

[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [65 FR 12085 3/8/2000]

[Docket No. 99-NE-34-AD; Amendment 39-11607; AD 2000-04-24]

RIN 2120-AA64

Airworthiness Directives; Honeywell International (formerly AlliedSignal Inc.) 36-300(A), 36-280(B), and 36-280(D) Series Auxiliary Power Units

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to Honeywell International (formerly AlliedSignal Inc.) 36-300(A), 36-280(B), and 36-280(D) series Auxiliary Power Units (APUs). This amendment requires installation of an external load compressor containment shield, or installation of a load compressor impeller with lower stress concentrations. This amendment is prompted by reports of load compressor impeller failures. The actions specified by this AD are intended to prevent an uncontained APU failure and damage to the airplane.

DATES: Effective May 8, 2000.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of May 8, 2000.

ADDRESSES: The service information referenced in this AD may be obtained from Honeywell International, Inc., Attn: Data Distribution, M/S 64-3/2101-201, PO Box 29003, Phoenix, AZ 85038-9003; telephone 602-365-2493, fax 602 365-5577. This information may be examined at the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Roger Pesuit, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate, 3960 Paramount Blvd., Lakewood, CA 90712-4137; telephone 562-627-5251, fax 562-627-5210.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to Honeywell International (formerly AlliedSignal Inc.) 36-300(A), 36-280(B), and 36-280(D) series Auxiliary Power Units (APUs) was published in the **Federal Register** on September 8, 1999 (64 FR 48723). That action proposed to require installation of an external load compressor containment shield at the next shop visit, or 6 months after the effective date of this AD, whichever occurs first. An additional compliance option would be installation of a load compressor impeller, part number (P/N) 3822270-5, to extend cyclic service life to 26,000

cycles-since-new (CSN) before mandatory installation of the containment shield. Operators cannot operate with a load compressor installed, P/N 3822270-5, past 26,000 CSN unless they have installed an external containment shield. That action was prompted by three incidents where the load compressor impellers separated, resulting in uncontained APU failures and debris entering the APU compartment. That condition, if not corrected, could result in an uncontained APU failure and damage to the airplane.

Comments Received

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Expand the Applicability

One commenter requests to add load compressor impeller, P/Ns 3822270-1 and 3822270-3, to the applicability in addition to P/Ns 3822270-4 and 3822270-5. Both load compressor impellers, P/Ns 3822270-1 and 3822270-3, are affected by the same damper ring groove condition as the impellers already affected by the proposal. The FAA does not concur. While impellers, P/Ns 3822270-1 and 3822270-3, are subject to the same failure mode as P/N 3822270-4 load compressor impellers affected by this AD, all load compressor impellers, P/Ns 3822270-1 and 3822270-3, were required to be reworked to the P/N 3822270-4 configuration by AD 92-21-05. The FAA has added a note referring to the requirement of AD 92-21-05 to remind operators that the old load compressor impeller designs shall no longer be used in service.

Clarification of Cyclic Determination

One commenter requests clarification in how to determine the number of cycles on load compressor impellers in service. The commenter wishes to use its existing system for determining the number of cycles on the load compressor impellers instead of the method described by the manufacturer in its applicable service bulletin (SB). The FAA concurs. Since the AD does not require the use of the SB's cycle counting methodology, operators may use their own approved system to calculate cycles. A note has been added following paragraph (b) to address acceptable methods of determining part cycles.

Subsequent Serial Number (S/N) Parts

The same commenter notes that the AlliedSignal Inc. SB does not list all P/N 3822270-5 impellers in service. The FAA concurs. When the SB was written all subsequent S/N parts that would be produced could not have been anticipated. Since all S/Ns are affected, the applicability paragraph in this final rule has been rewritten to clarify that this AD applies to APUs with P/N 3822270-4 or -5 impellers installed. The applicability paragraph of the AD takes precedence over the AlliedSignal Inc. SB's list of S/Ns. For parts not listed specifically in the SB, the SB provides a procedure to obtain the required information.

Clarification of Compliance Times

The same commenter requests clarification on the compliance times for load compressor impellers, P/N 3822270-5. The commenter notes there appears to be contradictory requirements between paragraphs (b) and (c) of the proposal. Paragraph (b) of the proposal allows operating impellers, P/N 3822270-5, above 26,000 CSN, for six months after the effective date of the AD. Paragraph (c) requires that an external containment shield be in place before operating the APU past 26,000 CSN. The FAA concurs. Paragraph (c) of this final rule has been modified to clarify that the calendar time requirement applies along with the cycle time limit.

Can an Operator Remove the Containment Shield with a Lower Time Impeller Installed?

The same commenter requests clarification on the possibility of removal of the external load compressor containment shield when a lower time impeller is installed. The same commenter also asks why APUs containing P/N 3822270-5 load compressor impellers are not managed to a 26,000 CSN life limit. The commenter states that the proposal does not specifically prohibit removing the external containment shield when P/N 3822270-5 load compressor impellers with less than 26,000 CSN are installed. Operating to a 26,000 CSN limit would be preferred to incorporation of an external load compressor containment shield because it would avoid the potential for APU damage in the event that an impeller does fail. The FAA concurs in part. The commenter may choose, within the requirements of this final rule, to operate with low time P/N 3822270-5 impellers installed without external load compressor containment shields, or with P/N 3822270-5 impellers with more than 26,000 CSN and external load compressor containment shields installed.

Extend Calendar End-Date

One commenter requests an extension from six months to two years for the calendar end-date for APUs containing P/N 3822270-5 load compressor impellers. The commenter believes that there is inadequate information available to accurately determine the actual number of cycles on load compressor impellers. The commenter therefore believes that the only practical means of complying with the AD is the calendar method. Extension from six months to two years would allow for orderly scheduling of the installation of the containment shield with scheduled maintenance intervals. The FAA concurs in part. Although detailed load compressor impeller cycle times are not known for all APUs, the AlliedSignal SB procedure provides a method for assigning cyclic times which are reasonable based upon review of APU operating history. The FAA has determined that for impellers, P/N 3822270-5, an extension of the calendar end-date from six months to one year would be reasonable to allow incorporation of the containment shield with scheduled maintenance intervals while maintaining an adequate safety level.

APU Model Numbers

The APUs affected by this AD are sometimes referred to as GTCP36-300(A), GTCP36-280(B) and GTCP36-280(D) series APUs. The presence or absence of the letters "GTCP" preceding the model number does not affect the applicability of this AD on those APUs. The FAA has added a note to clarify that the AD applies to the specified APU series whether or not the letters "GTCP" appear on the dataplate.

New Company Name

Since publication of the proposal, AlliedSignal has adopted the Honeywell International, Inc. name. This final rule has been altered accordingly to refer to the new company name with AlliedSignal Inc. listed as the former company name.

Concur with Proposal

One commenter concurs with the rule as proposed.

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes described previously. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Economic Analysis

There are approximately 1,044 APUs of the affected design in the worldwide fleet. The FAA estimates that 465 APUs installed on airplanes of US registry will be affected by this AD, that it will take approximately 6 work hours per Model 36-300(A) APU (85 units) to accomplish the proposed actions, and 8 work hours per Model 36-280(D) APU (380 units), and that the average labor rate is \$60 per work hour. Required parts will cost approximately \$3,103 per APU. Fifteen installations on domestic Boeing 737 aircraft (Model 36-280(B)) will require a tube assembly kit, which would cost approximately \$1,042. The manufacturer has informed the FAA that it may offset some of these costs thereby lowering the total cost to operators. Based on these figures, the total cost impact of the AD on US operators is estimated to be \$1,725,270.

Regulatory Impact

The regulations adopted herein 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. Therefore, it is determined that this final rule does not have federalism implications under Executive Order (EO) No. 13132.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under EO No. 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. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption **ADDRESSES**.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (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. Section 39.13 is amended by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC



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

AD's are posted on the internet at <http://av-info.faa.gov>

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2000-04-24 HONEYWELL INTERNATIONAL (formerly AlliedSignal Inc.): Amendment 39-11607. Docket 99-NE-34-AD.

Applicability: Honeywell International (formerly AlliedSignal Inc.) 36-300(A), 36-280(B), and 36-280(D) series Auxiliary Power Units (APUs), with load compressor impellers, part numbers (P/Ns) 3822270-4, or 3822270-5, installed. These APUs are installed on but not limited to Airbus Industrie A319, A320, and A321 series; Boeing 737-300, -400, -500 series; and McDonnell Douglas MD-80 series airplanes.

NOTE 1: This airworthiness directive (AD) applies to each APU identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For APUs that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (f) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

NOTE 2: The presence or absence of the letters "GTCP" preceding the model series does not affect the applicability of this AD to the specified model APUs.

NOTE 3: AD 92-21-05 requires that all APUs with load compressor impellers, P/Ns 3822270-1 or 3822270-3, be reworked to the -4 configuration.

Compliance: Required as indicated, unless accomplished previously.

To prevent an uncontained APU failure and damage to the airplane, accomplish the following:

Load Compressor Impellers, P/N 3822270-4

(a) For APUs with load compressor impellers, P/N 3822270-4, at the next shop visit, or within 6 months after the effective date of this AD, whichever occurs first, accomplish either of the following:

(1) Install an external load compressor containment shield in accordance with AlliedSignal Inc. Service Bulletins (SBs) No. GTCP36-49-7471, dated April 20, 1999, GTCP36-49-7472, dated March 31, 1999, or GTCP36-49-7473, dated March 31, 1999, as applicable; or

(2) Install load compressor impeller, P/N 3822270-5.

Load Compressor Impellers, P/N 3822270-5

(b) For APUs with load compressor impellers, P/N 3822270-5, install an external load compressor containment shield within one year after the effective date of this AD, or prior to the impeller exceeding 26,000 cycles-since-new (CSN), whichever occurs later, in accordance with AlliedSignal Inc. SBs No. GTCP36-49-7471, dated April 20, 1999, GTCP36-49-7472, dated March 31, 1999, or GTCP36-49-7473, dated March 31, 1999, as applicable.

NOTE 4: Operators may use their own FAA-approved tracking system for determining load compressor impeller cyclic count in lieu of the procedure described in the AlliedSignal Inc. SBs referenced in this AD.

Cyclic Limit without External Containment Shield

(c) Following one year after the effective date of this AD, operators cannot operate with a load compressor, P/N 3822270-5, installed, past 26,000 cycles unless they have installed an external load compressor containment shield.

Definition

(d) For the purpose of this AD, a shop visit is defined as when the APU is inducted into a shop for any reason.

Alternative Methods of Compliance

(e) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Los Angeles Aircraft Certification Office. Operators shall submit their request through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Los Angeles Aircraft Certification Office.

NOTE 5: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the Los Angeles Aircraft Certification Office.

Ferry Flights

(f) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Incorporation by Reference

(g) The actions required by this AD shall be done in accordance with the following AlliedSignal Inc. SBs: GTCP36-49-7471, dated April 20, 1999, GTCP36-49-7472, dated March 31, 1999, and GTCP36-49-7473, dated March 31, 1999. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Honeywell International, Inc., Attn: Data Distribution, M/S 64-3/2101-201, PO Box 29003, Phoenix, AZ 85038-9003; telephone 602-365-2493, fax 602-365-5577. Copies may be inspected at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW, suite 700, Washington, DC.

(h) This amendment becomes effective on May 8, 2000.

FOR FURTHER INFORMATION CONTACT:

Roger Pesuit, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate, 3960 Paramount Blvd., Lakewood, CA 90712-4137; telephone 562-627-5251, fax 562-627-5210.

Issued in Burlington, Massachusetts, on February 25, 2000.

Jay J. Pardee, Manager, Engine and Propeller Directorate, Aircraft Certification Service.