[Federal Register Volume 83, Number 165 (Friday, August 24, 2018)]
[Rules and Regulations]
[Pages 42771-42774]
From the Federal Register Online via the Government Publishing Office [www.gpo.gov]
[FR Doc No: 2018-18373]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-1107; Product Identifier 2016-NE-22-AD; Amendment 39-19330; AD 2018-14-10]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Division Turbofan

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are superseding Airworthiness Directive (AD) 2017-12-03 for certain Pratt & Whitney Division (PW) PW2037, PW2037M, and PW2040 turbofan engines. AD 2017-12-03 required installing a software standard eligible for installation and precludes the use of electronic engine control (EEC) software standards earlier than SCN 5B/I. This AD requires installing a software standard eligible for installation and preclude the use of EEC software standards earlier than SCN 5B/I or SCN 27A. This AD was prompted by an unrecoverable engine in-flight shutdown (IFSD) after an ice crystal icing event. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective September 28, 2018.

ADDRESSES: For service information identified in this final rule, contact Pratt & Whitney Division, 400 Main St., East Hartford, CT, 06118; phone: 800-565-0140; fax: 860-565-5442. You may view this service information at the FAA, Engine and Propeller Standards Branch, 1200 District Avenue, Burlington, MA, 01803. For information on the availability of this material at the FAA, call 781-238-7759. It is also available on the internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2017-1107.

Examining the AD Docket

You may examine the AD docket on the internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2017-1107; 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 final rule, the regulatory evaluation, any comments received, and other information. The address for Docket Operations (phone: 800-647-5527) is Document Operations, 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: Kevin M. Clark, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7088; fax: 781-238-7199; email: kevin.m.clark@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2017-12-03, Amendment 39-18918 (82 FR 27411, June 15, 2017), ("AD 2017-12-03"). AD 2017-12-03 applied to certain PW PW2037, PW2037M, and PW2040 turbofan engines. The NPRM published in the Federal Register on December 15, 2017 (82 FR 59557). The NPRM was prompted by an unrecoverable engine IFSD after an ice crystal icing event. The NPRM proposed to require installation of EEC software standards that became available since issuing AD 2017-12-03 for additional EEC models and preclude the use of EEC software standards earlier than SCN 5B/I or SCN 27A. We are issuing this AD to address the unsafe condition on these products.

Comments

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

Request To Clarify Installation Prohibition

PW, Delta Air Lines (Delta), FedEx Express (FedEx), and United Airlines requested clarification to paragraph (h)(2), Installation Prohibition. FedEx reasoned that paragraph (h)(2) would prohibit installation of software standard earlier than SCN 27A in all EEC models, which includes models with 24K of memory.

We agree. The intent of this AD is not to prohibit installation of software standard earlier than SCN 27A into EEC models with 24K memory. We clarified paragraph (h)(2) of this AD to identify the EECs by part number (P/N) that are prohibited from installation with software earlier than SCN 27A.

Request To Change Shop Visit

Delta and FedEx requested that we change the compliance criteria from engine shop visit to EEC shop visit in paragraphs (g)(1), (2), and (3).

We disagree. Using engine shop visit as compliance criteria provides a rate of incorporation of the improved software standard that meets the safety objectives of this AD while not putting additional burden on the operators. We did not change this AD.

Request To Revise the Costs of Compliance

PW requested that we modify the Costs of Compliance for engines affected by this AD from an estimated 587 engines to 344 engines installed on airplanes of U.S. registry.

We agree. We updated the Costs of Compliance to reflect that this AD affects an estimated 344 engines installed on airplanes of U.S. registry.

Delta and FedEx requested that we modify the Costs of Compliance to include the labor costs for removing the EEC from the airplane and reprogramming the EEC software. FedEx reasoned that the Costs of Compliance underestimated the labor costs for reprogramming the EEC software.

We partially agree. We agree that we underestimated the time to upgrade the EEC software as older hardware requires additional steps. We disagree with including the estimated time of removing the EEC from the engine because the upgrade is occurring at an already scheduled shop visit. The Costs of Compliance includes the cost of teardown and reprogramming the EEC software. We updated the Costs of Compliance to reflect more accurately the labor cost for these actions.

Request To Change Compliance Requirements

Delta requested that the software standard upgrades, as required in paragraph (g)(1) of this AD, be established as part of the extended operations (ETOPS) configuration requirements. Delta reasoned that this would be more effective than the proposed AD applicability in targeting aircraft that are operating in the Asia-Pacific region where weather conditions are most prevalent for ice crystal icing. Delta also requested that the list of engine serial numbers (ESNs) referenced in paragraph (g)(1) of this AD, which defines the engines with the reduced compliance deadline, be updated to reflect the current list of engines operating in the Asia-Pacific region.

We disagree. Removing the reference to specific ESNs and making the requirements of paragraph (g)(1) of this AD as part of the ETOPS configuration requirements would make this AD applicable to all ETOPS engines. Operators that operate ETOPS flights outside the Asia-Pacific region would be mandated to the earlier compliance time unnecessarily. In addition, revising the ESN list to include additional engines would cause difficulties for operators in meeting the compliance times. We will review any Alternative Methods of Compliance (AMOC) requests submitted to cover the regional risk to any operator's specific fleet. We did not change this AD.

Request To Clarify Software Update and Older EECs Models

Delta requested that we modify the “Actions Since AD 2017-12-03 Was Issued” and “Proposed AD Requirements” paragraphs to clarify that the software upgrades this AD requires apply to older EEC models but not to older engine models. These software upgrades were not available when AD 2017-12-03 was issued.

We disagree. We did not modify the “Actions Since AD 2017-12-03 Was Issued” and “Proposed AD Requirements” paragraphs because these paragraphs are not included in this final rule. We acknowledge in the Discussion paragraph that the software upgrades in this AD apply to older EEC models. We did not change this AD.

Request To Change EEC P/N Nomenclature

Delta requested that we replace the PW P/N in paragraphs (c)(2) and (g)(2) of this AD with the Hamilton Sundstrand (UTC Aerospace Systems) P/Ns. The Hamilton Sundstrand P/Ns are identified on the EEC data plate and are used in maintenance instructions.

We disagree. This AD applies to certain PW2037, PW2037M, and PW2040 turbofan engines and it is appropriate to use the design approval holders P/Ns for components installed on those engines. We did not change this AD.

Request To Change Engine S/Ns to EEC S/Ns

FedEx requested that we modify the reference in Figure 1 to paragraph (g) of this AD from ESN to EEC S/Ns. FedEx reasoned that EECs are LRUs that can be rotated between engines. Tracking by EEC S/N would enhance engine operating reliability by ensuring that only compliant units are installed on engines operated in regions of interest.

We disagree. Since we are aware of ESNs subject to the unsafe conditions described by this AD action, we find that linking compliance to ESNs satisfies the safety objective of this AD. In addition, changing from ESNs to EEC S/Ns would cause difficulties for operators in meeting the compliance times. We did not change this AD.

Request To Extend the Compliance End Date

FedEx requested that we extend the compliance end date, of July 1, 2024, to allow additional time to comply with the AD requirements and to be consistent with the seven-year compliance time set in AD 2017-12-03.

We disagree. The requirements in this AD are intended to address an unsafe condition on these engines and are based on several considerations including a risk analysis. The compliance times in this AD are necessary to meet the safety objectives of this AD. We did not change this AD.

Support for the AD

The Air Line Pilots Association expressed support for the NPRM as written.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously except for minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

Related Service Information

We reviewed PW Alert Service Bulletin (ASB) PW2000 A73-170, dated July 14, 2016, and PW ASB PW2000 A73-171, dated March 24, 2017. The ASBs describe procedures for modifying or replacing the EEC.

Costs of Compliance

We estimate that this AD affects 344 engines installed on airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
EEC software installation	4 work-hours × $85 per hour = $340	0	$340	$116,960

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.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to engines, propellers, and associated appliances to the Manager, Engine and Propeller Standards Branch, Policy and Innovation Division.

Regulatory Findings

We have determined that 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 removing Airworthiness Directive (AD) 2017-12-03, Amendment 39-18918 (82 FR 27411), and adding the following new AD:

2018-14-10 Pratt & Whitney Division: Amendment 39-19330; Docket No. FAA-2017-1107; Product Identifier 2016-NE-22-AD.

(a) Effective Date

This AD is effective September 28, 2018.

(b) Affected ADs

This AD replaces AD 2017-12-03, Amendment 39-18918 (82 FR 27411, June 15, 2017).

(c) Applicability

This AD applies to:

(1) All Pratt & Whitney Division (PW) PW2037, PW2037M, and PW2040 turbofan engines with electronic engine control (EEC), model number EEC104-40 or EEC104-60, installed, with an EEC software standard earlier than SCN 5B/I; and

(2) All PW PW2037, PW2037M, and PW2040 turbofan engines with EEC, model number EEC104-1, with part numbers (P/Ns) 1B7484, 1B7486, 1B7984, or 1B7985, installed, with an EEC software standard earlier than SCN 27A.

(d) Subject

Joint Aircraft System Component (JASC) Code 7321, Fuel Control Turbine Engines.

(e) Unsafe Condition

This AD was prompted by an unrecoverable engine in-flight shutdown after an ice crystal icing event. We are issuing this AD to prevent failure of the high-pressure turbine and rotor seizure. The unsafe condition, if not corrected, could result in failure of one or more engines, loss of thrust control, and loss of the airplane.

(f) Compliance

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

(g) Required Actions

(1) For an engine with an EEC model number EEC104-40 or EEC104-60 and a serial number (S/N) listed in Figure 1 to paragraph (g) of this AD, upgrade any EEC software standards earlier than SCN 5B/I or replace the EEC with a part eligible for installation at the next engine shop visit, or before December 1, 2018, whichever occurs first.

(2) For an engine with an EEC model number EEC104-40 or EEC104-60 and an S/N not listed in Figure 1 to paragraph (g) of this AD, upgrade any EEC software standards earlier than SCN 5B/I

or replace the EEC with a part eligible for installation at the next engine shop visit, or before July 1, 2024, whichever occurs first.

(3) For an engine with an EEC model number EEC104-1 with P/N 1B7484, 1B7486, 1B7984, or 1B7985, upgrade any EEC software standards earlier than SCN 27A or replace the EEC with a part eligible for installation at the next engine shop visit, or before July 1, 2024, whichever occurs first.

Figure 1 to Paragraph (g) – Engine S/Ns

716402	727272	728741
727103	727280	728743
727134	727281	728748
727152	727282	728779
727158	727286	728785
727189	727287	728795
727202	727288	728806
727204	728709	728811
727231	728715	728812
727239	728716	728820
727240	728719	728824
727251	728720	728826
727252	728725	728827
727253	728726	728840
727257	728729	728864
727269	728730	728870

(h) Installation Prohibition

After the effective date of this AD, do not install any software standard earlier than:

(1) SCN 5B/I into any EEC model number EEC104-40 or EEC104-60; or

(2) SCN 27A into any EEC model number EEC104-1 with P/N 1B7484, 1B7486, 1B7984, or 1B7985.

(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, except that the separation of engine flanges solely for the purposes of transportation of the engine 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)(1) 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

(1) For more information about this AD, contact Kevin M. Clark, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7088; fax: 781-238-7199; email: kevin.m.clark@faa.gov.

(2) For service information identified in this AD, contact Pratt & Whitney Division, 400 Main St., East Hartford, CT, 06118; phone: 800-565-0140; fax: 860-565-5442. You may view this referenced service information at the FAA, Engine & Propeller Standards Branch, 1200 District Avenue, Burlington, MA, 01803. For information on the availability of this material at the FAA, call 781-238-7759.

(l) Material Incorporated by Reference

None.

Issued in Burlington, Massachusetts, on August 21, 2018.
Karen M. Grant,
Acting Manager, Engine and Propeller Standards Branch,
Aircraft Certification Service.