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[Page 41318-41323]
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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001-NE-39-AD; Amendment 39-12781; AD 2002-12-09]

RIN 2120-AA64

Airworthiness Directives; Honeywell International Inc. (Formerly AlliedSignal Inc. and Garrett Turbine Engine Company) TPE331-11U, -12B, -12JR, -12UA, -12UAR, and -12UHR Series Turboprop Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This amendment adopts a new airworthiness directive (AD) that is applicable to Honeywell International Inc. (formerly AlliedSignal Inc. and Garrett Turbine Engine Company) TPE331-11U, -12B, -12JR, -12UA, -12UAR, and -12UHR series turboprop engines. This action requires repetitive Spectrometric Oil Analysis Program (SOAP) sampling, SOAP trend assessment, and inspections and replacement of certain gearbox components. This amendment is prompted by reports of spur gearshaft (bull gear) rim separations and high-speed pinion (HSP) assembly failures. The actions specified in this AD are intended to prevent bull gear rim separations and HSP assembly failures from abnormal gear wear, which could result in uncontained gearbox fragmentation, in-flight shutdowns, and engine rotor overspeed events.

DATES: Effective July 3, 2002. The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register as of July 3, 2002.

Comments for inclusion in the Rules Docket must be received on or before August 19, 2002.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2001-NE-39-AD, 12 New England Executive Park, Burlington, MA 01803-5299. Comments may be inspected at this location, by appointment, between 8:00 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. Comments may also be sent via the Internet using the following address: 9-ane-adcomment@faa.gov. Comments sent via the Internet must contain the docket number in the subject line.

The service information referenced in this AD may be obtained from Honeywell Engines, Systems and Services, Technical Data Distribution, M/S 2101-201, P.O. Box 29003, Phoenix, AZ 85038-9003; telephone: (602) 365-2493 (General Aviation), (602) 365-5535 (Commercial); fax: (602) 365-5577 (General Aviation and Commercial). This information may be examined, by appointment, 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.

FOR FURTHER INFORMATION CONTACT: Joseph Costa, Aerospace Engineer, Los Angeles Aircraft Certification Office, FAA, Transport Airplane Directorate, 3960 Paramount Blvd., Lakewood, CA 90712-4137; telephone (562) 627-5246; fax (562) 627-5210.

SUPPLEMENTARY INFORMATION: There have been 22 reported spur gearshaft (bull gear) rim separations and 25 HSP assembly failures in Honeywell TPE331-11 and -12 series turboprop engines. These failures caused a prop gear train disconnection from the power group and most resulted in in-flight shutdowns. Three of the six bull gear separations in TPE331-11U series engines occurred after the bull gears had previously been operated in TPE331-12UA, -12UA, or -12UHR series engines. There have been 10 incidents of gear fragments penetrating the gearbox housing in 16 of the bull gear rim separation events in TPE331-12UA, -12UA, or -12UHR series engines. Similarly, there have been three reported incidents of gear fragments penetrating the gearbox housing in six of the bull gear rim separation events in TPE331-11U series engines. In one case in a TPE331-11U series engine and in two cases in TPE331-12 series engines, oil was ingested through the inlet after the uncontained gear fragmentation that resulted in surge, uncommanded engine shutdown, and secondary engine damage. In addition, there have been five incidents of gearbox debris or uncontained bull gear fragments being ejected from the engine's inlet which were then struck by the propeller and redirected against the aircraft fuselage. In one of these incidents, a bull gear fragment from a TPE331-12UAR series engine penetrated the cabin.

The FAA has determined that high loading between the bull gear and HSP gears, bull gear tooth profile, and distortion of the intermediate gearbox housings cause abnormal gear wear and subsequent failures of the bull gear and HSP. Even though the gearbox in the TPE331-12 series engine is similar to the TPE331-11U series engine, the TPE331-12 series engines, which have experienced more failures than TPE331-11U series engines, have accumulated more time at higher load than in the TPE331-11U series engine. In addition, coatings used for vibration dampening, and surface finish may influence bull gear tooth wear. This condition, if not corrected, could result in separation of the bull gear and uncontainment of low energy fragments that can damage the engine or the aircraft and may injure passengers. Also, engine surge or uncontained rotor overspeed due to oil ingestion through the engine inlet may occur. The FAA has determined that abnormal gear wear can be detected using Spectrometric Oil Analysis Program (SOAP) sampling and SOAP trend assessment.

The FAA has determined that Honeywell's automated trend assessment program is the best method to predict the premature failure of the bull gear. Honeywell's trend assessment program dictates a particular format for data from each SOAP test sample. That format is used by Honeywell's approved SOAP labs and the labs have met all the testing procedures, standards, reporting requirements established by the FAA. In addition, the Honeywell approved SOAP labs have demonstrated the necessary speed and efficiency in determining the sample's acceptance, and in transferring data to Honeywell's automated trend assessment program. Therefore, the FAA is requiring that operators use Honeywell's approved SOAP labs in order to allow the use of Honeywell's trend assessment program, thereby increasing the likelihood that a premature failure of a bull gear will be identified before failure.

Due to the continued operation of gears that are misaligned, high-cycle fatigue damage of the bull gear, HSP, and the torque shaft assembly with its nut and pin may occur and may be undetectable. The FAA has determined that these components will never be serviceable for continued aircraft use. However, bull gears and HSP's that are removed as unserviceable during subsequent recurrent inspections after improved gearbox alignment may be retained as matched sets for possible future aircraft use. After the publication of this AD, the FAA might in the future, permit gears removed during recurrent and unscheduled inspections to be returned to service after appropriate inspections. However, Honeywell has informed the FAA that they will not provide acceptance criteria for returning these parts to service.

Manufacturer's Service Information

The FAA has reviewed and approved the technical contents of the following Honeywell International Inc. Alert Service Bulletins (ASB):

- TPE331-A79-0034, Revision 3, dated October 2, 2001 or Revision 4 dated April 5, 2002 describes procedures for a repetitive engine oil and filter SOAP sampling and assessment and lists Honeywell's Authorized SOAP Labs.
- TPE331-A72-2087 dated October 10, 2001 and Revision 1 dated November 16, 2001; TPE331-A72-2088 dated October 10, 2001, Revision 1 dated November 16, 2001, and Revision 2, dated February 20, 2002; TPE331-A72-2092 dated October 10, 2001 and Revision 1 dated November 16, 2001; and TPE331-A72-2093 dated October 10, 2001 and Revision 1 dated November 16, 2001 describe procedures for the inspection and replacement of gearbox components.
- TPE331-72-2090RWK dated October 10, 2001, TPE331-72-2091RWK dated October 10, 2001; TPE331-72-2094RWK dated October 10, 2001; and TPE331-72-2095RWK dated October 10, 2001, describe procedures for the rework of gearbox components.

FAA's Determination of an Unsafe Condition and Required Actions

Since an unsafe condition has been identified that is likely to exist or develop on other Honeywell International Inc. (formerly AlliedSignal Inc. and Garrett Turbine Engine Company) TPE331-11U, -12B, -12JR, -12UA, -12UAR, and -12UHR series turboprop engines of the same type design, this AD is being issued to prevent bull gear rim separations and HSP assembly failures from abnormal gear wear, which could result in uncontained gearbox fragmentation, in-flight shutdowns, and engine rotor overspeed events by requiring:

- Repetitive SOAP and filter analyses combined with special trend assessments, and
- Repetitive inspections of certain gearbox components, replacement of specific gears, and if necessary, the rework of gearbox components.

These actions must be done in accordance with the service bulletins described previously.

Immediate Adoption of This AD

Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

Comments Invited

Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications should identify the Rules Docket

number and be submitted in triplicate to the address specified under the caption ADDRESSES. All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this action must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 2001-NE-39-AD." The postcard will be date stamped and returned to the commenter.

Regulatory Analysis

This final rule does not have federalism implications, as defined in Executive Order 13132, because it would 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. Accordingly, the FAA has not consulted with state authorities prior to publication of this final rule.

The FAA has determined that this regulation is an emergency regulation that must be issued immediately to correct an unsafe condition in aircraft, and is not a "significant regulatory action" under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A copy of it, if filed, 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.

Sec. 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**

We post ADs on the internet at "www.airweb.faa.gov/rgl"

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).

2002-12-09 Honeywell International Inc.: Amendment 39-12781. Docket No. 2001-NE-39-AD.

Applicability: This airworthiness directive (AD) is applicable to Honeywell International Inc. (formerly AlliedSignal Inc. and Garrett Turbine Engine Company) TPE331-11U, -12B, -12JR, -12UA, -12UAR, and -12UHR series turboprop engines. These engines are installed on, but not limited to, Fairchild SA227 series (Metro), and Jetstream 3201 series airplanes.

Note 1: This AD applies to each engine 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 engines 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 (i) 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.

Compliance

Compliance with this AD is required as indicated, unless already done.

To prevent bull gear rim separations and high-speed pinion (HSP) assembly failures from abnormal gear wear, which could result in uncontained gearbox fragmentation, in-flight shutdowns, engine rotor overspeed events, do the following:

(a) Except for the TPE331-12JR engine series, submit Spectrometric Oil Analysis Program (SOAP) samples of the oil and filter to Honeywell approved labs in accordance with Paragraph 2. A. (1) of the Accomplishment Instructions of Honeywell International Inc. Alert Service Bulletin (ASB) TPE331-A79-0034 Revision 3 dated October 3, 2001 or Revision 4 dated April 5, 2002, at 80 to 120 hours time-in-service (TIS) after the effective date of this AD and at 80 to 120 hour TIS intervals thereafter.

(b) If either of the following conditions occur, make the necessary repairs in accordance with Paragraph 2.A.(3)(b)1 or 2.A.(3) of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A79-0034 Revision 3, dated October 3, 2001; or Revision 4, dated April 5, 2002, within 50 hours TIS after receiving the results from the unacceptable sample analysis or trend assessment:

(1) If the SOAP test lab sample is determined to be unacceptable in accordance with Paragraph 2.A.(2)(b)1 in the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A79-0034 Revision 3 dated October 3, 2001 or Revision 4 dated April 5, 2002, or

(2) If Honeywell's supplementary trend assessment is unacceptable in accordance with Paragraph 2.A.(3) in the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A79-0034 Revision 3 dated October 3, 2001; or Revision 4 dated April 5, 2002.

TPE331-12UA, -12UAR, and -12UHR Engine Maintenance

(c) On TPE331-12UA, -12UAR, and -12UHR engines, inspect, replace, and if necessary, rework specified gearbox components as follows:

(1) At the next turbine (hot) section inspection, gearbox inspection, engine overhaul, or when the gearbox diaphragm module is out of the engine, whichever occurs first, after the effective date of this AD, comply with the following:

(i) Paragraphs 2.A. (2) through 2.A. (11) of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2087, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2087, dated October 10, 2001.

(ii) Paragraphs 2.A. (2) through 2.A. (8) of the Accomplishment Instructions of Honeywell International Inc. SB TPE331-72-2090RWK, dated October 10, 2001.

(iii) Paragraphs 2.A. (2) through 2.D. (4) of the Accomplishment Instructions of Honeywell International Inc. SB TPE331-72-2091RWK, dated October 10, 2001.

(2) Thereafter, do the following:

(i) Inspect for wear and replace gearbox components and comply with limitations on interchangeability in accordance with Paragraphs 2.B. and 2.C. (2) through 2.C. (13) of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2087, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2087, dated October 10, 2001 at intervals not to exceed 3,600 hours TIS since the last replacement of the bull gear, part number (P/N) 3108295-1, and the HSP, P/N 3101741-2, or since the last overhaul of the diaphragm matched housing set, whichever occurs first.

(ii) Comply with limitations on interchangeability in accordance with Paragraph 2.B. of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2087, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2087, dated October 10, 2001 whenever certain gearbox parts, identified in Paragraph 2.B. of ASB TPE331-A72-2087, are removed from the engine following compliance with paragraph (c)(1) or (c)(2)(i) of this AD.

(iii) Comply with limitations on interchangeability and inspect for wear in accordance with Paragraphs 2.B. and 2.D. of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2087, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2087, dated October 10, 2001 whenever the engine is removed from the aircraft and disassembled to the extent that the diaphragm module is accessed after 500 hours TIS following compliance with paragraph (c)(1) or (c)(2)(i) of this AD.

TPE331-12B Engines

(d) On TPE331-12B engines, inspect, replace, and if necessary, rework specified gearbox components as follows:

(1) At the next engine overhaul or when the bull gear first requires replacement, whichever occurs first, after the effective date of this AD, comply with the following:

(i) Paragraphs 2.A. (2) through 2.A. (11) of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2092, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2092, dated October 10, 2001.

(ii) Paragraphs 2.A. (2) through 2.A. (8) of the Accomplishment Instructions of Honeywell International Inc. SB TPE331-72-2094RWK, dated October 10, 2001.

(iii) Paragraphs 2.A. (2) through 2.C. (4) of the Accomplishment Instructions of Honeywell International Inc. SB TPE331-72-2095RWK, dated October 10, 2001.

(2) Thereafter, do the following:

(i) Inspect for wear and replace gearbox components and comply with limitations on interchangeability in accordance with Paragraphs 2.B. and 2.C. (2) through 2.C. (13) of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2092, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2092, dated October 10, 2001, at intervals not to exceed 3,100 hours TIS since the last replacement of the bull gear, P/N 3108296-1, and the HSP, P/N 3101741-4, or since the last overhaul of the diaphragm matched housing set, whichever occurs first.

(ii) Comply with limitations on interchangeability in accordance with Paragraph 2.B. of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2092, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2092, dated October 10, 2001, whenever certain gearbox parts, identified in Paragraph 2.B. of ASB TPE331-A72-2092, are removed from the engine following compliance with paragraph (d)(1) or (d)(2)(i) of this AD.

(iii) Comply with limitations on interchangeability and inspect for wear in accordance with Paragraphs 2.B. and 2.D. of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2092, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2092, dated October 10, 2001, whenever the engine is removed from the aircraft and disassembled to the extent that the diaphragm module is accessed after 500 hours TIS following compliance with paragraphs (d)(1) or (d)(2)(i) of this AD.

TPE331-11U Engines With Bull Gear P/N 3107161-1

(e) On TPE331-11U engines with bull gear P/N 3107161-1, inspect, replace and if necessary, rework specified gearbox components as follows:

(1) At the next hot section inspection, gearbox inspection, engine overhaul, or when the gearbox diaphragm module is out of the engine, whichever occurs first after the effective date of this AD, comply with the following:

(i) Paragraphs 2.A. (2) through 2.A. (11) of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2088, Revision 2, dated February 20, 2002, Revision 1, dated November 16, 2001, or original, dated October 10, 2001.

(ii) Paragraphs 2.A. (2) through 2.A. (8) of the Accomplishment Instructions of Honeywell International Inc. SB TPE331-72-2090RWK, dated October 10, 2001.

(iii) Paragraphs 2.A. (2) through 2.D. (4) of the Accomplishment Instructions of Honeywell International Inc. SB TPE331-72-2091RWK, dated October 10, 2001.

(2) Thereafter, do the following:

(i) Inspect for wear and replace gearbox components and comply with limitations on interchangeability in accordance with Paragraphs 2.B. and C. (2) through C. (13) of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2088, Revision 2, dated February 20, 2002, Revision 1, dated November 16, 2001 or original, dated October 10, 2001, at intervals not to exceed 9,000 hours time-in-service (TIS) since the last replacement of the bull gear, P/N 3108295-1, and the HSP, P/N 3101741-2, or since the last overhaul of the diaphragm matched housing set, whichever occurs first.

(ii) Comply with limitations on interchangeability in accordance with Paragraph 2.B. of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2088, Revision 2, dated February 20, 2002, Revision 1, dated November 16, 2001, or original, dated October 10, 2001, whenever certain gearbox parts, identified in Paragraph 2.B. of ASB TPE331-A72-2088, are removed from the engine following compliance with Paragraph (e)(1) or (e)(2)(i) of this AD.

(iii) Comply with limitations on interchangeability and inspect for wear in accordance with Paragraphs 2.B. and 2.D. of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2088, Revision 2, dated February 20, 2002, Revision 1, dated November 16, 2001, or original, dated October 10, 2001 whenever the engine is removed from the aircraft and disassembled to the extent that the diaphragm module is accessed after 500 hours TIS following compliance with paragraph (e)(1) or (e)(2)(i) of this AD.

All Other TPE331-11U Engines Without Bull Gear P/N 3107161-1

(f) On TPE331-11U engines, that do not have a bull gear, P/N 3107161-1, inspect, replace, and if necessary, rework specified gearbox components as follows:

(1) At the next gearbox inspection, engine overhaul, or when the gearbox diaphragm module is out of the engine, whichever occurs first after the effective date of this AD, comply with the following:

(i) Paragraphs 2.A. (2) through 2.A. (11) of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2088, Revision 2, dated February 20, 2002, Revision 1, dated November 16, 2001, or original, dated October 10, 2001.

(ii) Paragraphs 2.A. (2) through 2.A. (8) of the Accomplishment Instructions of Honeywell International Inc. SB TPE331-72-2090RWK, dated October 10, 2001.

(iii) Paragraphs 2.A. (2) through 2.D. (4) of the Accomplishment Instructions of Honeywell International Inc. SB TPE331-72-2091RWK, dated October 10, 2001.

(2) Thereafter, do the following:

(i) Inspect for wear and replace gearbox components and comply with limitations on interchangeability in accordance with Paragraphs 2.B. and 2.C. (2) through 2.C. (13) of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2088, Revision 2, dated February 20, 2002, Revision 1, dated November 16, 2001, or original, dated October 10, 2001, at intervals not to exceed 9,000 hours TIS since the last replacement of the bull gear, P/N 3108295-1, and the HSP, P/N 3101741-2, or since the last overhaul of the diaphragm matched housing set, whichever occurs first.

(ii) Comply with limitations on interchangeability in accordance with Paragraph 2.B. of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2088, Revision 2, dated February 20, 2002, Revision 1, dated November 16, 2001, or original, dated October 10, 2001, whenever certain gearbox parts, identified in Paragraph 2.B. of ASB TPE331-A72-2088, are removed from the engine following compliance with Paragraph (f)(1) or (f)(2)(i) of this AD.

(iii) Comply with limitations on interchangeability and inspect for wear in accordance with Paragraphs 2.B. and 2.D. of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2088, Revision 2, dated February 20, 2002, Revision 1, dated November 16, 2001, or original, dated October 10, 2001, whenever the engine is removed from the aircraft and disassembled to the extent that the diaphragm module is accessed after 500 hours TIS following compliance with paragraph (f)(1) or (f)(2)(i) of this AD.

TPE331-12JR Engines

(g) On TPE331-12JR engines, inspect, replace, and if necessary, rework specified gearbox components as follows:

(1) At the next gearbox inspection, engine overhaul, or when the bull gear requires replacement, whichever occurs first, comply with the following:

(i) Paragraphs 2.A. (2) through 2.A. (11) of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2093, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2093, dated October 10, 2001.

(ii) Paragraphs 2.A. (2) through 2.A. (8) of the Accomplishment Instructions of Honeywell International Inc. SB TPE331-72-2090RWK, dated October 10, 2001.

(iii) Paragraphs 2.A. (2) through 2.D. (4) of the Accomplishment Instructions of Honeywell International Inc. SB TPE331-72-2091RWK, dated October 10, 2001.

(2) Thereafter, do the following:

(i) Inspect for wear and replace gearbox components and comply with limitations on interchangeability in accordance with Paragraphs 2.B. and 2.C. (2) through C. (13) of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2093, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2093, dated October 10, 2001, at intervals not to exceed 5,100 hours TIS since the last replacement of the bull gear, P/N 3108295-1, and the HSP, P/N 3101741-2, or since the last overhaul of the diaphragm matched housing set, whichever occurs first.

(ii) Comply with limitations on interchangeability in accordance with Paragraph 2.B. of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2093, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2093, dated October 10, 2001, whenever certain gearbox parts, identified in Paragraph 2.B. of ASB TPE331-A72-2093, are removed from the engine following compliance with Paragraph (g)(1) or (g)(2)(i) of this AD.

(iii) Comply with limitations on interchangeability and inspect for wear in accordance with Paragraphs 2.B. and 2.D. of the Accomplishment Instructions of Honeywell International Inc. ASB TPE331-A72-2093, Revision 1, dated November 16, 2001 or ASB TPE331-A72-2093, dated October 10, 2001, whenever the engine is removed from the aircraft and disassembled to the extent that the diaphragm module is accessed after 500 hours TIS following compliance with paragraph (g)(1) or (g)(2)(i) of this AD.

Definitions

(h) For the purposes of this AD, as stated in the incorporated service bulletins, the word "scrap" must be interpreted as "not serviceable." Any reference in these bulletins to the intentional damage of gear teeth is not mandatory.

Alternative Methods of Compliance

(i) 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 (LAACO). Operators must submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, LAACO.

Note 2: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the LAACO.

Special Flight Permits

(j) Special flight permits may be issued in accordance with Secs. 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 done.

Documents That Have Been Incorporated by Reference

(k) The actions required by this AD must be done in accordance with the following Honeywell International Inc. Service Bulletins (SB's):

Document No.	Pages	Revision	Date	
ASB TPE331–A79–0034	1	4	April 5, 2002.	
	2	2	July 23, 2001.	
	3–5	3	October 2, 2001.	
	6–7	4	April 5, 2002.	
	Total pages: 10	8–10	3	October 2, 2001.
ASB TPE331–A79–0034	1	3	October 2, 2001.	
	2	2	July 23, 2001.	
Total pages: 10	3–10	3	October 2, 2001.	
ASB TPE331–A72–2087	1	1	November 16, 2001.	
	2–3	Original	October 10, 2001.	
	4–6	1	November 16, 2001.	
	7–9	Original	October 10, 2001.	
	10	1	November 16, 2001.	
	11–13	Original	October 10, 2001.	
	14–15	1	November 16, 2001.	
	16	Original	October 10, 2001.	
	17	1	November 16, 2001.	
	Total pages: 18	18	Original	October 10, 2001.
ASB TPE331–A72–2087	All	Original	October 10, 2001.	
Total pages: 18				
ASB TPE331–A72–2088	1	2	February 20, 2002.	
	2	Original	October 10, 2001.	
	3–5	1	November 16, 2001.	
	6–7	Original	October 10, 2001.	
	8	2	February 20, 2002.	
	9–11	Original	October 10, 2001.	
	12	1	November 16, 2001.	
	13	2	February 20, 2002.	
	14	Original	October 10, 2001.	
	15	1	November 16, 2001.	
	Total pages: 16	16	Original	October 10, 2001.
	ASB TPE331–A72–2088	1	1	November 16, 2001.
		2	Original	October 10, 2001.
3–5		1	November 16, 2001.	
6–7		Original	October 10, 2001.	
8		1	November 16, 2001.	
9–11		Original	October 10, 2001.	
12–13		1	November 16, 2001.	
14		Original	October 10, 2001.	
15		1	November 16, 2001.	
Total pages: 16		16	Original	October 10, 2001.
ASB TPE331–A72–2088	All	Original	October 10, 2001.	
Total pages: 16				
SB TPE331–72–2090RWK	All	Original	October 10, 2001.	
Total pages: 10				
SB TPE331–72–2091RWK	All	Original	October 10, 2001.	
Total pages: 12				

ASB TPE331–A72–2092	1	1	November 16, 2001.	
	2	Original	October 10, 2001.	
	3–5	1	November 16, 2001.	
	6–7	Original	October 10, 2001.	
	8	1	November 16, 2001.	
	9–11	Original	October 10, 2001.	
	12	1	November 16, 2001.	
	13	Original	October 10, 2001.	
	14	1	November 16, 2001.	
	15	Original	October 10, 2001.	
	16	1	November 16, 2001.	
	Total pages: 18	17–18	Original	October 10, 2001.
	ASB TPE331–A72–2092	All	Original	October 10, 2001.
	Total pages: 18			
	ASB TPE331–A72–2093	1	1	November 16, 2001.
		2	Original	October 10, 2001.
3–4		1	November 16, 2001.	
5–7		Original	October 10, 2001.	
8		1	November 16, 2001.	
9–11		Original	October 10, 2001.	
12–13		1	November 16, 2001.	
14		Original	October 10, 2001.	
15		1	November 16, 2001.	
Total pages: 16		16	Original	October 10, 2001.
ASB TPE331–A72–2093	All	Original	October 10, 2001.	
Total pages: 16				
SB TPE331–72–2094RWK	All	Original	October 10, 2001.	
Total pages: 8				
SB TPE331–72–2095RWK	All	Original	October 10, 2001.	
Total pages: 8				

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Effective Date

(l) This amendment becomes effective on July 3, 2002.

Issued in Burlington, Massachusetts, on June 5, 2002.

Francis A. Favara,

Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.

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