

Proposed Rules

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This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 99-NE-22-AD]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney PW4000 Series Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This document proposes the adoption of a new airworthiness directive (AD) that is applicable to Pratt & Whitney (PW) PW4000 series turbofan engines. This proposal would establish short term criteria for limiting the number of engines with potentially reduced stability on each airplane to no more than one engine, would require initial and repetitive on-wing or test cell cold takeoff high pressure compressor (HPC) stability tests, would require removal of engines from service that fail on-wing test acceptance criteria, and would allow a follow-on test cell stability test. The AD also establishes required intervals for stability testing of the remaining engine with potentially reduced stability on the airplane and requirements for reporting test data. This proposal is prompted by a report of a dual-engine HPC surge event and reports of single-engine HPC surge events during the takeoff and climb phases of flight. The actions specified by the proposed AD are intended to prevent an HPC surge event, which could result in engine power loss at a critical phase of flight such as takeoff or climb.

DATES: Comments must be received by May 24, 1999.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 99-NE-22-

AD, 12 New England Executive Park, Burlington, MA 01803-5299. Comments may also be sent via the Internet using the following address: "9-ad-engineprop@faa.gov." Comments sent via the Internet must contain the docket number in the subject line. Comments may be inspected at this location between 8:00 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays.

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 at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA.

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:

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 notice 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 notice must submit a self-addressed, stamped postcard on which the following

statement is made: "Comments to Docket Number 99-NE-22-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. 99-NE-22-AD, 12 New England Executive Park, Burlington, MA 01803-5299.

Discussion

The Federal Aviation Administration (FAA) has received a report of a dual-engine high pressure compressor (HPC) surge event and several reports of single-engine HPC surge events on Pratt & Whitney (PW) PW4000 series turbofan engines. The FAA has determined that these HPC surges are caused by excessive HPC blade tip-to-stator assembly clearances in the aft stages of the HPC. The average maximum clearance between the blade tip and the stator assembly is reached during a cold engine takeoff approximately 60 seconds after throttle advance from idle to takeoff power, as a result of different thermal growth rates of the HPC rotor and stator components. The manufacturer's data indicates that some PW4000 engines exhibit reduced stability resulting from clearances larger than those due to this thermal mismatch alone. Testing has indicated that binding of stator assembly segments in the HPC outer casing can result in flow path distortion and produce local open clearances. These two factors (average maximum clearance and local open clearances) combine to produce excessive local blade tip-to-stator assembly clearances, which reduce stability and create subsequent engine surge.

The FAA has issued AD 98-23-08, Amendment 39-10873, (63 FR 63391, November 13, 1998) which was intended to reduce the rate of single-engine surges. Although the surge rates for engines that have incorporated the requirements of that AD have been reduced, the FAA has determined that further improvement is necessary. The investigation of engine surge events has determined that the dual-engine HPC surge event and several single-engine surge events have occurred on engines that meet the requirements of AD 98-23-08.

This condition, if not corrected, could result in an HPC surge event, which could result in engine power loss at a critical phase of flight such as takeoff or climb.

The FAA has reviewed and approved the technical contents of PW Special Instructions (SI) 49F96, dated August 9, 1996, PW SI 7F-96, dated January 10, 1996, and PW PW4000 Engine Manual Temporary Revisions 71-0016, 71-0025, and 71-0030, all dated March 15, 1999, and PW SI 32F-99, dated March April 13, 1999, which describe procedures for assessing the stability of PW4000 engines. Since an unsafe condition has been identified that is likely to exist or develop on other Pratt & Whitney (PW) PW4000 series turbofan engines of the same type design, the proposed AD would require short term criteria for limiting the number of engines with potentially reduced stability on each airplane to no more than one engine, would require initial and repetitive on-wing or test cell cold takeoff high pressure compressor (HPC) stability tests for all affected PW4000 series engines, would require removal from service of engines that fail on-wing test criteria, and would allow a follow-on test-cell stability test. Initial on-wing testing is required to limit the number of engines on the aircraft to no more than one engine that has exceeded the initial stability threshold. The proposed AD also establishes requirements to perform a stability test of the remaining engine with potentially reduced stability on the airplane. The stability tests are required to be accomplished in accordance with the special instructions described previously. This proposed AD has been drafted in conjunction with the Transport Aircraft Directorate, to coordinate the aircraft level aspects of this compliance plan. Data reporting requirements are necessary for this AD to allow continuous monitoring of the effectiveness and assumptions of this compliance plan. The manufacturer does not receive data on all of the tests that are performed, and this data is necessary to continuously monitor this plan. Additional rulemaking may be necessary based on the results of the data collected.

There are approximately 2,200 engines of the affected design in the worldwide fleet. The FAA estimates that 546 engines installed on aircraft of U.S. registry would be affected by this proposed AD. The FAA also estimates that, on average, approximately 192 on-wing tests, 60 test cell stability tests, 11 engine removals, and 19 HPC overhauls

will be required annually. It is estimated that the cost to industry of an on-wing stability test will average \$2,000, a test cell stability test will average \$12,000, an engine removal is approximately \$5,000, and an HPC overhaul will cost approximately \$400,000. Based on these figures, the total average annual cost impact of the proposed AD to U.S. operators is estimated to be \$8,759,000.

The regulations proposed herein would 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 proposal would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

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. 99-NE-22-AD.

Applicability: Pratt & Whitney PW4050, PW4052, PW4056, PW4060, PW4060A,

PW4060C, PW4062, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462 and PW4650 turbofan engines installed on, but not limited to certain models of Boeing 747, Boeing 767, Airbus Industrie A300, Airbus Industrie A310, and McDonnell Douglas MD-11 series airplanes.

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 (h) 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 a high pressure compressor (HPC) surge event, which could result in engine power loss at a critical phase of flight such as takeoff or climb, accomplish the following:

(a) Limit the number of engines on each airplane to no more than one untested engine that has exceeded the initial threshold specified in Table 1 of this AD, within 1,000 engine cycles in service (CIS) from the effective date of this AD or by December 31, 1999, whichever comes first, by one of the following methods:

(1) Conduct an initial on-wing stability test on engines listed in Table 1 of this AD, which have accumulated cycles equal to or greater than the associated initial threshold listed in Table 1 of this AD, as follows:

(i) Perform either a Cool Bodie stability test in accordance with PW Special Instructions 7F-96, dated January 10, 1996. Refer to Table 2 of this AD for disposition instructions; or;

(ii) Perform an E1E stability test in accordance with paragraphs A through D and F through H of the Run On-Wing E1E Testing section of PW Special Instructions 49F-96, dated August 9, 1996. Refer to Table 2 of this AD for disposition instructions.

(iii) For purposes of this AD, the initial threshold for PW4056, PW4156, and PW4156A, first run, full-up engines, applies only to engines that have incorporated service bulletins PW4ENG 72-474, 72-477, 72-484, 72-575, 72-485, 72-486, and 72-514 at original manufacture, and have had no work performed on the HPC and high pressure turbine gas path.

(2) Remove from service those engines listed in Table 1 of this AD with HPC's that have accumulated cycles equal to or greater than the initial threshold listed in Table 1 of this AD and replace with a serviceable engine that has undergone applicable initial and repetitive testing in accordance with paragraphs (a), (b) and (c) of this AD.

TABLE 1

Models	Initial threshold	Engine manual
PW4052, PW4152, PW4158, PW4050, PW4650	2400 HPC cycles since new or since HPC overhaul	50A605, 50A443
PW4056,* PW4156,* PW4156A*	1700 engine cycles since new	50A605, 50A443
PW4056, PW4156, PW4156A	1200 HPC cycles since HPC overhaul	50A605, 50A443
PW4060, PW4060A, PW4060C, PW4062, PW4160, PW4460, PW4462.	1200 HPC cycles since new or since HPC overhaul	50A605, 50A443, 50A822

First Run, Full Up Engines.

TABLE 2.—ON-WING ACCEPTANCE CRITERIA

Test type	Test result	Disposition
Cool Bodie: In accordance with SI 7F-96, dated August 9, 1996.	Pass	Continue in service.
	Failure	Remove from service or conduct E1E. If <0.02 continue in service. If E1E is ≥0.02 remove from service, prior to further flight.
E1E: In accordance with SI 49F-96, dated January 10, 1996.	<0.02	Continue in service.
	≥0.02 but ≤0.032	Conduct Cool Bodie, if pass continue in service. If fail remove engine from service, prior to further flight.
	>0.032	Remove from service, prior to further flight.

(b) For engines removed from service in accordance with paragraph (a) of this AD, a cold engine fuel spike stability test (Testing—20) may be done in accordance with the associated PW PW4000 Engine Manual Temporary Revisions 71-0016, 71-0025, and 71-0030, all dated March 15, 1999, or PW SI 32F-99, dated April 13, 1999. Engines that pass a test cell stability test may be returned to service.

(c) Repeat stability tests in accordance with paragraph (a)(1)(i) or (a)(1)(ii) on engines that meet the acceptance criteria of Table 2 of this AD or pass a test cell stability test in accordance with paragraph (b) before accumulating 800 CIS since last stability test.

(d) Remove from service engines that do not meet the acceptance criteria of Table 2, prior to further flight and replace with a serviceable engine that has undergone applicable initial and repetitive testing in accordance with paragraphs (a), (b) and (c) of this AD.

(e) Conduct stability tests on the remaining engine on each airplane before accumulating 1800 engine CIS after the effective date of this AD, or by December 31, 2000, whichever comes first, in accordance with paragraph (a) of this AD.

(f) Engines that have not reached the initial threshold specified in Table 1 of this by 1000 engine CIS after the effective date of this AD, or by December 31, 1999, whichever comes first, must be tested before the engine reaches the initial threshold so that no more than one engine per airplane has not been tested. After accumulating 1800 CIS or December 31, 2000, whichever comes first, the engines must be managed so that all engines have been tested in accordance with the initial thresholds specified in Table 1 of this AD or the repetitive 800 CIS threshold requirement of this AD.

(g) After the effective date of this AD, a cold engine fuel spike stability test (Testing—20) must be performed in accordance with PW Temporary Revision 71-0016, 71-0025,

or 71-0030, all dated March 15, 1999, or PW SI 32F-99, dated April 13, 1999, before an engine can be returned to service after having undergone maintenance in the shop, except under any of the following conditions:

(1) The HPC stage 12 through 14 blade tip clearances were restored to the clearances specified in the applicable fits and clearances engine manual during the shop visit, or the HPC was replaced with a new HPC during the shop visit.

(2) Less than 800 CIS have passed since the last accomplishment of Testing—20, unless a major engine flange was separated during the shop visit.

(3) The shop visit was only for replacement of a line replaceable unit, with no other work done, unless a major engine flange was separated during the shop visit.

Note 2: Boeing SB 767-72A0034, dated April 16, 1999, and SB 747-72A2038, dated April 16, 1999, include instructions similar to those contained in this AD, however, these SB's are not approved as alternate methods of compliance with this AD.

(h) 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. Operators shall submit their request through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Engine Certification Office.

Note 3: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the Engine Certification Office.

(i) Report the results of the stability assessment tests to the Manager, Engine Certification Office, 12 New England Executive Park, Burlington, MA 01803-5299. Data to be reported includes engine serial number, type and date of the test, results of the test (include E1E value if applicable),

position of engine on the airplane, disposition of the engine after the test, time and cycles since compressor overhaul, and total time on engine and total cycles at the time of the test. Reporting requirements have been approved by the Office of Management and Budget (OMB) and assigned OMB control number 2120-0056.

(j) 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 accomplished.

Issued in Burlington, Massachusetts, on April 14, 1999.

Mark C. Fulmer,

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

[FR Doc. 99-10054 Filed 4-21-99; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Airspace Docket No. 99-ANM-03]

Proposed removal of Class E airspace; Oak Harbor, WA

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This proposal would remove the Class E surface airspace at Oak Harbor Air Park, Oak Harbor, WA. The airport is no longer eligible to retain a Class E surface area because of a lack of weather reporting.