

Actions	Compliance	Procedures
(1) Inspect, visually or using 10× magnifying glass, the oleo attachment brackets, part number (P/N) NB-40-0075, for cracks.	Within the next 25 hours time-in-service (TIS) or 50 landings, whichever occurs first, after the effective date of this AD, and thereafter at intervals not to exceed 100 hours TIS or 2000 landings, whichever occurs first.	In accordance with B-N Service Bulletin Number SB 273, Issue 2, dated January 12, 200.
(2) If cracks are found during any inspection required by this AD, replace the bracket with another oleo attachment bracket, P/N NB-40-0075.	Prior to further flight after the inspection(s) required in paragraph (d)(1) of this AD in which the crack is found. Repetitively inspect thereafter at intervals not to exceed 100 hours TIS or 200 landings, whichever occurs first.	In accordance with B-N Service Bulletin Number SB 273, Issue 2, dated January 12, 2000, and the applicable maintenance manual.
(3) Do not install any oleo attachment bracket, P/N NB-40-0075 (or FAA-approved equivalent part number), unless it has been inspected as required in paragraph (d)(1) of this AD and determined to be airworthy.	As of the effective date of this AD. ....	Not applicable.

(e) *Can I comply with this AD in any other way?* You may use an alternative method of compliance or adjust the compliance time if:

(1) Your alternative method of compliance provides an equivalent level of safety; and

(2) The Manager, Small Airplane Directorate, approves your alternative. Submit your request through an FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Small Airplane Directorate.

**Note 1:** This AD applies to each airplane identified in paragraph (a) of this AD, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes 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 you have not eliminated the unsafe condition, specific actions you propose to address it.

(f) *Where can I get information about any already-approved alternative methods of compliance?* Contact Doug Rudolph, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4059; facsimile: (816) 329-4090.

(g) *What if I need to fly the airplane to another location to comply with this AD?* The FAA can issue a special flight permit under sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate your airplane to a location where you can accomplish the requirements of this AD.

(h) *How do I get copies of the documents referenced in this AD?* You

may get copies of the documents referenced in this AD from Pilatus Britten-Norman Limited, Bembridge, Isle of Wight, United Kingdom PO35 5PR; telephone: +44 (0) 1983 872511; facsimile: +44 (0) 1983 873246. You may view these documents at FAA, Central Region, Office of the Regional Counsel, 901 Locust, Room 506, Kansas City, Missouri 64106.

**Note 2:** The subject of this AD is addressed in United Kingdom CAA AD 005-09-2000, not dated.

Issued in Kansas City, Missouri, on November 14, 2001.

**Michael K. Dahl,**

*Acting Manager, Small Airplane Directorate, Aircraft Certification Service.*

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 2001-NE-25-AD]

RIN 2120-AA64

#### Airworthiness Directives; Pratt & Whitney 4000 Series Turbofan Engines

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

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** The Federal Aviation Administration (FAA) proposes to adopt a new airworthiness directive (AD) that is applicable to Pratt & Whitney (PW) PW4090, PW4090-3, PW4074D, PW4077D, PW4090D, and PW4098 turbofan engines with 15th stage high pressure compressor (HPC) disks having certain part numbers (P/N's). This proposal would require initial and

repetitive borescope inspections of 15th stage HPC disks for cracks in the knife edges, eddy current inspections (ECI's) of blade loading slots if required, and removal of cracked disks. In addition, this proposal would require the removal from service of these P/N disks, at a new lower cyclic life limit. This proposal is prompted by two reports of 15th stage HPC disks with cracks in the outer rim front rail of the blade loading slots, and in the front forward and middle knife edges. The actions specified by the proposed AD are intended to prevent 15th stage HPC disk failures from cracks, which could result in an uncontained engine failure.

**DATES:** Comments must be received by January 22, 2002.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2001-NE-25-AD, 12 New England Executive Park, Burlington, MA 01803-5299. Comments may be inspected at this location, by appointment, between 8:00 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. Comments may also be sent via the Internet using the following address: [9-ane-adcomment@faa.gov](mailto:9-ane-adcomment@faa.gov). Comments sent via the Internet must contain the docket number in the subject line. The service information referenced in the proposed rule 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, by appointment, at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA.

**FOR FURTHER INFORMATION CONTACT:** Jason Yang, Aerospace Engineer, Engine Certification Office, FAA, Engine and

Propeller Directorate, 12 New England Executive Park; telephone (781) 238-7747, fax (781) 238-7199.

#### **SUPPLEMENTARY INFORMATION:**

##### **Comments Invited**

Interested persons are invited to participate in the making of the proposed 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 above. All communications received on or before the closing date for comments, specified above, will be considered before taking action on the proposed rule. The proposals contained in this action may be changed in light of the comments received.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the proposed 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 summarizing each FAA-public contact concerned with the substance of this proposal will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this action must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 2001-NE-25-AD." The postcard will be date stamped and returned to the commenter.

##### **Availability of NPRM's**

Any person may obtain a copy of this NPRM by submitting a request to the FAA, New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2001-NE-25-AD, 12 New England Executive Park, Burlington, MA 01803-5299.

##### **Discussion**

In March of 2001, the FAA received two reports from the manufacturer of two factory engines with cracks in the 15th stage HPC disk blade loading slot outer rim front rail, and in the front forward and middle knife edges. The manufacturer's investigation results revealed that the crack initiations were caused by thermo-mechanical fatigue. Due to these investigation results, this proposal would require initial borescope inspections of 15th stage HPC disks P/N 56H015 and 57H715 for cracks in the knife edges and blade loading slots, eddy current inspections (ECI's) within 25 cycles-in-service from

the time of borescope inspection of blade loading slots if required, and removal of cracked disks. Repetitive borescope inspections at intervals of no more than 1,000 cycles-in-service since last inspection are also required. In addition, this proposal would require the removal from service of these P/N disks, at a new lower cyclic life limit of 8,000 cycles-since-new (CSN). The actions specified by the proposed AD are intended to prevent 15th stage HPC disk failures from cracks, which could result in an uncontained engine failure. Currently there is no terminating action for the repetitive inspections due to cracking of 15th stage HPC disks, P/N's 56H015 and 57H715. This condition, if not corrected, could result in disk rupture and uncontained engine failure.

##### **Manufacturer's Service Information**

The FAA has reviewed and approved the technical contents of PW Service Bulletin (SB) PW4G-112-A72-242, dated May 1, 2001 that describes procedures for initial and repetitive borescope inspections of 15th stage HPC disks for cracks in the front forward and middle knife edges, ECI's of front rail of the blade loading slots that have suspect cracks, within 25 cycles-in-service from time of initial borescope inspection, and the removal of cracked disks. In addition, the SB requires the removal from service of disks at a new lower cyclic life limit of 8,000 hours CSN.

##### **Differences Between This AD and the Manufacturer's Service Information**

Pratt & Whitney (PW) SB PW4G-112-A72-242, dated May 1, 2001, requires that for disks removed from engines in a maintenance facility for HPC rotor maintenance, that includes rotor tip grinding, the inspection specified in Engine Cleaning, Inspection, and Repair Manual, Chapter/Section 72-35-92, Inspection/Check-02 must be done on disks with 2,000 CSN or less. The SB also requires that disks removed from engines, with more than 2,000 CSN be replaced with a serviceable disk. PW has informed the FAA that to help reduce the operators' cost of replacing disks, PW may supply replacement disks at no cost, to be installed at the time disks with more than 2,000 CSN are removed for maintenance. This proposed AD addresses only inspections, replacement, and new cyclic life limit of installed disks.

##### **FAA's Determination of an Unsafe Condition and Proposed Actions**

Since an unsafe condition has been identified that is likely to exist or develop on other PW PW4090, PW4090-3, PW4074D, PW4077D,

PW4090D, and PW4098 turbofan engines of the same type design with 15th stage HPC disks P/N's 56H015 and 57H715, the proposed AD would require initial and repetitive borescope inspections of 15th stage HPC disks for cracks in the front forward and middle knife edges, ECI's of blade loading slots that have suspect cracks or cracks, within 25 cycles-in-service from time of initial borescope inspection, and the removal of cracked disks. In addition, the proposed AD would require the removal from service of disks at a new lower cyclic life limit of 8,000 hours CSN.

##### **Economic Analysis**

There are approximately 160 PW4090, PW4090-3, PW4074D, PW4077D, PW4090D, and PW4098 turbofan engines of the affected design in the worldwide fleet. The FAA estimates that 70 engines installed on airplanes of U.S. registry would be affected by this proposed AD. The FAA also estimates that it would take approximately 2.5 work hours per engine to accomplish an initial borescope inspection, and that the average labor rate is \$60 per work hour. Required parts for a borescope inspection would cost approximately \$9 per engine. Based on these figures, the total cost effect for the initial borescope inspection for U.S. operators is estimated to be \$11,130. Assuming that all 70 engines would require 15th stage HPC disk replacement, and that a replacement disk costs approximately \$65,000, the total disk cost effect of the proposed AD on U.S. operators is estimated to be \$4,550,000.

##### **Regulatory Analysis**

This proposed 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 proposed rule.

For the reasons discussed above, I certify that this proposed regulation (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 copy of the draft regulatory evaluation prepared for this

action 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.

#### The Proposed Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend 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.

#### § 39.13 [Amended]

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

**Pratt & Whitney:** Docket No. 2001-NE-25-AD.

**Applicability:** This airworthiness directive (AD) is applicable to Pratt & Whitney (PW) PW4090, PW4090-3, PW4074D, PW4077D, PW4090D, and PW4098 turbofan engines with 15th stage high pressure compressor (HPC) disks part numbers (P/N's) 56H015 or 57H715. These engines are installed on, but not limited to Boeing 777 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 (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:** Compliance with this AD is required as indicated, unless already done.

To prevent 15th stage HPC disk failures from cracks, which could result in an uncontained engine failure, do the following:

#### Initial Inspection

(a) Perform an initial inspection for cracks in the front rail of the blade loading slots and front forward and middle knife edges of the 15th stage HPC disk, and replace disk in accordance with paragraphs 1.A. through 1.E.(4) of, "For Engines Installed on Aircraft"; or paragraphs 2.A. through 2.E.(4) of, "For Engines Removed From the Aircraft", of the Accomplishment Instructions of PW Service Bulletin PW 4G-112-A72-242, dated May 1, 2001, and the following Table 1:

TABLE 1.—15TH STAGE HPC DISK INITIAL INSPECTION

Action	If:	Then:
(1) Borescope-inspect disk, within 4,600 cycles-since-new (CSN) or before 90 days after the effective date of this AD, whichever occurs later..	(i) Borescope inspection shows a crack in any knife edge area..	Replace the disk with a serviceable disk before further flight.
.....	(ii) Borescope inspection shows a suspect crack in any loading slot..	Perform an eddy current inspection (ECI) to confirm crack within the next 25 cycles-in-service (CIS), and if cracked replace with a serviceable disk before further flight.

#### Repetitive Inspections

(b) Perform repetitive inspections in accordance with the inspection procedures in paragraph (a) of this AD at intervals of no more than 1,000 CIS since the last inspection.

#### New Cyclic Life Limit

(c) This AD establishes a new cyclic life limit for 15th stage HPC disks P/N's 56H015 and 57H715 of 8,000 cycles-since-new (CSN). Thereafter, except as provided in paragraph (d) of this AD, no alternative cyclic life limit may be approved for 15th stage HPC disks P/N's 56H015 and 57H715.

#### 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 §§ 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 done.

Issued in Burlington, Massachusetts, on November 14, 2001.

**Donald E. Plouffe,**

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

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#### DEPARTMENT OF TRANSPORTATION

#### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 2001-NE-27-AD]

**RIN 2120-AA64**

**Airworthiness Directives; Pratt & Whitney JT9D-59A, -70A, -7Q, and -7Q3 Turbofan Engines**

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

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** The Federal Aviation Administration (FAA) proposes to adopt a new airworthiness directive (AD) that is applicable to Pratt & Whitney (PW) JT9D-59A, -70A, -7Q, and -7Q3 turbofan engines. This proposal would require fluorescent penetrant inspection of the high pressure turbine (HPT) second stage airseal knife edges for cracks, each time the airseal is accessible. This proposal is prompted by reports of cracks found in the knife edges of HPT second stage airseals during HPT disassembly. The actions specified by the proposed AD are intended to prevent failure of HPT second stage airseals due to cracks in the knife edges, which if not detected could result in uncontained engine failure and damage to the airplane.

**DATES:** Comments must be received by January 22, 2002.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2001-NE-27-AD, 12 New England Executive Park, Burlington, MA 01803-5299. Comments may be inspected at this location, by