



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2020-0542; Project Identifier AD-2020-00582-E]**

**RIN 2120-AA64**

**Airworthiness Directives; Pratt & Whitney Division Turbofan Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

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

**SUMMARY:** The FAA proposes to adopt a new airworthiness directive (AD) for all Pratt & Whitney Division (PW) PW4164, PW4164-1D, PW4168, PW4168-1D, PW4168A, PW4168A-1D, and PW4170 model turbofan engines with a certain outer combustion chamber assembly and 3rd stage low-pressure turbine (LPT) duct segments installed. This proposed AD was prompted by reports of damaged or failed 3rd stage LPT duct segments on PW engines with the Talon IIB outer combustion chamber assembly configuration installed. This proposed AD would require removing and replacing certain 3rd stage LPT duct segments. The FAA is proposing this AD to address the unsafe condition on these products.

**DATES:** The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2020-0542; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Carol Nguyen, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7655; fax: 781-238-7199; email: [carol.nguyen@faa.gov](mailto:carol.nguyen@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Comments Invited**

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2020-0542; Project Identifier AD-2020-00582-E” at the beginning of your comments. The FAA specifically invites comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. The FAA will consider all comments received by the closing date and may amend this NPRM because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all

comments received, without change, to <https://www.regulations.gov>, including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact received about this NPRM.

### **Confidential Business Information**

Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this AD contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this AD, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this AD. Submissions containing CBI should be sent to Carol Nguyen, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

### **Discussion**

The FAA received multiple reports of damaged or failed 3rd stage LPT duct segments that resulted in engine surges, in-flight shutdowns, diversions, and air turnbacks. The reports were attributed to elevated gas path temperature at the outer diameter of the turbine flowpath and high-pressure turbine 2nd stage blade outer air seal spallation, which led to the distortion and liberation of 3rd stage LPT duct segments. This condition, if not addressed, could result in uncontained release of LPT blades and vanes, damage to the engine, and damage to the airplane.

**Related Service Information**

The FAA reviewed PW Service Bulletin (SB) No. PW4G-100-72-214, dated December 15, 2011; PW SB No. PW4G-100-72-219, Revision 1, dated October 5, 2011; and PW SB No. PW4G-100-72-253, dated November 24, 2014. PW SB No. PW4G-100-72-214 introduces the Talon IIB outer combustion chamber assembly that reduces the combustor exit temperature levels at the outer diameter of the combustor. PW SB No. PW4G-100-72-219, Revision 1, describes procedures for installing the Advantage70 engine upgrade kit to improve engine reliability and fuel consumption, and to reduce maintenance costs. PW SB No. PW4G-100-72-253 describes procedures for replacing the outer combustion chamber assembly waspaloy nuts.

**FAA’s Determination**

The FAA is proposing this AD because the Agency evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

**Proposed AD Requirements**

This proposed AD would require removing and replacing certain 3rd stage LPT duct segments.

**Costs of Compliance**

The FAA estimates that this proposed AD affects 99 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

**Estimated costs**

<b>Action</b>	<b>Labor Cost</b>	<b>Parts Cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Remove and replace 3rd stage LPT duct segments	56 work-hours x \$85 per hour = \$4,760	\$85,000	\$89,760	\$8,886,240

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD 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.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, 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.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

## **The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**Pratt & Whitney Division:** Docket No. FAA-2020-0542; Project Identifier AD-2020-00582-E.

#### **(a) Comments Due Date**

The FAA must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

#### **(b) Affected ADs**

None.

#### **(c) Applicability**

This AD applies to all Pratt & Whitney Division (PW) PW4164, PW4164-1D, PW4168, PW4168-1D, PW4168A, PW4168A-1D, and PW4170 model turbofan engines that have 3rd stage low-pressure turbine (LPT) duct segments, part number (P/N) 50N434-01 or P/N 50N450-01 installed, and have the Talon IIB outer combustion chamber assembly, P/N 51J500 or P/N 51J381, installed.

#### **(d) Subject**

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

**(e) Unsafe Condition**

This AD was prompted by reports of damaged or failed 3rd stage LPT duct segments on PW engines with the Talon IIB outer combustion chamber assembly configuration installed. The FAA is issuing this AD to prevent failure of the 3rd stage LPT duct segments. The unsafe condition, if not addressed, could result in uncontained release of LPT blades and vanes, damage to the engine, and damage to the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Required Action**

At every engine shop visit after the effective date of this AD, remove from service the 3rd stage LPT duct segments, P/N 50N434-01 and P/N 50N450-01, and replace them with parts with zero flight cycles.

**(h) Terminating Action**

Removal of the 3rd stage LPT duct segments, P/N 50N434-01 and P/N 50N450-01, and their replacement with parts having P/Ns other than P/N 50N434-01 and P/N 50N450-01, constitutes terminating action for the repetitive replacement required by paragraph (g) of this AD.

**(i) Definition**

For the purpose of this AD, an "engine shop visit" is the induction of an engine into the shop for maintenance involving the separation of pairs of major mating engine flanges (lettered flanges). The separation of engine flanges solely for the purpose of transportation without subsequent engine maintenance does not constitute an engine shop visit.

**(j) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14

CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (k) of this AD. You may email your request to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(k) Related Information**

For more information about this AD, contact Carol Nguyen, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7655; fax: 781-238-7199; email: carol.nguyen@faa.gov.

Issued on June 5, 2020.

Lance T. Gant, Director,  
Compliance & Airworthiness Division,  
Aircraft Certification Service.

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