 1 of the ASB. The actions in the AD are required unless already done. Also, the inspections are based on the number of cycles the HPC front drum rotor has accumulated since new. An on-going inspection program is not affected by a change in the effective date of the AD.

Incorporate Off-Wing Inspection Program

One commenter notes that the proposal differs from the ASB, by not including the off-wing repetitive inspection program. The commenter states that when an engine is removed in accordance with another AD, AD 2001-25-11, the engine may be returned to service without HPC disassembly. Therefore, the off-wing borescope inspection program is necessary in this superseding AD and the commenter requests it be incorporated in the AD.

The FAA partially agrees. The FAA does not agree that the off-wing borescope inspection program must be incorporated in the AD. In the discussion of comments section of AD 2001-20-13, published in the Federal Register on October 12, 2001, it was noted that there are differences between the manufacturer's service information and the AD. The FAA stated that ASB PW4ENG A72-722, Revision 1, dated June 7, 2001, provides procedures for operators to perform off-wing initial and repetitive HPC drum rotor inspections, and that the off-wing requirements are not mandated by AD 2001-20-13. The FAA evaluated a 20-year cumulative risk assessment and determined that an acceptable level of safety will be met by requiring the on-wing inspections at the cyclic intervals detailed in the ASB. This description was not provided in the proposal. As the commenter states, operators performing the actions of AD 2001-20-13 have access to the HPC module, and can perform the off-wing HPC front drum rotor inspections of the ASB. It is noted in the ASB that the inspection program is intended for incorporation on engines installed on aircraft but may be incorporated on engines in the shop. The FAA agrees that using the off-wing procedures satisfies the repetitive inspection requirement. Therefore, paragraph (b) of the AD now reflects that option.

Concern Over Engines Already in ASB Compliance

One commenter expresses concern that the proposal does not address engines that have met the requirements of the ASB before the effective date of the AD. Another commenter expresses concern that the proposal does not reference engines that have complied with the ASB during a shop visit before the effective date of the AD. The commenters request that paragraph (a) of the AD reference the off-wing borescope inspection in accordance with off-wing inspection paragraphs of ASB PW4ENG A72-722. The commenters also request that a paragraph be added to the AD to state that HPC drum rotors previously inspected in accordance with the on-wing and off-wing accomplishment instructions of the ASB's before the effective date of the AD, satisy the initial inspection requirements of the AD.

The FAA partially agrees. The FAA does not agree that the off-wing borescope inspection program must be incorporated in the AD, as explained previously in the third comment response. The FAA agrees that inspection of HPC front drum rotors in accordance with the off-wing inspection instructions of the ASB before the effective date of the AD, satisfies the initial inspection requirements of the AD. Therefore, a new sub-paragraph (7) is added to paragraph (a) of the AD to allow the use of off-wing inspections of the HPC front drum rotors to satisfy the initial inspection requirement.

Inspect at Part Level

One commenter states that the repetitive inspection program is not at part level and requests that the repetitive inspection program be at part level.

The FAA disagrees that a part level inspection program should be added to the AD. Because the actions required by this AD are on-wing borescope inspections, the engine does not need to be disassembled to the part level in order to do the required actions.

Approve Proposal As Written

Two commenters approve of the proposal as written. 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.

Economic Analysis

The FAA estimates that this superseding AD will result in no additional costs to operators beyond those already incurred to comply with the current AD.

Regulatory Analysis

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) 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, 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 U.S.C. 106(g), 40113, 44701.

Sec. 39.13 [Amended]

2. Section 39.13 is amended by removing Amendment 39-12461 (66 FR 52023, October 12, 2001) and by adding a new airworthiness directive, Amendment 39-12787, 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 "www.airweb.faa.gov/rgl"

2002-12-15 Pratt & Whitney: Amendment 39-12787. Docket No. 2000-NE-49-AD. Supersedes AD 2001-20-13, Amendment 39-12461.

Applicability: This airworthiness directive (AD) applies to Pratt & Whitney (PW) models PW4052, PW4056, PW4060, PW4062, PW4152, PW4156A, PW4158, PW4460, and PW4462 turbofan engines. These engines are installed on but not limited to Boeing 747, 767, McDonnell Douglas MD-11, Airbus Industrie 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 (d) 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 already done.

To prevent failure of the high pressure compressor (HPC) front drum rotor from cracks, that could result in an uncontained engine failure and damage to the airplane, do the following:

Initial Inspection

(a) Perform an initial borescope inspection for cracks in accordance with the Accomplishment Instructions, On-Wing paragraphs 1 through 13, of Pratt & Whitney (PW) Alert Service Bulletin (ASB) No. PW4ENG A72-722, dated September 29, 2000 or Revision 1, dated June 7, 2001, as follows:

(1) For HPC front drum rotors with fewer than 1,000 cycles-since-new (CSN) on the effective date of this AD, perform an initial inspection within 500 cycles-in-service (CIS) after accumulating 1,000 CSN.

(2) For HPC front drum rotors with 1,000 CSN or more after the effective date of this AD, perform an initial inspection within 500 CIS after the effective date of this AD.

(3) If the presence of a crack needs to be confirmed, perform an eddy current inspection (ECI) within five flight cycles of the on-wing borescope inspection.

(4) If the presence of a crack needs to be confirmed and the suspect crack indication extends from the knife edges to the disk radius directly adjacent to the spacer wall of the sixth or seventh stage as shown in Figures 2 and 3 of PW ASB No. PW4ENG A72-722, dated September 29, 2000, or Revision 1, dated June 7, 2001, the ECI inspection must be done before further flight.

(5) If the presence of a crack is confirmed, remove and replace the HPC front drum rotor with a serviceable part before further flight.

(6) HPC front drum rotors fluorescent penetrant inspected at the last shop visit, as cited in the compliance section of the ASB, within 500 cycles of the effective date of this AD, satisfy the initial inspection requirement.

(7) HPC front drum rotors inspected at the last shop visit, in accordance with Off-Wing paragraphs 1 through 13 of PW4ENG A72-722, dated September 29, 2000, or Revision 1, dated June 7, 2001, within 500 cycles of the effective date of this AD, satisfy the initial inspection requirement.

Repetitive Inspections

(b) Thereafter, perform borescope inspections within 2,200 cycles-since-last-inspection, in accordance with the Accomplishment Instructions, On-Wing paragraphs 1 through 13, or Off-Wing paragraphs 1 through 13, of PW ASB No. PW4ENG A72-722, dated September 29, 2000, or Revision 1, dated June 7, 2001.

(1) If the presence of a crack needs to be confirmed, perform an ECI within five flight cycles.

(2) If the presence of a crack needs to be confirmed and the suspect crack indication extends from the knife edges to the disk radius directly adjacent to the spacer wall of the sixth or seventh stage as shown in Figures 2 and 3 of PW ASB No. PW4ENG A72-722, dated September 29, 2000, or Revision 1, dated June 7, 2001, the ECI inspection must be done before further flight.

(3) If the presence of a crack is confirmed, remove and replace with a serviceable HPC front drum rotor before further flight.

Definition of Suspect Crack Indication

(c) For the purposes of this AD, a suspect crack indication is defined as a response from the visual borescope inspection procedure that denotes the possible presence of a material discontinuity and requires interpretation to determine its significance.

Alternative Methods of Compliance

(d) 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

(e) Special flight permits may be issued in accordance with Secs. 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be done.

Documents That Have Been Incorporated by Reference

(f) The inspections must be done in accordance with the following Pratt & Whitney Alert Service Bulletins (ASB's):

Document No.	Pages	Revision	Date
ASB PW4ENG A72–722 Total pages: 17.	All	Original	September 29, 2000.
ASB PW4ENG A72–722	1–4	1	June 7, 2001.
	5	Original	September 29, 2001.
	6	1	June 7, 2001.
	7–9	Original	September 29, 2001.
	10–11	1	June 7, 2001.
	12–16	Original	September 29, 2001.
Total pages: 17.	17	1	June 7, 2001.

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, 400 Main Street, East Hartford, CT 06108. Copies may be inspected, by appointment, 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.

Effective Date

(g) This amendment becomes effective on July 31, 2002.

Issued in Burlington, Massachusetts, on June 14, 2002.
Francis A. Favara,
Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.
[FR Doc. 02-15641 Filed 6-25-02; 8:45 am]
BILLING CODE 4910-13-P