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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2019-0614; Product Identifier 2019-NE-14-AD; Amendment 39-19878; AD 2020-05-28]

RIN 2120-AA64

Airworthiness Directives; International Aero Engines LLC Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding Airworthiness Directive (AD) 2019-11-08 for all International Aero Engines, LLC (IAE) PW1133G-JM, PW1133GA-JM, PW1130G-JM, PW1129G-JM, PW1127G-JM, PW1127GA-JM, PW1127G1-JM, PW1124G-JM, PW1124G1-JM, and PW1122G-JM model turbofan engines. AD 2019-11-08 required the removal of the main gearbox (MGB) assembly and electronic engine control (EEC) software and the installation of a part and software version eligible for installation for engines that operate on extended operations (ETOPS) flights. This AD retains the requirements of AD 2019-11-08 and requires replacement of the MGB assembly and EEC software on engines that do not operate on ETOPS flights. This AD was prompted by multiple reports of in-flight engine shutdowns as the result of high-cycle fatigue causing fracture of certain parts of the MGB assembly. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective April 21, 2020.

ADDRESSES: For service information identified in this final rule, contact International Aero Engines, LLC, 400 Main Street, East Hartford, CT, 06118; phone: 800-565-0140; email: help24@pw.utc.com; internet: <http://fleetcare.pw.utc.com>. 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.

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-2019-0614; 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 is 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

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2019-11-08, Amendment 39-19654 (84 FR 27511, June 13, 2019), (“AD 2019-11-08”). AD 2019-11-08 applied to all IAE PW1133G-JM, PW1133GA-JM, PW1130G-JM, PW1129G-JM, PW1127G-JM, PW1127GA-JM, PW1127G1-JM, PW1124G-JM, PW1124G1-JM, and PW1122G-JM model turbofan engines. AD 2019-11-08 required the removal of the MGB assembly and EEC software and the installation of a part and software version eligible for installation for engines that operate on ETOPS flights. AD 2019-11-08 was prompted by multiple reports of in-flight engine shutdowns as the result of high-cycle fatigue causing fracture of certain parts of the MGB assembly.

The NPRM published in the Federal Register on October 4, 2019 (84 FR 53082). The actions in AD 2019-11-08 were interim and only addressed engines that operate on 180-minute or 120-minute ETOPS flights. The NPRM proposed to retain and revise the compliance time for those actions and add requirements to replace the MGB assembly and EEC software on affected engines that do not operate on ETOPS flights. The FAA is issuing this AD to address the unsafe condition on these products.

Comments

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

Request To Consider Loss of Load

An anonymous commenter asked if an assessment had been made to the loss of load and associated possible low-pressure turbine (LPT) overspeed and disk burst when the MGB components fail due to high-cycle fatigue.

The FAA does not agree. The FAA did not perform an assessment of the low-pressure turbine overspeed and disk burst due to the loss of load of the main gearbox because the failure of the MGB components cannot lead directly to an LPT overspeed without some other extremely remote failure of the engine occurring simultaneously. The main rotor speeds of the engine are normally controlled by the engine control system and further protected against overspeed due to abnormal operation by an independent overspeed protection system. The failure of an MGB component will not affect either the normal engine control or the overspeed protection system from safely controlling the rotor speeds. Further, the MGB is powered by the high-pressure rotor system and has no effect on the low-pressure rotor speed. No change to this AD is required.

Updates to Service Information

Since the FAA published the NPRM, IAE has updated its service information. The FAA has therefore updated the references to the service information from the original issue discussed in the NPRM to Issue No. 004 in this AD.

Conclusion

The FAA reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting this AD as proposed.

Related Service Information

The FAA reviewed Pratt & Whitney (PW) Service Bulletin (SB) PW1000G-C-72-00-0129-00A-930A-D, Issue No. 004, dated January 7, 2020, and PW SB PW1000G-C-73-00-0037-00A-930A-D, Issue No. 004, dated November 4, 2019. PW SB PW1000G-C-72-00-0129-00A-930A-D, Issue No. 004, dated January 7, 2020, contains procedures for replacing the integrated drive generator oil pump drive gearshaft assembly in the MGB assembly. PW SB PW1000G-C-73-00-0037-00A-930A-D, Issue No. 004, dated November 4, 2019, contains procedures for replacing the EEC software to incorporate FCS5.0 software.

Costs of Compliance

The FAA estimates that this AD affects 72 engines installed on airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Replace the MGB assembly	13 work-hours × \$85 per hour = \$1,105	\$75,000	\$76,105	\$5,479,560
Replace the EEC software	3 work-hours × \$85 per hour = \$255	0	255	18,360

The new requirements of this AD add no additional economic burden.

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 has 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) 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.

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) 2019-11-08, Amendment 39-19654 (84 FR 27511, June 13, 2019), and adding the following new AD:



2020-05-28 International Aero Engines LLC: Amendment 39-19878; Docket No. FAA-2019-0614; Product Identifier 2019-NE-14-AD.

(a) Effective Date

This AD is effective April 21, 2020.

(b) Affected ADs

This AD replaces AD 2019-11-08, Amendment 39-19654 (84 FR 27511, June 13, 2019).

(c) Applicability

This AD applies to all International Aero Engines, LLC (IAE) PW1133G-JM, PW1133GA-JM, PW1130G-JM, PW1129G-JM, PW1127G-JM, PW1127GA-JM, PW1127G1-JM, PW1124G-JM, PW1124G1-JM, and PW1122G-JM model turbofan engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 7260, Turbine Engine Accessory Drive.

(e) Unsafe Condition

This AD was prompted by multiple reports of in-flight engine shutdowns as the result of high-cycle fatigue causing fracture of certain parts of the main gearbox (MGB) assembly. The FAA is issuing this AD to prevent failure of the MGB assembly. The unsafe condition, if not addressed, 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) Remove the MGB assembly, part number (P/N) 5322505, and install a part eligible for installation as follows:

(i) For engines that operate on 180-minute extended operations (ETOPS) flights, before further flight after the effective date of this AD.

(ii) For engines that operate on 120-minute ETOPS flights, within 120 days from June 28, 2019 (the effective date of AD 2019-11-08), or before further flight after the effective date of this AD, whichever occurs later.

(iii) For engines that do not operate on ETOPS flights, at the next engine shop visit after the effective date of this AD.

(2) For engines with MGB assembly P/N 5322505, within 120 days from June 28, 2019 (the effective date of AD 2019-11-08), or before further flight after the effective date of this AD, whichever occurs later, remove electronic engine control (EEC) software earlier than FCS5.0 from the engine and install EEC software that is eligible for installation.

(h) Installation Prohibition

(1) After the effective date of this AD, do not install integrated drive generator (IDG) oil pump drive gearshaft assembly, P/N 5322630-01, into an MGB assembly.

(2) After the effective date of this AD, do not load EEC software earlier than FCS5.0 on any engine identified in paragraph (c) of this AD with an MGB assembly, P/N 5322505.

(i) Definitions

(1) For the purpose of this AD, a “part eligible for installation” is an MGB assembly with an IDG oil pump drive gearshaft assembly other than P/N 5322630-01.

(2) 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.

(3) For the purpose of this AD, “EEC software that is eligible for installation” is EEC software FCS5.0 and later.

(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 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.

(l) Material Incorporated by Reference

None.

Issued on March 11, 2020.

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