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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2005-21242; Directorate Identifier 2005-NE-09-AD; Amendment 39-16288; AD 2010-10-09]

RIN 2120-AA64

Airworthiness Directives; Turbomeca Arriel 1B, 1D, 1D1, and 1S1 Turboshaft Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is superseding an existing airworthiness directive (AD) for certain Turbomeca Arriel 1B, 1D, 1D1, and 1S1 turboshaft engines. That AD requires initial and repetitive relative position checks of the gas generator 2nd stage turbine blades on Turbomeca Arriel 1B (that incorporate Turbomeca Modification (mod) TU 148), Arriel 1D, 1D1, and 1S1 turboshaft engines that do not incorporate mod TU 347. That AD also requires initial and repetitive replacements of 2nd stage turbines on Arriel 1B, 1D, and 1D1 engines. This AD requires lowering the initial and repetitive thresholds for replacement of 2nd stage turbines on Arriel 1B, 1D, and 1D1 engines. This AD results from reports of new cases of failures of 2nd stage turbine blades since we issued AD 2008-07-01. We are issuing this AD to prevent the failure of 2nd stage turbine blades, which could result in an uncommanded in-flight engine shutdown, and a subsequent forced autorotation landing or accident.

DATES: This AD becomes effective June 21, 2010. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of June 21, 2010.

ADDRESSES: You can get the service information identified in this AD from Turbomeca, 40220 Tarnos, France; telephone (33) 05 59 74 40 00, fax (33) 05 59 74 45 15.

The Docket Operations office is located at Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.

FOR FURTHER INFORMATION CONTACT: Kevin Dickert, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: kevin.dickert@faa.gov; phone: (781) 238-7117, fax: (781) 238-7199.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 by superseding AD 2008-07-01, Amendment 39-15442 (73 FR 15866, March 26, 2008), with a proposed AD. The proposed AD applies to Turbomeca Arriel 1B (that incorporate mod TU 148), 1D, 1D1, and 1S1 turboshaft engines that do not incorporate mod TU 347. We published the proposed AD in the Federal Register on March 10, 2010 (75 FR 11072). That action proposed to require lowering the repetitive threshold for relative position checks on Arriel 1B engines. That action also proposed to require lowering the initial and repetitive thresholds for replacement of 2nd stage turbines on Arriel 1B, 1D, and 1D1 engines.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office 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 street address for the Docket Operations office (phone (800) 647-5527) is provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

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

Based on the service information, we estimate that this AD will affect about 587 Turbomeca Arriel 1B, 1D, 1D1, and 1S1 turboshaft engines installed on products of U.S. registry. We also estimate that it will take about 2 work-hours per engine to perform one inspection, and about 40 work-hours per engine to replace the gas turbine discs and blades. The average labor rate is \$85 per work-hour. Required parts will cost about \$54,000 per engine. Based on these figures, we estimate the cost of the AD on U.S. operators to be \$33,793,590.

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 at the address listed under ADDRESSES.

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 39-15442 (73 FR 15866, March 26, 2008), and by adding a new airworthiness directive, Amendment 39-16288, to read as follows:



2010-10-09 Turbomeca: Amendment 39-16288. Docket No. FAA-2005-21242; Directorate Identifier 2005-NE-09-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective June 21, 2010.

Affected ADs

- (b) This AD supersedes AD 2008-07-01, Amendment 39-15442.

Applicability

(c) This AD applies to Turbomeca Arriel 1B (that incorporate Turbomeca Modification (mod) TU 148), Arriel 1D, 1D1, and 1S1 engines that do not incorporate mod TU 347. Arriel 1B engines are installed on, but not limited to, Eurocopter AS-350B and AS-350BA "Ecureuil" helicopters. Arriel 1D engines are installed on, but not limited to, Eurocopter France AS-350B1 "Ecureuil" helicopters. Arriel 1D1 engines are installed on, but not limited to, Eurocopter France AS-350B2 "Ecureuil" helicopters. Arriel 1S1 engines are installed on, but not limited to, Sikorsky Aircraft Corporation S-76C helicopters.

Unsafe Condition

(d) This AD results from reports of new cases of failures of 2nd stage turbine blades since we issued AD 2008-07-01. We are issuing this AD to prevent the failure of 2nd stage turbine blades, which could result in an uncommanded in-flight engine shutdown, and a subsequent forced autorotation landing or accident.

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.

Initial Relative Position Check of 2nd Stage Turbine Blades

(f) Do an initial relative position check of the 2nd stage turbine blades using the Turbomeca Mandatory Service Bulletins (MSBs) specified in the following Table 1. Do the check before reaching any of the intervals specified in Table 1 or within 50 hours time-in-service after the effective date of this AD, whichever occurs later.

Table 1 - Initial and Repetitive Relative Position Check Intervals of 2nd Stage Turbine Blade

Turbomeca Engine Model	Initial Relative Position Check Interval	Repetitive Interval	Mandatory Service Bulletin
Arriel 1B (that incorporate mod TU 148), 1D1, and 1D.	Within 1,200 hours time-since-new (TSN) or time-since-overhaul (TSO) or 3,500 cycles-since-new (CSN) or cycles-since-overhaul (CSO), whichever occurs earlier.	Within 150 hours time-in-service-since-last-relative-position-check (TSLRPC).	A292 72 0807, Version E, dated October 29, 2009, paragraphs 2B(1)(a) and (b), or 2B(2)(a).
Arriel 1S1.	Within 1,200 hours TSN or TSO or 3,500 CSN or CSO, whichever occurs earlier.	Within 150 hours TSLRPC.	A292 72 0810, Version C, dated July 24, 2009, paragraphs 2B(1)(a) and (b), or 2B(2)(a), (b), and (c).

Repetitive Relative Position Check of 2nd Stage Turbine Blades

(g) Recheck the relative position of 2nd stage turbine blades at the TSLRPC intervals specified in Table 1 of this AD, using the Turbomeca MSBs indicated.

Credit for Previous Relative Position Checks

(h) Credit is allowed for previous relative position checks of 2nd stage turbine blades done using the following Turbomeca MSBs:

- (1) MSB No. A292 72 0263, Update Nos. 1 through 5.
- (2) MSB No. A292 72 0807, Original, and Update No. 1 through Version D.
- (3) MSB No. A292 72 0809, Update No. 1.
- (4) MSB No. A292 72 0810, Original, and Version A through Version B.

Initial Replacement of 2nd Stage Turbines on Arriel 1B Engines

(i) Initially replace the Arriel 1B 2nd stage turbine disk and blades with an inspected 2nd stage turbine that does not incorporate mod TU 347 and is fitted with new blades or with a 2nd stage turbine that incorporates mod TU 347, using Turbomeca MSB No. A292 72 0807, Version E, dated October 29, 2009, paragraphs 2B(1)(c) or (d), or 2B(2)(b) or (c), at the following times:

(1) Replace before further flight on engines with a 2nd stage turbine disk having accumulated more than 2,200 hours TIS since-new or since-last-inspection, whichever occurs later, or with 2nd stage turbine blades that have accumulated more than 3,000 hours TIS since-new.

(2) For engines with 2nd stage turbine blades having accumulated on the effective date of this AD, more than 1,800 hours TIS since-new, but 3,000 or fewer hours TIS since-new, replace before reaching any of the following:

- (i) 400 hours TIS from the effective date of this AD, or
- (ii) 3,000 hours TIS since-new on the 2nd stage turbine blades, or
- (iii) 2,200 hours TIS since-new or since-last-inspection, whichever occurs later, on the 2nd stage turbine disk.

(3) For engines with 2nd stage turbine blades having accumulated on the effective date of this AD, more than 900 hours TIS since-new, but 1,800 or fewer hours TIS since-new, replace before reaching any of the following:

- (i) 800 hours TIS from the effective date of this AD, or

(ii) 2,200 hours TIS since-new or since-last-inspection, whichever occurs later, on the 2nd stage turbine disk.

(4) For engines with 2nd stage turbine blades having accumulated on the effective date of this AD, 900 or fewer hours TIS since-new, replace before the 2nd stage turbine blades have accumulated 1,200 hours TIS since-new.

Repetitive Replacements of 2nd Stage Turbines on Arriel 1B Engines

(j) Thereafter, for 2nd stage turbines that do not incorporate mod TU 347, replace the 2nd stage turbine disk and blades before the blades have accumulated 1,200 hours TIS since-new.

Initial Replacement of 2nd Stage Turbines on Arriel 1D and 1D1 Engines

(k) Initially replace the Arriel 1D and 1D1 2nd stage turbine disk and blades with an inspected turbine that does not incorporate mod TU 347 and is fitted with new blades or with a turbine that incorporates mod TU 347, using Turbomeca MSB No. A292 72 0807, Version E, dated October 29, 2009, paragraphs 2B(1)(c) or (d), or 2B(2)(b) or (c), at the following times:

(1) Replace before further flight on engines with a 2nd stage turbine disk having accumulated more than 1,500 hours TIS since-new or since-last-inspection, whichever occurs later, or with 2nd stage turbine blades having accumulated more than 1,500 hours TIS since-new.

(2) For engines with 2nd stage turbine blades having accumulated on the effective date of this AD, more than 900 hours TIS since-new, but 1,500 or fewer hours TIS since-new, replace before the 2nd stage turbine blades have accumulated 1,500 hours TIS since-new, or before the 2nd stage turbine disk has accumulated 1,500 hours TIS since-new, whichever occurs first.

(3) For engines with 2nd stage turbine blades having accumulated on the effective date of this AD, 900 or fewer hours TIS since-new, replace before the 2nd stage turbine blades have accumulated 1,200 hours TIS since-new.

Repetitive Replacements of 2nd Stage Turbines on Arriel 1D and 1D1 Engines

(l) Thereafter, for 2nd stage turbines that do not incorporate mod TU 347, replace the 2nd stage turbine disk and blades before the blades have accumulated 1,200 hours TIS since-new.

Relative Position Check Continuing Compliance Requirements

(m) All 2nd stage turbines, including those that are new or overhauled, must continue to comply with the actions specified in paragraphs (f) and (g) of this AD, unless mod TU 347 has been incorporated.

Optional Terminating Action

(n) Installing a new turbine, P/N 0 292 25 039 0, (incorporation of mod TU 347) terminates the requirements to perform the repetitive actions specified in paragraphs (g), (j), and (l) of this AD.

Alternative Methods of Compliance

(o) The Manager, Engine 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.

Related Information

(p) The EASA airworthiness directive 2009-0236, dated October 29, 2009, also addresses the subject of this AD.

(q) Contact Kevin Dickert, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: kevin.dickert@faa.gov; phone: (781) 238-7117, fax: (781) 238-7199, for more information about this AD.

Material Incorporated by Reference

(r) You must use the service information specified in the following Table 2 to perform the actions required by this AD. The Director of the Federal Register approved the incorporation by reference of the documents listed in the following Table 2 in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact Turbomeca, 40220 Tarnos, France; phone: (33) 05 59 74 40 00, fax: (33) 05 59 74 45 15, for a copy of this service information. You may review copies at the FAA, New England Region, 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 2 – Incorporation by Reference

Turbomeca Mandatory Service Bulletin No.	Page	Version	Date
A 292 72 0807	ALL	E	October 29, 2009
Total Pages: 20			
A 292 72 0810	ALL	C	July 24, 2009
Total Pages: 15			

Issued in Burlington, Massachusetts, on April 28, 2010.
Peter A. White,
Assistant Manager, Engine and Propeller Directorate,
Aircraft Certification Service.