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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 92-ANE-34-AD; Amendment 39-14584; AD 2006-09-13]

RIN 2120-AA64

Airworthiness Directives; Honeywell International Inc. ALF502L Series and ALF502R Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding an existing airworthiness directive (AD) for Honeywell International Inc. ALF502L series and ALF502R series turbofan engines. That AD currently establishes stress rupture retirement life limits for certain third stage turbine discs used in conjunction with certain third stage turbine nozzles. This AD brings requirements forward and unchanged, from the previous AD for ALF502R series turbofan engines. Also, this AD establishes new reduced stress rupture retirement life limits for certain part numbers (P/Ns) of third stage turbine disc and shaft assemblies installed in ALF502L series turbofan engines. This AD also requires removing those same parts from service using a drawdown schedule. This AD results from a report of failure of a third stage turbine disc and shaft assembly, leading to turbine blade release and separation of the exhaust nozzle. We are issuing this AD to prevent total loss of engine power, in-flight engine shutdown, release of turbine blades, separation of the exhaust nozzle, and possible damage to the airplane.

DATES: This AD becomes effective June 13, 2006. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of June 13, 2006.

ADDRESSES: Contact Honeywell Engines, Systems & Services, Customer Support Center, M/S 26-06/2102-323, P.O. Box 29003, Phoenix, AZ 85038-9003; telephone (800) 601-3099, for the service bulletins identified in this AD.

You may examine the AD docket at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA. You may examine the service bulletins, at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA.

FOR FURTHER INFORMATION CONTACT: Robert Baitoo, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate, 3960 Paramount Blvd., Lakewood, CA 90712-4137; telephone: (562) 627-5245, fax: (562) 627-5210.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR Part 39 with a proposed airworthiness directive (AD). The proposed AD applies to Honeywell International Inc. ALF502L series and ALF502R series turbofan engines. We published the proposed AD in the Federal Register on November 2, 2005 (70 FR 66302). That action proposed to bring requirements forward and unchanged, from the previous AD for ALF502R series turbofan engines. Also, that action proposed to establish new reduced stress rupture retirement life limits for certain P/Ns of third stage turbine disc and shaft assemblies installed in ALF502L series turbofan engines. That action also proposed to require removing those same parts from service using a drawdown schedule.

Examining the AD Docket

You may examine the AD Docket (including any comments and service information), by appointment, between 8 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. See ADDRESSES for the location.

Comments

We provided the public the opportunity to participate in the development of this AD. We received no comments on the proposal or on the determination of the cost to the public.

Conclusion

We have carefully reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed.

Costs of Compliance

There are about 180 Honeywell International, Inc. ALF502L, ALF502L-2, ALF502L-2A, ALF502L-2C, ALF502L-3, and ALF502R series turbofan engines of the affected design in the worldwide fleet. We estimate the AD will affect 170 engines installed on airplanes of U.S. registry. We also estimate that it will take about 14 workhours per engine to perform the actions, and that the average labor rate is $65 per workhour. The prorated cost of a replacement third stage turbine disc and shaft assembly is estimated to be $40,000. Based on these figures, we estimate the total parts and labor cost of the AD on U.S. operators to be $6,954,700.

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

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); 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.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary by sending a request to us at the address listed under ADDRESSES. Include "AD Docket No. 92-ANE-34-AD" in your request.

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 Federal Aviation Administration 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 Amendment 39-9163 (60 FR 11621, April 3, 1995) and by adding a new airworthiness directive, Amendment 39-14584, to read as follows:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

www.faa.gov/aircraft/safety/alerts/

2006-09-13 Honeywell International Inc. (formerly AlliedSignal, Inc. and Textron Lycoming): Amendment 39-14584. Docket No. 92-ANE-34-AD.

Effective Date

(a) This AD becomes effective June 13, 2006.

Affected ADs

(b) This AD supersedes AD 95-04-11.

Applicability

(c) This AD applies to Honeywell International Inc. (formerly AlliedSignal, Inc. and Textron Lycoming) ALF502L, ALF502L-2, ALF502L-2A, ALF502L-2C, and ALF502L-3 series turbofan engines with third stage turbine disc and shaft assemblies that have operated in the Honeywell Pre SB No. ALF502L 72-232 configuration. This AD also applies to ALF502R series engines. These engines are installed on, but not limited to, BAe Systems AVRO 146 and Bombardier (Canadair) CL600-1A11 series airplanes.

Unsafe Condition

(d) This AD results from a report of failure of a third stage turbine disc and shaft assembly, leading to turbine blade release and separation of the exhaust nozzle. We are issuing this AD to prevent total loss of engine power, in-flight engine shutdown, release of turbine blades, separation of the exhaust nozzle, and possible damage to the airplane.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

ALF502L Series Turbofan Engines

Determination of Third Stage Turbine Disc and Shaft Assembly Drawdown Schedule

(f) For ALF502L series turbofan engines, determine if the third stage turbine disc and shaft assembly is currently operating in the Pre SB No. ALF502L 72-232 configuration as follows:

(1) If a third stage turbine nozzle assembly, part number (P/N) 2-141-120R56/-57 is installed, then Honeywell SB No. ALF502L 72-232 has been complied with. Proceed to the drawdown schedule in paragraph (h) of this AD.

(2) If any other third stage turbine nozzle assembly is installed, then the engine is in the Pre SB No. ALF502L 72-232 configuration. Proceed to the drawdown schedule in paragraph (g) of this AD. Drawdown Schedule for Third Stage Turbine Disc and Shaft Assemblies That Are Operating in the Pre SB No. ALF502L 72-232 Configuration

(g) For ALF502L series turbofan engines, use the drawdown schedule described in the following Table 1, and replace with serviceable parts:

TABLE 1.—DRAWDOWN SCHEDULE FOR THIRD STAGE TURBINE DISC AND SHAFT ASSEMBLIES IN PRE SB ALF502L 72–232 CONFIGURATION

For third stage turbine disc and shaft assembly P/Ns:	If hours-in-service (HIS) on the effective date of this AD are:	Then remove:
2–143–030–05, 2–143–030–08, 2–143–030–14, 2–143–030R21, 2–143–030–22, 2–143–030–23.	(1) 5,200 or more HIS.	Within 50 additional HIS.
	(2) 5,001 to 5,199 HIS.	Before reaching 5,250 HIS.
	(3) 2,551 to 5,000 HIS.	Within 250 additional HIS.
	(4) 2,550 or fewer HIS.	Before reaching 2,800 HIS.

Determination of Drawdown Schedule for Third Stage Turbine Disc and Shaft Assemblies That Have Operated in Pre and Post SB No. ALF502L 72-232 Configurations

(h) For ALF502L series turbofan engines, with third stage turbine disc and shaft assemblies converted from Pre SB No. ALF502L 72-232 configuration to Post SB No. ALF502L 72-232 configuration, do the following:

(1) Determine the total HIS accumulated on the third stage turbine disc and shaft assembly at time of installation of third stage turbine nozzle assembly, P/N 2-141-120-R56/-57.

(2) If the total is 2,800 HIS or more, use the drawdown schedule in Table 1 of this AD to remove the assembly from service.

(3) If the total is fewer than 2,800 HIS, calculate the remaining service life using paragraphs 2.A. through 2.B.(4)(i) of the Accomplishment Instructions of Honeywell SB No. ALF502 72-0004, Revision 17, dated January 16, 2005.

(i) For ALF502L series turbofan engines, use the drawdown schedule described in the following Table 2 to remove the assembly from service:

TABLE 2.—DRAWDOWN SCHEDULE FOR THIRD STAGE TURBINE DISC AND SHAFT ASSEMBLIES OPERATED IN PRE AND POST SB NO. ALF502L 72–232 CONFIGURATION

For third stage turbine disc and shaft assembly part numbers:	If HIS on the effective date of this AD are:	Then:
(1) 2–143–030–05, 2–143–030–08, 2–143–030–14.	(i) 30,000 or more HIS.	Remove within 50 additional HIS.
	(ii) 27,250 to 29,999 HIS.	Remove within 250 additional HIS.
	(iii) Fewer than 27,250 HIS.	Remove using Tables 1 through 5 of Honeywell SB No. ALF502 72–0004, Revision 17, dated January 16, 2005.

For third stage turbine disc and shaft assembly part numbers:	If HIS on the effective date of this AD are:	Then:
(2) 2–143–030R21, 2–143–030–23	(i) 24,650 or more HIS.	Remove within 50 additional HIS.
	(ii) 22,150 to 24,649 HIS.	Remove within 250 additional HIS.
	(iii) Fewer than 22,150 HIS.	Remove using Tables 1 through 5 of Honeywell SB No. ALF502 72–0004, Revision 17, dated January 16, 2005.
(3) 2–143–030–22	(i) 50,000 or more HIS.	Remove within 50 additional HIS.
	(ii) 49,750 to 49,999 HIS.	Remove within 250 additional HIS.
	(iii) Fewer than 49,750 HIS.	Remove using Tables 1 through 5 of Honeywell SB No. ALF502 72–0004, Revision 17, dated January 16, 2005.

ALF502R Series Turbofan Engines

Requirements Brought Forward, and Unchanged From AD 95-04-11

(j) For ALF502R series turbofan engines, remove from service and replace with a serviceable part third stage turbine disks, P/Ns 2-143-030-05, 2-143-030-08, and 2-143-030-14, as follows:

(1) For disks that have been installed only with third stage turbine nozzles P/Ns 2-141-130-52 or 2-141-120-53, remove from service as follows:

(i) For disks that have accumulated 13,220 or more hours time in service (TIS) since new on April 13, 1995 (the effective date of AD 95-04-11), within the next 80 hours TIS after December 11, 1990, but not to exceed the existing cyclic life limit.

(ii) For disks that have accumulated less than 13,220 hours TIS since new on April 13, 1995, before accumulating more than 13,300 hours TIS since new, but not to exceed the existing cyclic life limit.

(iii) Thereafter, remove disks before accumulating more than 13,300 hours TIS since new, but not to exceed the existing cyclic life limit.

(2) For disks that have been installed only with third stage turbine nozzles, P/Ns 2-141-120-57 or 2-141-120-R56, remove from service as follows:

(i) For disks that have accumulated 27,420 or more hours TIS since new on April 13, 1995, within 80 hours TIS after April 13, 1995, but not to exceed the existing cyclic life limit.

(ii) For disks that have accumulated less than 27,420 hours TIS since new on April 13, 1995, before accumulating more than 27,500 hours TIS since new, but not to exceed the existing cyclic life limit.

(iii) Thereafter, remove disks before accumulating more than 27,500 hours TIS since new, but not to exceed the existing cyclic life limit.

(3) For disks that have been installed with both third stage turbine nozzles, P/Ns 2-141-120-52 or 2-141-120-120-53, and third stage turbine nozzles P/Ns 2-141-120-57 or 2-141-120-R56, remove from service as follows:

(i) Determine the prorated hourly life limit using the procedure defined in the Accomplishment Instructions, Section 2.B.(2) of Textron Lycoming SB No. ALF 502 72-0002, Revision 22, dated December 23, 1992. From this prorated hourly life limit, subtract 80 hours TIS to determine the compliance threshold.

(ii) For disks that have equaled or exceeded the compliance threshold on April 13, 1995, within the next 80 hours TIS, but not to exceed the existing cyclic life limit.

(iii) For disks that have accumulated fewer than the compliance threshold on April 13, 1995, before accumulating more than the calculated prorated hourly life limit.

(iv) Thereafter, remove disks at or before accumulating the prorated hourly life limit, but not to exceed the existing cyclic life limit.

Alternative Methods of Compliance

(k) The Manager, Los Angeles Aircraft Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

Special Flight Permits

(l) Under 14 CFR part 39.23, we are limiting the special flight permits for this AD by allowing a onetime special flight if the disc life limit has been reached.

Related Information

(m) Honeywell SB No. ALF/LF A72-1085, Revision 1, dated January 16, 2005, pertains to the subject of this AD.

Material Incorporated by Reference

(n) You must use the service bulletins listed in Table 3 of this AD to perform the inspections required by this AD. The Director of the Federal Register approved the incorporation by reference of this service bulletin in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact Rolls-Royce plc, P.O. Box 31, Derby, DE248BJ; UK, telephone: 011-44-1332-242424; fax: 011-44-1332-249936, for a copy of this service information. You can review copies at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or 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*.

TABLE 3.—INCORPORATION BY REFERENCE

Service bulletin (SB) No.	Pages	Revision	Date
Textron Lycoming SB No. ALF 502 72–0002 Total Pages: 27	1–2	22	December 23, 1992.
	3	18	December 21, 1989.
	4–7	22	December 23, 1992.
	8	21	September 25, 1992.
	9–10	22	December 23, 1992.
	11	21	September 25, 1992.
	12–26	22	December 23, 1992.
	27	21	September 25, 1992.
Honeywell SB No. ALF502 72–0004 Total Pages: 30	1	17	January 16, 2005.
	2	16	November 7, 2003.
	3	17	January 16, 2005.
	4	16	November 7, 2003.
	5–30	17	January 16, 2003.

Issued in Burlington, Massachusetts, on April 26, 2006.
Francis A. Favara,
Manager, Engine and Propeller Directorate, Aircraft Certification Service.
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