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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2011-0944; Directorate Identifier 2011-NE-11-AD; Amendment 39-16960; AD 2012-04-04]**

**RIN 2120-AA64**

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

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

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for all Pratt & Whitney PW4050, PW4052, PW4056, PW4060, PW4060A, PW4060C, PW4062, PW4062A, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462, and PW4650 turbofan engines, including models with any dash number suffix. This AD was prompted by an engine overspeed event that occurred during taxi and resulted in a high-pressure compressor surge and tailpipe fire. This AD requires replacing Pratt & Whitney fuel metering units (FMUs), part numbers (P/Ns) 53T335 (HS 801000-1), 55T423 (HS 801000-2), and 50U150 (HS 801000-3) at the next shop visit after the effective date of this AD. We are issuing this AD to prevent engine overspeed on these engines, which could result in an uncontained engine failure and damage to the airplane.

**DATES:** This AD is effective April 5, 2012.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of April 5, 2012.

**ADDRESSES:** For service information identified in this AD, contact Pratt & Whitney, 400 Main St., East Hartford, CT 06108, phone: 860-565-8770. You may review copies of the referenced service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document

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

**FOR FURTHER INFORMATION CONTACT:** James Gray, Aerospace Engineer, Engine Certification Office, FAA, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7742; fax: 781-238-7199; email: james.e.gray@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM published in the Federal Register on November 7, 2011 (76 FR 68660). That NPRM proposed to require replacing the FMU, P/N 50U150, at the next shop visit after the effective date of the proposed AD.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal and the FAA's response to each comment.

#### **Request To Specify the Replacement FMU**

Delta Airlines, Inc. requested that we specify replacing affected FMUs with FMU P/N 53U044, or later FAA-approved P/Ns. The commenter stated that doing this would help avoid potential alternative methods of compliance questions, and issues with specifying compliance to a service bulletin.

We do not agree. We only identify the affected parts requiring removal in the AD, and the modification that is required to correct the design. If we identified the replacement part by P/N, then, if and when that part gets replaced by another P/N, the AD would have to be superseded. We did not change the AD.

#### **Request To Extend the Compliance Time**

FedEx Express requested that we extend the compliance time from 60 months from the issue date of the proposed AD. The additional time is needed to plan forced removals of the installed FMUs and implement an effective modification planning program.

We do not agree. The compliance time specified in the AD is at the next shop visit. The commenter is referring to an outdated version of the service bulletin. We did not change the AD.

#### **Request To Reference Hamilton Sundstrand Alert Service Bulletin (ASB) No. JFC131-2-73-A24**

Martinair Holland and United Airlines, Inc. requested that we also reference Hamilton Sundstrand ASB No. JFC131-2-73-A24, Revision 1, dated May 18, 2011, in the AD compliance, as that SB contains information required to perform the FMU modification required by the AD.

We agree. We changed the AD to incorporate by reference (IBR) only that Hamilton Sundstrand ASB. That Hamilton Sundstrand ASB is also included within the Pratt & Whitney ASB No. PW4ENG A73-220, Revision 1, dated May 18, 2011, which we listed under Related Information.

## **Request To Add FMU Part Numbers**

Martinair Holland, United Airlines, Inc. and United Parcel Service Co. requested that we include Pratt & Whitney FMU P/Ns 53T335 and 55T423 with the existing P/N 50U150, in the AD, and also include the equivalent Hamilton Sundstrand FMU P/Ns 801000-3, 801000-1, and 801000-2.

We agree and added those P/Ns to the AD. The equivalent Hamilton Sundstrand P/Ns are included in parentheses.

## **Request To Change Paragraph (f)**

United Airlines, Inc. requested that we change paragraph (f) from “install a modified FMU,” to “install a new or modified FMU.”

We agree. The intent of the AD is to install an FMU incorporating the improvements of the modification, whether a new or modified FMU. We changed paragraph (f) in the AD.

## **Request To Not Incorporate by Reference the Alert SB**

United Airlines, Inc. requested that we not IBR Pratt & Whitney ASB No. PW4ENG A73-220, Revision 1, dated May 18, 2011, but to instead simply reference the ASB in the AD. The commenter stated that this would allow them flexibility to perform the FMU modification using their normal maintenance program and shop procedures.

We partially agree. We agree to change the AD to not IBR Pratt & Whitney ASB No. PW4ENG A73-220, Revision 1, dated May 18, 2011. We do not agree with the AD having no procedure IBRed to support use of a normal maintenance program and shop procedures. We changed the AD to IBR the portion of the Hamilton Sundstrand ASB No. JFC131-2-73-A24, Revision 1, dated May 18, 2011, that contains the unique procedures required to modify the FMUs.

## **Comment About a Potential Shortage of Parts**

United Airlines, Inc. commented that a potential shortage of parts could affect compliance with the AD.

We do not agree. Hamilton Sundstrand has worked to build up the FMU inventory to support the expected demand, so meeting the compliance time in the AD should not be a problem.

## **Request To Withdraw the Proposed AD**

United Parcel Service Co. requested that we withdraw the proposed AD. The commenter stated that since the overspeed incident occurred in 2006, there were several maintenance actions initiated by Pratt & Whitney and implemented by operators to minimize the risk of further incidents. The actions include reducing the overhaul soft time in the maintenance planning guide for main fuel pumps, including in the engine manual additional inspections of the FMU servo wash filter and transfer fuel tubes, and clarifying the trouble shooting instructions in the aircraft fault isolation manual to identify symptoms of clogged servo wash filters.

We do not agree. The unsafe condition exists in the design of the FMU, which must be addressed to prevent overspeed, potential uncontained engine failure, and damage to the airplane. The actions mentioned by the commenter were an interim plan to mitigate the risk of an unsafe condition. However, they do not represent the final corrective action. A servo wash filter clog followed by an overspeed event represents a single point failure in the engine design which can reasonably be expected to occur and which can result in a hazardous engine effect (uncontained engine failure). Because of this, the engine no longer meets the airworthiness standards to which it was certified. The intent of this AD action is to return the engine to the same level of safety provided by the airworthiness standards of its original certification. We did not withdraw the AD.

### **Request To Change the Compliance Time**

United Parcel Service Co. requested that we change the compliance time to the next component shop visit or at the next engine shop visit if the OEM recommended soft time is reached or exceeded. The commenter stated that operators with a low hour-to-cycle ratio would typically only overhaul the FMU at every other shop visit. The proposed AD compliance would require removal at the next shop visit, which could force removal of otherwise serviceable FMUs and add significant incremental labor and repair costs to operators.

We do not agree. Performing the FMU replacement or modification at the next component shop visit interval would not provide an acceptable level of safety. We did not change the AD.

### **Request To Adjust the Cost of Compliance**

United Parcel Service Co. requested that we adjust the cost of compliance to include incremental costs for FMUs that will be forced out of service before reaching the recommended overhaul soft time of 12,000 hours. The commenter states that the labor cost in the proposed AD assumes that the FMU is already in the shop and disassembled for normal FMU maintenance. It does not include labor hours that will be required for receiving inspection, disassembly, test, and preparation for shipment. The incremental cost of FMUs that are replaced before reaching its soft time are also not taken into account.

We do not agree. FMUs can be modified to comply with the AD. They do not need to be replaced with a new FMU. The cost of the AD includes the required labor to perform the modification as well as the parts cost for the upgrade kit. We consider only the actual cost of the AD; not other costs. We did not change the AD.

### **Request To Replace FMUs On-Wing**

United Parcel Service Co. requested that we include in the AD the option to perform on-wing replacements of unmodified FMUs with new or modified FMUs. The commenter stated that the proposed AD only requires replacement at time of shop visit. Operators would then have to apply for an alternative method of compliance to replace an FMU on-wing.

We partially agree. We agree that the operator could comply with the AD before the engine reaches the shop if the operator chooses to replace the FMU on-wing. We do not agree that a change to the AD is required because the operator can take credit for actions already done. Paragraph (e) of the AD states that you must comply with the AD within the compliance times specified, unless already done. We did not change the AD.

### **Request To Change the Installation Prohibition Paragraph**

United Parcel Service Co. requested that we change the installation prohibition paragraph (g) to prohibit installation of an unmodified FMU within the 3-year compliance period after a modified FMU has been installed. The commenter acknowledged that installation of an unmodified FMU is prohibited once a modified FMU is installed, but this is not explicitly stated in the proposed AD.

We do not agree. Once you comply with the AD by installing a modified FMU in accordance with the AD at the next engine shop visit after the effective date of the AD, or elect to comply with the AD by installing a modified FMU before the next engine shop visit after the effective date of this AD, the engine is in compliance with the AD and you cannot undo that compliance. We did not change the AD.

## **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously.

## **Costs of Compliance**

We estimate that this AD affects 750 engines installed on airplanes of U.S. registry. We also estimate that it will take about 3.2 work-hours per product to comply with this AD. The average labor rate is \$85 per work-hour. Required parts will cost about \$10,698 per engine. Based on these figures, we estimate the cost of the AD to U.S. operators to be \$8,227,500.

## **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.

We are 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**

This AD will not have federalism implications under Executive Order 13132. This AD will 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 that this AD:

- (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),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) 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.

## **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 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):



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**2012-04-04 Pratt & Whitney:** Amendment 39-16960; Docket No. FAA-2011-0944; Directorate Identifier 2011-NE-11-AD.

**(a) Effective Date**

This AD is effective April 5, 2012.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to all Pratt & Whitney Division PW4050, PW4052, PW4056, PW4060, PW4060A, PW4060C, PW4062, PW4062A, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462, and PW4650 turbofan engines, including models with any dash number suffix, with a Pratt & Whitney fuel metering unit (FMU) part number (P/N) 53T335 (HS 801000-1), 55T423 (HS 801000-2), or 50U150 (HS 801000-3) installed.

**(d) Unsafe Condition**

This AD was prompted by an engine overspeed event that occurred during taxi and resulted in a high-pressure compressor surge and tailpipe fire. We are issuing this AD to prevent engine overspeed on these engines, which could result in an uncontained engine failure and damage to the airplane.

**(e) Compliance**

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

**(f) Replacement of Affected FMUs**

At the next shop visit after the effective date of this AD, remove FMU P/Ns 53T335 (HS 801000-1), 55T423 (HS 801000-2), and 50U150 (HS 801000-3) and install an FMU that incorporates the modification in paragraphs 3.C through 3.E of the Accomplishment Instructions of Hamilton Sundstrand Alert Service Bulletin (ASB) No. JFC131-2-73-A24, Revision 1, dated May 18, 2011.

**(g) Installation Prohibition**

After three years from the effective date of this AD, do not install or reinstall an FMU P/N 53T335 (HS 801000-1), 55T423 (HS 801000-2), or 50U150 (HS 801000-3) onto any engine.

**(h) Definition of Shop Visit**

For the purpose of this AD, a shop visit is when the engine is inducted into the shop for any maintenance involving the separation of pairs of major mating engine flanges (lettered flanges).

However, the separation of engine flanges solely for the purposes of transporting the engine without subsequent engine maintenance is not an engine shop visit.

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

The Manager, Engine Certification Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19.

**(j) Related Information**

(1) For more information about this AD, contact James Gray, Aerospace Engineer, Engine Certification Office, FAA, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7742; fax: 781-238-7199; email: james.e.gray@faa.gov.

(2) Pratt & Whitney ASB No. PW4ENG A73-220, Revision 1, dated May 18, 2011, also pertains to this AD.

**(k) Material Incorporated by Reference**

(1) You must use Hamilton Sundstrand Alert Service Bulletin No. JFC131-2-73-A24, Revision 1, dated May 18, 2011, to do the modifications required by this AD, unless the AD specifies otherwise. The Director of the Federal Register approved the incorporation by reference (IBR) under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Hamilton Sundstrand, Technical Publications, Mail Stop 302-9, 4747 Harrison Avenue, P.O. Box 7002, Rockford, Illinois 61125-7002; telephone 860-654-3575; fax 860-998-4564; email tech.solutions@hs.utc.com; Internet <http://www.hamiltonsundstrand.com>, and Pratt & Whitney, 400 Main St. East Hartford, CT 06108, phone: 860-565-8770.

(3) You may review copies of the service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

(4) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Burlington, Massachusetts, on February 15, 2012.  
Peter A. White,  
Manager, Engine & Propeller Directorate,  
Aircraft Certification Service.