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Airworthiness Directive

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [64 FR 26833 NO. 95 05/18/99]

[Docket No. 97-ANE-58-AD; Amendment 39-11173; AD 99-11-02]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney R-1340 Series Reciprocating Engines
PDF Copy (If Available):

▼ Preamble Information

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to Pratt & Whitney R-1340 series reciprocating engines, that requires initial and repetitive visual and fluorescent penetrant inspections of cylinders for head cracking. This amendment is prompted by reports of cylinder head cracking. The actions specified by this AD are intended to prevent cylinder head cracking, which can result in engine power loss, forced landing, and damage to the aircraft.

DATES: Effective July 19, 1999.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of July 19, 1999.

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 Street, 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 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: Wego Wang, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New

England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7134, fax (781) 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) R-1340 series reciprocating engines was published in the Federal Register on June 12, 1998 (63 FR 32151). That action proposed to require initial and repetitive visual inspections of cylinders in accordance with PW Service Bulletin (SB) No. 1787, dated September 7, 1983, for head cracking at intervals based upon whether the engines are cowled and baffled, or unbaffled installations. Cracked cylinder heads must be replaced with serviceable parts if found cracked. In addition, this AD would require fluorescent penetrant inspection (FPI) of each cylinder at overhaul.

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

Four commenters request the FAA to allow pilots or operators who have completed a yet to be established educational workshop to conduct the visual inspections because of the frequency of these inspections, potential economic hardship, and the availability of FAA-certified mechanics who could be far away. The FAA does not concur. The FAA disagrees that the pilot inspections could substitute for the required visual inspections described in this AD. The FAA encourages the proper educational workshops to familiarize operators with the visual inspection techniques; however, the FAA still believes that the referenced inspections should be conducted by the FAA-certified mechanics who are the only certified people with the required expertise and experience to assure a comprehensive inspection.

One commenter (the manufacturer) states that the cylinder part number should be removed from the AD, and the AD should just make reference to cylinder heads because of the following three reasons: (1) the part progression history has become very complicated in the last few decades, (2) the complete part list is not available, and (3) all cylinder heads installed on the R-1340 series engines as specified in the Applicability provision are subject to the requirements of this AD. The FAA concurs, and the part number reference has been removed from this final rule.

One commenter states that in the Applicability the "Schweizer G164A" and "De Havilland DHC3 series" should be changed to "Ag Cat Corporation G-164A" and "de Havilland DHC-3", respectively; and that the definition of "R-1340 series" should be clarified to include specific engine models in the Applicability section. The FAA concurs and the Applicability has been revised accordingly in this final rule.

One commenter states that the inspection costs listed in the economic analysis are unrealistically low because the AD will apply to ex-military "warbird" aircraft that operate these engines. The FAA does not concur. The FAA's estimated cost is based on an average of the estimates for costs for all aircraft operated under normal conditions, and based on the best available information. The costs for a particular operator may be higher than the average.

One commenter is concerned with mandating an arbitrary number of hours for inspection of PW R-1340 engines by an FAA-certificated mechanic. The FAA does not concur. The inspection intervals required by this AD are not arbitrary, but based on the frequency of cylinder head cracking observed in service, data supplied by the manufacturer, and the inspection intervals already recommended by the manufacturer in the SB.

One commenter states that the proposed inspection should include all known areas in the cylinder head where cracks could lead to a cylinder failure. The FAA does not concur. The FAA believes that the proposed inspections in this AD are a timely initiative to monitor the cylinder head cracking issue. The inspections of other areas will not be required at this point in time. However, future rulemaking may be considered when more safety data are available to warrant such inspections.

One commenter states that although the required FPI is a good proposal, it will impose significant problems for some foreign operators whose civil airworthiness authorities require special certification for performing an FPI. The FAA concurs that the FPI is essential to the proposed inspection program, but has no comment on what impact the required actions may have on a foreign operator governed by its own civil airworthiness authority.

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.

There are approximately 3,000 engines of the affected design in the worldwide fleet. The FAA estimates that 2,535 engines installed on aircraft of U.S. registry will be affected by this AD, that it will take approximately 1 work hour per engine to accomplish the visual inspection, and 15 work hours to accomplish the FPI, and that the average labor rate is \$60 per work hour. Required parts will cost approximately \$2,000 per engine. In addition, the FAA estimates that 5% of the fleet will require replacement parts upon inspection. Based on these figures, the total cost impact of this AD on U.S. operators is estimated to be \$2,687,100.

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

§39.13 [Amended]

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

▼ Regulatory Information

99-11-02 Pratt & Whitney: Amendment 39-11173. Docket 97-ANE-58-AD.

Applicability: Pratt & Whitney (PW) R-1340 series reciprocating engines including Wasp S1H1, S1H1-G, S1H2, S1H4, S1H5-G, S3H2, R-1340-61 under Type Certificate E-129, Wasp S3H1-G, R-1340-59 under Type Certificate E-142, and also Wasp S3H1 under Type Certificate E-143. These engines are installed on but not limited to the following aircraft: de Havilland DHC-3, Air Tractor AT-301, and Ag Cat Corporation G-164A.

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 (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: Required as indicated, unless accomplished previously.

To prevent cylinder head cracking, which can result in engine power loss, forced landing, and damage to the aircraft, accomplish the following:

(a) Perform initial and repetitive visual inspections of cylinders for head cracking, and replace cracked cylinders with serviceable parts, in accordance with PW Service Bulletin (SB) No. 1787, dated September 7, 1983, as follows:

(1) For cowled and baffled installations, as follows:

(i) Perform the initial visual inspection within 125 hours time-in-service (TIS) after the effective date of this AD.

(ii) Thereafter, visually inspect at intervals not to exceed 250 hours TIS since last inspection.

(2) For all other installations, as follows:

(i) Perform the initial visual inspection within 50 hours TIS after the effective date of this AD.

(ii) Thereafter, visually inspect at intervals not to exceed 100 hours TIS since last inspection.

(b) At the next cylinder overhaul after the effective date of this AD, and at each subsequent overhaul, perform a fluorescent penetrant inspection (FPI) of cylinders for head cracking, and replace cracked cylinders with serviceable parts, in accordance with PW SB No. 1787, dated September 7, 1983.

(c) 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 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.

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

Document No	Pages	Date
1787	1-4	September 7, 1983
Total Pages: 4.		

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 Street, East Hartford, CT 06108; telephone (860)565-7700, fax (860)565-4503. Copies may be inspected 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.

(e) This amendment becomes effective on July 19, 1999.

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▼ Comments

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