



**FEDERAL AVIATION ADMINISTRATION  
AIRWORTHINESS DIRECTIVES  
SMALL AIRCRAFT, ROTORCRAFT, GLIDERS,  
BALLOONS, & AIRSHIPS**

**BIWEEKLY 2010-01**

This electronic copy may be printed and used in lieu of the FAA biweekly paper copy.

U.S. Department of Transportation  
Federal Aviation Administration  
Regulatory Support Division  
Delegation and Airworthiness Programs Branch, AIR-140  
P. O. Box 26460  
Oklahoma City, OK 73125-0460  
FAX 405-954-4104



## SMALL AIRCRAFT, ROTORCRAFT, GLIDERS, BALLOONS, & AIRSHIPS

AD No.	Information	Manufacturer	Applicability
Info: E - Emergency; COR - Correction; S - Supersedes; R - Revision; - See AD for additional information;			
<b>Biweekly 2010-01</b>			
2009-26-05		Pilatus Aircraft Ltd	PC-7
2009-26-07	S 2009-12-51	Turbomeca	Engine: Arriel 1A1, 1A2, 1B, 1C, 1C1, 1C2, 1D, 1D1, 1E2, 1K1, 1S, and 1S1
2009-26-08	S 2006-21-12	AeroSpace Technologies of Australia Pty Ltd	N22B, N22S, and N24A
2009-26-12	S 2008-19-05	Engine Components, Inc. (ECi)	See AD



---

**2009-26-05 Pilatus Aircraft Ltd:** Amendment 39-16140; Docket No. FAA-2009-0938; Directorate Identifier 2009-CE-052-AD.

**Effective Date**

- (a) This airworthiness directive (AD) becomes effective February 1, 2010.

**Affected ADs**

- (b) None.

**Applicability**

(c) This AD applies to Model PC-7 airplanes, manufacturer serial numbers 101 through 618 that are:

- (1) Equipped with main-gear support struts part number (P/N) 532.10.09.039 or P/N 114.48.07.127; and
- (2) Certificated in any category.

**Subject**

- (d) Air Transport Association of America (ATA) Code 32: Landing Gear.

**Reason**

- (e) The mandatory continuing airworthiness information (MCAI) states:

This Airworthiness Directive (AD) is prompted due to the discovery of cracks caused by stress corrosion in the main-gear support struts. All the main-gear support struts that had cracks were made from material AA2024-T351 which has a lower resistance to stress corrosion cracking.

Such cracks, if undetected, could lead to the failure of the strut during landing which could then cause the Main Landing Gear (MLG) to collapse.

In order to correct and control the situation, this AD mandates the identification of the main-gear support struts to check if they have rounded clevis lugs and a Non-Destructive Inspection (NDI) procedure on the main-gear support struts if they have chamfered clevis lugs.

For main-gear support struts with chamfered clevis lugs that show cracks during the NDI, the MCAI also requires replacing any cracked main-gear support struts with parts of improved design. You may obtain further information by examining the MCAI in the AD docket.

### **Actions and Compliance**

(f) Unless already done, do the following actions:

(1) Within the next 30 hours time-in-service (TIS) after February 1, 2010 (the effective date of this AD) or within the next 30 days after February 1, 2010 (the effective date of this AD), whichever occurs first, visually inspect the left and right main-gear support struts to determine if they have rounded or chamfered clevis lugs. Do the inspection following paragraph 3.A. of Pilatus PC-7 Service Bulletin No. 32-024, Rev. No. 1, dated November 17, 2008.

(2) Based on the results of the inspection required in paragraph (f)(1) of this AD, if the main-gear support strut has rounded clevis lugs, no further action is required except the requirement specified in paragraph (f)(4) of this AD still applies. Make an entry in the airplane logbook to show compliance with this AD. Based on the reports of the results of the inspection required by this AD, further rulemaking action may be taken to mandate repetitive inspections or terminating action.

(3) Based on the results of the inspection required in paragraph (f)(1) of this AD, if the main-gear support strut has chamfered clevis lugs, before further flight do a Non-Destructive Inspection (NDI). Do the NDI following paragraphs 3.B. through 3.E. of Pilatus PC-7 Service Bulletin No. 32-024, Rev. No. 1, dated November 17, 2008.

(i) If cracks are found during the inspection required in paragraph (f)(3) of this AD:

(A) Before further flight after the inspection, replace any cracked main-gear support struts with new main-gear support struts, P/N 532.10.09.128. Do the replacement following Pilatus PC-7 Service Bulletin No. 32-025, Rev. No. 1, dated November 17, 2008.

(B) Within the next 10 days after the inspection, report the cracks to Pilatus Aircraft LTD., Customer Liaison Manager, CH-6371 STANS, Switzerland, using the Crack Report Form (Figure 4) in Pilatus PC-7 Service Bulletin No. 32-024, Rev. No. 1, dated November 17, 2008.

(ii) If no cracks are found during the inspection required in paragraph (f)(3) of this AD, no further action is required. Make an entry in the airplane logbook to show compliance with this AD.

(4) As of 30 days after February 1, 2010 (the effective date of this AD), do not install any main-gear support struts, P/N 532.10.09.039 or P/N 114.48.07.127, with chamfered clevis lugs.

Note 1: If you have any main-gear support struts, P/N 532.10.09.039 or P/N 114.48.07.127, with chamfered clevis lugs held as spares, you may return them to Pilatus Aircraft Ltd., Customer Liaison Manager, CH-6371 STANS, Switzerland, for replacement with a new main-gear support strut, P/N 532.10.09.128.

### **FAA AD Differences**

Note 2: This AD differs from the MCAI and/or service information as follows: No differences.

## Other FAA AD Provisions

(g) The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, Standards Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to Attn: Doug Rudolph, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4059; fax: (816) 329-4090; e-mail: doug.rudolph@faa.gov. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

(2) Airworthy Product: For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

(3) Reporting Requirements: For any reporting requirement in this AD, under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), the Office of Management and Budget (OMB) has approved the information collection requirements and has assigned OMB Control Number 2120-0056.

## Related Information

(h) Refer to MCAI Federal Office of Civil Aviation AD HB-2009-011, dated September 10, 2009; and Pilatus PC-7 Service Bulletin No. 32-024, Rev. No. 1, dated November 17, 2008; and Pilatus PC-7 Service Bulletin No. 32-025, Rev. No. 1, dated November 17, 2008, for related information.

## Material Incorporated by Reference

(i) You must use Pilatus PC-7 Service Bulletin No. 32-024, Rev. No. 1, dated November 17, 2008; and Pilatus PC-7 Service Bulletin No. 32-025, Rev. No. 1, dated November 17, 2008, to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Pilatus Aircraft LTD., Customer Service Manager, CH-6371 STANS, Switzerland; telephone: +41 (0)41 619 62 08; fax: +41 (0)41 619 73 11; Internet: <http://www.pilatus-aircraft.com/>, or e-mail: [snolan@pilatus-aircraft.com](mailto:snolan@pilatus-aircraft.com).

(3) You may review copies of the service information incorporated by reference for this AD at the FAA, Central Region, Office of the Regional Counsel, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the Central Region, call (816) 329-3768.

(4) You may also review copies of the service information incorporated by reference for this AD 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/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Kansas City, MO, on December 8, 2009.

Margaret Kline,  
Acting Manager, Small Airplane Directorate,  
Aircraft Certification Service.



---

**2009-26-07 Turbomeca:** Amendment 39-16142. Docket No. FAA-2009-0544; Directorate Identifier 2009-NE-17-AD.

**Effective Date**

(a) This airworthiness directive (AD) becomes effective January 12, 2010.

**Affected ADs**

(b) This AD supersedes AD 2009-12-51, Amendment 39-15952.

**Applicability**

(c) This AD applies to Turbomeca Arriel 1A1, 1A2, 1B, 1C, 1C1, 1C2, 1D, 1D1, 1E2, 1K1, 1S, and 1S1 turboshaft engines if modified by Turbomeca Modification TU332 and fitted with a reduction gearbox (module M05) as listed by serial number in Figure 1 of Turbomeca Mandatory Service Bulletin (MSB) No. A292 72 0825, Version B, dated October 6, 2009. These engines are installed on, but not limited to, Eurocopter France AS350B, AS350BA, AS365N, AS350B1, AS350B2, Eurocopter Deutschland GmbH MBB-BK117-C1, Agusta A109K2, and Sikorsky S-76A+, S-76A++ and S-76C helicopters.

**Unsafe Condition**

(d) This AD results from Turbomeca identifying five additional reduction gearboxes (module M05) affected, and adding an alternative optional terminating action to the repetitive visual inspections. We are issuing this AD to prevent uncommanded in-flight engine shutdown, possible engine fire, and an emergency autorotation landing.

**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 Visual Inspection Before Further Flight**

(f) Before further flight:

(1) Visually inspect the reduction gearbox (module M05) lubrication duct for oil leakage. Use paragraph 1.C.(1)(a), paragraph 2.A., and Figure 2 of Turbomeca S.A. MSB No. A292 72 0825, Version B, dated October 6, 2009, to do the inspection.

(2) If oil leakage is found:

(i) Repair the reduction gearbox (module M05) lubrication duct by filling it with black CAF 33 elastomer. Use paragraphs 2.B.1 through 2.B.1.(a)3 3.2, Figure 3, and Figure 4 in Turbomeca S.A. MSB No. A292 72 0825, Version B, dated October 6, 2009, to do the repair; or

(ii) Repair the reduction gearbox (module M05) lubrication duct by installing a steel plug. Use paragraphs 2.B.1(b)1 through 2.B.1(b)7, and Figure 5 in Turbomeca S.A. MSB No. A292 72 0825, Version B, dated October 6, 2009, to do the repair.

### **Repetitive Visual Inspections**

(g) If no oil leakage is found, repeat the visual inspection every four flight hours, or after the last flight of each day, whichever comes first.

(h) The actions required by paragraph (g) of this AD may be performed by the owner/operator holding at least a private pilot certificate, and must be entered into the aircraft records showing compliance with this AD in accordance with 14 CFR 43.9 and 14 CFR 91.417(a)(2)(v).

### **Optional Terminating Action**

(i) As optional terminating action to the repetitive visual inspections in paragraph (g) of this AD, repair the affected reduction gearbox (module M05) as specified in paragraph (f)(2) of this AD.

### **Alternative Methods of Compliance**

(j) 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**

(k) European Aviation Safety Agency emergency airworthiness directive 2009-0245-E, dated November 10, 2009, also addresses the subject of this AD.

### **Contact Information**

(l) For further information, contact: James Lawrence, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: james.lawrence@faa.gov; telephone (781) 238-7176; fax (781) 238-7199, for more information about this AD.

### **Material Incorporated by Reference**

(m) You must use Turbomeca Mandatory Service Bulletin No. A292 72 0825, Version B, dated October 6, 2009, to identify the serial numbers of reduction gearboxes (module M05) affected by this AD, and to perform the inspections and repairs 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. You can get a copy from Turbomeca, 40220 Tarnos, France; telephone (33) 05 59 74 40 00, fax (33) 05 59 74 45 15. 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>.

### **Special Flight Permits**

(n) Under 14 CFR part 39.23, special flight permits for this AD are prohibited.

Issued in Burlington, Massachusetts, on December 10, 2009.

Peter A. White,  
Assistant Manager, Engine and Propeller Directorate,  
Aircraft Certification Service.



---

**2009-26-08 AeroSpace Technologies of Australia Pty Ltd:** Amendment 39-16143; Docket No. FAA-2009-0987; Directorate Identifier 2009-CE-054-AD.

**Effective Date**

- (a) This airworthiness directive (AD) becomes effective February 1, 2010.

**Affected ADs**

- (b) This AD supersedes AD 2006-21-12, Amendment 39-14797.

**Applicability**

- (c) This AD applies to Models N22B, N22S, and N24A airplanes, all serial numbers, including airplanes with float/amphibian configuration, certificated in any category.

**Subject**

- (d) Air Transport Association of America (ATA) Code 27: Flight Controls

**Reason**

- (e) The mandatory continuing airworthiness information (MCAI) states:

Late in 2002 the manufacturer advised CASA of another Nomad accident which was possibly caused by aileron flutter with the flaps at 38 degrees. This, along with the other flutter incidents, has resulted in the manufacturer issuing ANMD-57-18 Issue 1 as a precautionary measure while they further investigate the issue.

The manufacturer has now completed their investigation and issued Alert Service Bulletin ANMD-27-53 to modify flap actuation linkages to restore the necessary rigidity to the outboard flap, and hence the aileron. The unacceptable flexibility of the outboard flap mechanism allows flutter to occur in extreme circumstances.

This amendment mandates Alert Service Bulletin ANMD-27-53, which requires modifications to the aircraft, but terminates the limitations imposed by earlier amendments.

**Actions and Compliance**

- (f) Unless already done, do the following actions:

(1) Visually inspect the left-hand and right-hand ailerons for damage (i.e., distortion, bending, impact marks) and repair or replace any damaged aileron found following instructions obtained from the contact listed in paragraph (i)(3) of this AD within the following time:

(i) For Models N22B and N24A airplanes: Inspect within 50 hours time-in-service (TIS) after December 23, 2003 (the effective date retained from AD 2003-22-13).

(ii) For Model N22S airplanes: Inspect within the next 10 hours TIS after November 8, 2006 (the effective date retained from AD 2006-21-12), or within 30 days after November 8, 2006 (the effective date retained from AD 2006-21-12), whichever occurs first.

(iii) For all airplanes: Repair or replace before further flight after the inspection where damage is found.

(2) Adjust the engine power lever actuated landing gear "up" aural warning microswitches, perform a ground test, and if deficiencies are detected during the ground test, make the necessary adjustments following Nomad Alert Service Bulletin ANMD-57-18, Rev 1, dated August 14, 2006, within the following time:

(i) For Models N22B and N24A airplanes: Within 50 hours TIS after December 23, 2003 (the effective date retained from AD 2003-22-13), unless already done following Nomad Alert Service Bulletin ANMD 57-18, dated December 19, 2002.

(ii) For Model N22S airplanes: Within the next 10 hours TIS after November 8, 2006 (the effective date retained from AD 2006-21-12), or within 30 days after November 8, 2006 (the effective date retained from AD 2006-21-12), whichever occurs first.

(3) For all airplanes: Do the following within the next 10 hours TIS after February 1, 2010 (the effective date of this AD) or within 30 days after February 1, 2010 (the effective date of this AD), whichever occurs first:

(i) Incorporate the maximum flap extension limitations specified in paragraph 2.D. of Nomad Alert Service Bulletin ANMD-57-18, Rev 1, dated August 14, 2006, into the Limitations section of the airplane flight manual (AFM). To show compliance with this paragraph of this AD, a copy of page 7 of Nomad Alert Service Bulletin ANMD-57-18, Rev 1, dated August 14, 2006, may be inserted into the Limitations section of the AFM. You may take "unless already done credit" for this subparagraph if done in accordance with AD 2006-21-12 and no further action is required to comply with this subparagraph.

(ii) Fabricate (using at least 1/8-inch letters) and install placards on the instrument panel within the pilot's clear view as specified in paragraph 2.E. of Nomad Alert Service Bulletin ANMD-57-18, Rev 1, dated August 14, 2006. You may take "unless already done credit" for this subparagraph if done in accordance with AD 2006-21-12 and no further action is required to comply with this subparagraph.

(iii) Incorporate the landing performance information specified in paragraph 2.F. of Nomad Alert Service Bulletin ANMD-57-18, Rev 1, dated August 14, 2006, into the Limitations section and the Performance section of the AFM.

(4) For all airplanes: Modify the outboard forward flap linkage (Modification N953) and modify the outboard aft flap (aileron) mass balance following Nomad Alert Service Bulletin ANMD-27-53, dated February 20, 2008, within the next 12 months after February 1, 2010 (the effective date of this AD). Accomplishment of all of the actions specified in Nomad Alert Service Bulletin ANMD-27-53, dated February 20, 2008, terminates the limitations requirements and the placard requirements specified in paragraph (f)(3) of this AD.

## FAA AD Differences

Note: This AD differs from the MCAI and/or service information as follows: No differences.

## Other FAA AD Provisions

(g) The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, Standards Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to Attn: Doug Rudolph, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4059; fax: (816) 329-4090; e-mail: doug.rudolph@faa.gov. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

(2) Airworthy Product: For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

(3) Reporting Requirements: For any reporting requirement in this AD, under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), the Office of Management and Budget (OMB) has approved the information collection requirements and has assigned OMB Control Number 2120-0056.

## Related Information

(h) Refer to MCAI Civil Aviation Safety Authority of Australia, AD number AD/GAF-N22/69 Amdt 6, dated September 10, 2009; Nomad Alert Service Bulletin ANMD-27-53, dated February 20, 2008; and Nomad Alert Service Bulletin ANMD-57-18, Rev 1, dated August 14, 2006, for related information.

## Material Incorporated by Reference

(i) You must use Nomad Alert Service Bulletin ANMD-27-53, dated February 20, 2008, and Nomad Alert Service Bulletin ANMD-57-18, Rev 1, dated August 14, 2006, to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of Nomad Alert Service Bulletin ANMD-27-53, dated February 20, 2008, under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) On November 8, 2006 (71 FR 61636, October 19, 2006), the Director of the Federal Register previously approved the incorporation by reference of Nomad Alert Service Bulletin ANMD-57-18, Rev 1, dated August 14, 2006.

(3) For service information identified in this AD, contact Customer Support Manager, Gippsland Aeronautics Pty Ltd., P.O. Box 881, MORWELL, Victoria, 3040, Australia; phone: +61 3 5172 1200; fax: +61 3 5172 1201; e-mail: support@gippsaero.com.

(4) You may review copies of the service information incorporated by reference for this AD at the FAA, Central Region, Office of the Regional Counsel, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the Central Region, call (816) 329-3768.

(5) You may also review copies of the service information incorporated by reference for this AD 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/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Kansas City, MO, on December 11, 2009.  
Margaret Kline,  
Acting Manager, Small Airplane Directorate,  
Aircraft Certification Service.



---

**2009-26-12 Engine Components, Inc. (ECi):** Amendment 39-16151. Docket No. FAA-2008-0052; Directorate Identifier 2008-NE-01-AD.

**Effective Date**

- (a) This airworthiness directive (AD) becomes effective February 4, 2010.

**Affected ADs**

- (b) This AD supersedes AD 2008-19-05, Amendment 39-15672.

**Applicability**

(c) If your engine has not been overhauled, or not had any cylinder assemblies replaced since new, no further action is required.

(d) This AD applies to the Lycoming Engines (formerly Textron Lycoming) models 320, 360, and 540 series, "Parallel Valve," reciprocating engines listed in Table 1 of this AD, with ECi cylinder assembly, part number (P/N) AEL65102 series "Titan," and with cylinder head, P/N AEL85099, installed.

(1) The applicable cylinder assembly serial numbers (S/Ns) are S/N 1138-02 through S/N 35171-22 (referred to in this AD as Group "A" cylinder assemblies); and

(2) S/N 35239-01 through S/N 42179-30 (referred to in this AD as Group "B" cylinder assemblies).

(3) The cylinder assembly P/N is at the crankcase end of the cylinder assembly, and might be difficult to see. As a guide in determining if your cylinder assemblies are affected, all affected cylinder assemblies have cylinder head P/N AEL85099. The cylinder head P/N is at the top of the cylinder head, near the intake and exhaust valve springs, and is easier to locate than the cylinder assembly P/N.

(4) The set of numbers appearing on the cylinder, above and to the left of the S/N, in the form of "123456" is not used for determining this AD's applicability.

**Table 1–Engine Models**

<b>Cylinder Assembly Part Number:</b>	<b>Installed on Engine Models:</b>
AEL65102-NST04	<b>O-320-A1B, A2B, A2C, A2D, A3A, A3B, B2B, B2C, B2D, B2E, B3B, B3C, C2B, C2C, C3B, C3C, D1A, D1AD, D1B, D1C, D1D, D1F, D2A, D2B, D2C, D2F, D2G, D2H, D2J, D3G, E1A, E1B, E1C, E1F, E1J, E2A, E2B, E2C, E2D, E2E, E2F, E2G, E2H, E3D, E3H</b> <b>IO-320-A1A, A2A, B1A, B1B, B1C, B1D, B1E, B2A, D1A, D1AD, D1B, D1C, E1A, E1B, E2A, E2B</b> <b>AEIO-320-D1B, D2B, E1A, E1B, E2A, E2B</b> <b>AIO-320-A1A, A1B, A2A, A2B, B1B, C1B</b> <b>LIO-320-B1A</b>
AEL65102-NST05	<b>IO-320-C1A, C1B, C1F, F1A</b> <b>LIO-320-C1A</b>
AEL65102-NST06	<b>O-320-A1A, A2A, A2B, A2C, A3A, A3B, A3C, E1A, E1B, E2A, E2C, (also, an O-320 model with no suffix)</b> <b>IO-320-A1A, A2A</b>
AEL65102-NST07	<b>IO-320- B1A, B1B</b> <b>LIO-320- B1A</b>
AEL65102-NST08	<b>O-320-B1A, B1B, B2A, B2B, B3A, B3B, B3C, C1A, C1B, C2A, C2B, C3A, C3B, C3C, D1A, D1B, D2A, D2B, D2C</b>
AEL65102-NST10	<b>O-360-A1A, A1C, A1D, A2A, A2E, A3A, A3D, A4A, B1A, B1B, B2A, B2B, C1A, C1C, C1G, C2A, C2B, C2C, C2D, D1A, D2A, D2B</b> <b>IO-360-B1A, B1B, B1C</b> <b>HO-360-A1A, B1A, B1B</b> <b>HIO-360-B1A, B1B</b> <b>AEIO-360-B1B</b> <b>O-540-A1A, A1A5, A1B5, A1C5, A1D, A1D5, A2B, A3D5, A4A5, A4B5, A4C5, A4D5, B1A5, B1B5, B1D5, B2A5, B2B5, B2C5, B4A5, B4B5, D1A5, E1A, E4A5, E4B5, E4C5, F1A5, F1B5, G1A5, G2A5</b> <b>IO-540-C1B5, C1C5, C2C, C4B5, C4B5D, C4C5, D4A5, D4B5, N1A5</b>

---

AEL65102-NST12	<b>O-360-</b> A1A, A1AD, A1D, A1F, A1F6, A1F6D, A1G, A1G6, A1G6D, A1H, A1H6, A1J, A1LD, A1P, A2A, A2D, A2F, A2G, A2H, A3A, A3AD, A3D, A4A, A4AD, A4D, A4G, A4J, A4JD, A4K, A4M, A4N, A4P, A5AD, B1A, B2C, C1A, C1C, C1E, C1F, C1G, C2A, C2B, C2C, C2D, C2E, C4F, C4P, D2A, F1A6, G1A6 <b>HO-360</b> –C1A <b>LO-360</b> -A1G6D, A1H6 <b>HIO-360</b> -B1A, B1B, G1A <b>LTO-360</b> -A1A6D <b>TO-360</b> -A1A6D <b>IO-360</b> -B1B, B1BD, B1D, B1E, B1F, B1F6, B1G6, B2E, B2F, B2F6, B4A, E1A, L2A, M1A, M1B <b>AEIO-360</b> -B1B, B1D, B1E, B1F, B1F6, B1G6, B1H, B2F, B2F6, B4A, H1A, H1B <b>O-540</b> -A4D5, B2B5, B2C5, B2C5D, B4B5, B4B5D, E4A5, E4B5, E4C5, G1A5, G2A5, H1A5, H1A5D, H1B5, H1B5D, H2A5, H2A5D, H2B5D <b>IO-540</b> -C4B5, C4B5D, C4D5, C4D5D, D4A5, D4B5, D4C5, N1A5, N1A5D, T4A5D, T4B5, T4B5D, T4C5D, V4A5, V4A5D <b>AEIO-540</b> -D4A5, D4B5, D4C5, D4D5
AEL65102-NST26	<b>IO-540</b> -J4A5, R1A5 <b>TIO-540</b> -C1A, E1A, G1A, H1A
AEL65102-NST38	<b>IO-360</b> -F1A <b>TIO-540</b> -AA1AD, AB1AD, AB1BD, AF1A, AG1A, AK1A, C1A, C1AD, K1AD <b>LTIO-540</b> -K1AD
AEL65102-NST43	<b>O-360</b> -J2A <b>O-540</b> -F1B5, J1A5D, J1B5D, J1C5D, J1D5D, J2A5D, J2B5D, J2C5D, J2D5D, J3A5, J3A5D, J3C5D <b>IO-540</b> -AB1A5, W1A5, W1A5D, W3A5D
AEL65102-NST44	<b>O-540</b> -L3C5D

---

The Lycoming Engines (formerly Textron Lycoming) models 320, 360, and 540 series, "Parallel Valve", reciprocating engines are installed on, but not limited to, the aircraft listed in the following Table 2:

**Table 2—Engines Installed on, but Not Limited To**

<b>Engine Models:</b>	<b>Installed on , But Not Limited To:</b>
O-320-A1A	<p>Piper Aircraft: Tri-Pacer (PA-22 “150”, PA-22S “150”), Apache (PA-23), Pawnee (PA-25)</p> <p>Doyn Aircraft: Doyn-Cessna (170, 170A, 170B)</p> <p>Mooney Aircraft: Mark (20A)</p> <p>Dinfia: Ranquel (1A-46)</p> <p>Simmering-Graz Pauker: Flamingo (SGP-M-222)</p> <p>Aviamilano: Scricciolo (P-19)</p> <p>Vos Helicopter Co.: Spring Bok</p>
O-320-A1B	<p>Piper Aircraft: Tri-Pacer (PA-22 “150”, PA-22S “150”), Apache (PA-23)</p> <p>Doyn Aircraft: Doyn-Cessna (170, 170A, 170B)</p> <p>S.O.C.A.T.A.: Horizon (Gardan)</p>
O-320-A2A	<p>Piper Aircraft: Tri-Pacer (PA-22 “150”, PA-22S “150”), Agriculture (PA-18A “150”), Super Cub (PA -18 “150”), Caribbean (PA-22 “150”), Pawnee (PA-25)</p> <p>Intermountain Mfg. Co.: Call Air Texas (A-5, A-5T)</p> <p>Lake Aircraft: Colonial (C-1)</p> <p>Rawdon Bros.: Rawdon (T-1, T-15, T-15D)</p> <p>Shinn Engineering: Shinn (2150-A)</p> <p>Dinfia: Ranquel (1A)46)</p> <p>Neiva: (1PD-5802)</p> <p>Sud: Gardan-Horizon (GY-80)</p> <p>LaVerda: Falco (F8L Series II, America)</p> <p>Malmo: Vipan (MF1-10)</p> <p>Kingsford Smith: Autocrat (SCRM-153)</p> <p>Aero Commander: 100</p>

O-320-A2B	<p>Piper Aircraft: Tri-Pacer (PA-22 “150”, PA-22S “150”), Cherokee (PA-28 “150”), Super Cub (PA -18 “150”)</p> <p>Champion Aircraft: Challenger (7GCA, 7GCB, 7KC), Citabria (7GCAA, 7GCRC), Agriculture (7GCBA)</p> <p>Beagle: Pup (150)</p> <p>Artic: Interstate S1B2</p> <p>Robinson: R-22</p> <p>Varga: Kachina 2150A</p>
O-320-A2C	<p>Robinson: R-22</p> <p>Cicare: Cicare AG</p> <p>Bellanca Aircraft: Citabria 150 (7GCAA), Citabria 150S (7GCBC)</p>
O-320-A2D	Piper Aircraft: Apache (PA-23)
O-320-A3A	<p>Doyn Aircraft: Doyn-Cessna (170, 170A, 170B)</p> <p>Corben-Fettes: Globe Special (Globe GC-1B)</p>
O-320-A3B	<p>Piper Aircraft: Apache (PA-23)</p> <p>Doyn Aircraft: Doyn-Cessna (170, 170A, 170B)</p> <p>Teal II: TSC (1A2)</p>
O-320-B1A	<p>Piper Aircraft: Apache (PA-23 “160”)</p> <p>Doyn Aircraft: Doyn-Cessna (170, 170A, 170B)</p> <p>Malmo: Vipar (MF1-10)</p>
O-320-B1B	<p>Piper Aircraft: Apache (PA-23 “160”)</p> <p>Doyn Aircraft: Doyn-Cessna (170, 170A, 170B)</p>
O-320-B2A	Piper Aircraft: Tri-Pacer (PA-22 “160”, PA-22S “160”)
O-320-B2B	<p>Piper Aircraft: Tri-Pacer (PA-22 “160”, PA-22S “160”)</p> <p>Beagle: Airedale (D5-160)</p> <p>Fuji-Heavy Industries: Fuji (F-200)</p> <p>Uirapuru: Aerotec 122</p>
O-320-B2C	Robinson: R-22
O-320-B2D	Maule: MX-7-160
O-320-B2E	Lycon
O-320-B3A	<p>Piper Aircraft: Apache (PA-23 “160”)</p> <p>Doyn Aircraft: Doyn-Cessna (170, 170A, 170B)</p>

O-320-B3B	Piper Aircraft: Apache (PA-23 “160”) Doyn Aircraft: Doyn-Cessna (170, 170A, 170B) Sud: Gardan (GY80-160)
O-320-C1A	Piper Aircraft: Apache (PA-23 “160”) Riley Aircraft: Rayjay (Apache)
O-320-C1B	Piper Aircraft: Apache (PA-23 “160”)
O-320-C3A	Piper Aircraft: Apache (PA-23 “160”)
O-320-C3B	Piper Aircraft: Apache (PA-23 “160”)
O-320-D1A	Sud: Gardan (GY-80) Gyroflug: Speed Cancard Grob: G115
O-320-D1F	Slingsby: T67 Firefly
O-320-D2A	Piper Aircraft: Cherokee (PA-28S “160”) Robin: Major (DR400-140B), Chevalier (DR-360), (R-3140) S.O.C.A.T.A.: Tampico TB9 Slingsby: T67C Firefly Daetwyler: MD-3-160 Nash Aircraft Ltd.: Petrel Aviolight: P66D Delta General Avia: Pinguino
O-320-D2B	Beech Aircraft: Musketeer (M-23) Piper Aircraft: Cherokee (PA-28 “160”)
O-320-D2J	Cessna Aircraft: Skyhawk 172
O-320-D3G	Piper Aircraft: Warrior II, Cadet (PA-28-161)
O-320-E1A	Grob: G115
O-320-E1C	M.B.B. (Messerschmitt-Boelkow-Blohm): Monsun (BO-209-B)
O-320-E1F	M.B.B.: Monsun (BO-209-B)

O-320-E2A	Piper Aircraft: Cherokee (PA-28 “140”, PA-28 “150”) Robin: Major (DR-340), Sitar, Bagheera (GY-100-135) S.O.C.A.T.A.: Super Rallye (MS-886), Rallye Commodore (MS-892) Siai-Marchetti: (S-202) F.F.A.: Bravo (AS-202/15) Partenavia: Oscar (P66B), Bucker (131 APM) Aeromot: Paulistina P-56 Pezetel: Koliber 150
O-320-E2C	Beech Aircraft: Musketeer III (M -23III) M.B.B.: Monsun (BO-209-B)
O-320-E2D	Cessna Aircraft: Cardinal (172-I, 177)
O-320-E2F	M.B.B.: Monsun (BO-209-B), Wassmer Pacific (WA-51)
O-320-E2G	American Aviation Corp.: Traveler
O-320-E3D	Piper Aircraft: Cherokee (140) Beech Aircraft: Sport
IO-320-B2A	Piper Aircraft: Twin Comanche (PA-30)
IO-320-B1C	Hi. Shear: Wing
IO-320-B1D	Ted Smith Aircraft: Aerostar
IO-320-C1A	Piper Aircraft: Twin Comanche (PA-30 Turbo)
IO-320-D1A	M.B.B.: Monsun (BO-209-C)
IO-320-D1B	M.B.B.: Monsun (BO-209-C)
IO-320-E1A	M.B.B.: Monsun (BO-209-C)
IO-320-E1B	Bellanca Aircraft
IO-320-E2A	Champion Aircraft: Citabria
IO-320-E2B	Bellanca Aircraft
IO-320-F1A	CAAR Engineering: Carr Midget
LIO-320-B1A	Piper Aircraft: Twin Comanche (PA-39)
LIO-320-C1A	Piper Aircraft: Twin Comanche (PA-39)
AIO-320-B1B	M.B.B.: Monsun (BO-209-C)
AEIO-320-D1B	Slingsby: T67M Firefly
AEIO-320-D2B	Hindustan Aeronautics Ltd.: HT-2

AEIO-320-E1A	Bellanca Aircraft Champion Aircraft
AEIO-320-E1B	Bellanca Aircraft Champion Aircraft: Decathalon (8KCAB-CS)
AEIO-320-E2B	Bellanca Aircraft Champion Aircraft: Decathalon (8KCAB)
O-320-A1A	Riley Aircraft: Riley Twin
O-360-A1A	Beech Aircraft: Travel Air (95, B-95) Piper Aircraft: Comanche (PA-24) Intermountain Mfg. Co.: Call Air (A-6) Lake Aircraft: Colonial (C-2, LA -4, 4A or 4P) Doyn Aircraft: Doyn-Cessna (170B, 172, 172A, 172B) Mooney Aircraft: Mark "20B" (M-20B) Earl Horton: Pawnee (Piper PA-25) Dinfia: Ranquel (1A-51) Neiva: (1PD-5901) Regente: (N-591) Wassmer: Super 4 (WA-50A), Sancy (WA-40), Baladou (WA-40), Pariou (WA-40) Sud: Gardan (GY-180) Bolkow: (207) Partenavia: Oscar (P-66) Siai-Marchetti: (S-205) Procaer: Picchio (F-15-A) S.A.A.B.: Safir (91-D) Malmo: Vipar (MF-10B) Aero Boero: AB-180 Beagle: Airedale (A-109) DeHavilland: Drover (DHA-3MK3) Kingsford-Smith: Bushmaster (J5-6) Aero Engine Service Ltd.: Victa (R-2)
O-360-A1AD	S.O.C.A.T.A.: Tabago TB-10

O-360-A1D	Piper Aircraft: Comanche (PA-24) Lake Aircraft: Colonial (LA -4, 4A or 4P) Doyn Aircraft: Doyn-Beech (Beech 95) Mooney Aircraft: Master “21” (M-20E), Mark “20B”, “20D”, (M20B, M20C), Mooney Statesman (M-20G) Dinfia: Querandi (1A-45) Wassmer: (WA-50) Malmo: Vipar (MF1-10) Cessna Aircraft: Skyhawk Doyn Aircraft: Doyn-Piper (PA-23 “160”)
O-360-A1F6	Cessna Aircraft: Cardinal
O-360-A1F6D	Cessna Aircraft: Cardinal 177 Teal III: TSC (1A3)
O-360-A1G6	Aero Commander
O-360-A1G6D	Beech Aircraft: Duchess 76
O-360-A1H6	Piper Aircraft: Seminole (PA-44)
O-360-A1LD	Wassmer: Europa WA-52
O-360-A1P	Aviat: Husky
O-360-A2A	Center Est Aeronautique: Regente (DR-253) S.O.C.A.T.A.: Rallye Commodore (MS-893) Societe Aeronautique Normande: Mousquetaire (D-140) Bolkow: Klemm (K1-107C) Partenavia: Oscar (P-66) Beagle: Husky (D5-180) (J1-U)
O-360-A2D	Piper Aircraft: Comanche (PA-24), Cherokee “C” (PA-28 “180”) Mooney Aircraft: Master “21” (M-20D), Mark “21” (M-20E)
O-360-A2E	Std. Helicopter
O-360-A2F	Aero Commander: Lark (100) Cessna Aircraft: Cardinal
O-360-A2G	Beech Aircraft: Sport

O-360-A3A	C.A.A.R.P.S.A.N.: (M-23III) Societe Aeronautique Normande: Jodel (D-140C) Robin: Regent (DR400/180), Remorqueur (DR400/180R), R-3170 S.O.C.A.T.A.: Rallye 180GT, Sportavia Sportsman (RS-180) Norman Aeroplance Co.: NAC-1 Freelance Nash Aircraft Ltd.: Petrel
O-360-A3AD	S.O.C.A.T.A.: TB-10 Robin: Aiglou (R-1180T)
O-360-A4A	Piper Aircraft: Cherokee "D" (PA-28 "180")
O-360-A4D	Varga: Kachina
O-360-A4G	Beech Aircraft: Musketeer Custom III
O-360-A4K	Grumman American: Tiger Beech Aircraft: Sundowner 180
O-360-A4M	Piper Aircraft: Archer II (PA-28 "18") Valmet: PIK-23
O-360-A4N	Cessna Aircraft: 172 (Optional)
O-360-A4P	Penn Yan: Super Cub Conversion
O-360-A5AD	C. Itoh and Co.: Fuji FA-200
O-360-B2C	Seabird Aviation: SB7L
O-360-C1A	Intermountain Mfg. Co.: Call Air (A-6)
O-360-C1E	Bellanca Aircraft: Scout (8GCBC-CS)
O-360-C1F	Maule: Star Rocket MX-7-180
O-360-C1G	Christen: Husky (A-1)
O-360-C2B	Hughes Tool Co.: (269A)
O-360-C2D	Hughes Tool Co.: (269A)
O-360-C2E	Hughes Tool Co.: (YHO-2HU) Military Bellanca Aircraft: Scout (8GCBC FP)
O-360-C4F	Maule: MX-7-180A
O-360-C4P	Penn Yan: Super Cub Conversion
O-360-F1A6	Cessna Aircraft: Cutlass RG
O-360-J2A	Robinson: R22

IO-360-B1A	Beech Aircraft: Travel-Air (B-95A) Doyn Aircraft: Doyn-Piper (PA-23 “200”)
IO-360-B1B	Beech Aircraft: Travel-Air (B-95B) Doyn Aircraft: Doyn-Piper (PA-23 “200”) Fuji: (FA-200)
IO-360-B1D	United Consultants: See-Bee
IO-360-B1E	Piper Aircraft: Arrow (PA-28 “180R”)
IO-360-B1F	Utva: 75
IO-360-B2E	C.A.A.R.P. C.A.P. (10)
IO-360-B1F6	Great Lakes: Trainer
IO-360-B1G6	American Blimp: Spector 42
IO-360-B2F6	Great Lakes: Trainer
LO-360-A1G6D	Beech Aircraft: Duchess
LO-360-A1H6	Piper Aircraft: Seminole (PA-44)
IO-360-E1A	T.R. Smith Aircraft: Aerostar
IO-360-L2A	Cessna Aircraft: Skyhawk C-172
IO-360-M1A	Diamond Aircraft: DA-40
IO-360-M1B	Vans Aircraft: RV6, RV7, RV8 Lancair: 360
AEIO-360-B1F	F.F.A.: Bravo (200) Grob: G115/Sport-Acro
AEIO-360-B1G6	Great Lakes
AEIO-360-B2F	Mundry: CAP-10
AEIO-360-B4A	Pitts: S-1S
AEIO-360-H1A	Bellanca Aircraft: Super Decathalon (8KCAB-180)
AEIO-360-H1B	American Champion: Super Decathalon
VO-360-A1A	Brantly Hynes Helicopter: (B-2)
VO-360-A1B	Brantly Hynes Helicopter: (B-2, B2-A). Military (YHO-3BR)
VO-360-B1A	Brantly Hynes Helicopter: (B-2, B2-A)
IVO-360-A1A	Brantly Hynes Helicopter: (B2-B)
HO-360-B1A	Hughes Tool Co.: (269A)
HO-360-B1B	Hughes Tool Co.: (269A)

HO-360-C1A	Schweizer: (300C)
HIO-360-B1A	Hughes Tool Co.: Military (269-A-1), (TH-55A)
HIO-360-B1B	Hughes Tool Co.: (269A)
HIO-360-G1A	Schweizer: (CB)
O-540-A1A	Rhein-Flugzeugbau: (RF-1)
O-540-A1A5	Piper Aircraft: Comanche (PA-24 "180") Helio: Military (H-250) Yoeman Aviation: (YA-1)
O-540-A1B5	Piper Aircraft: Aztec (PA-23 "250"), Comanche (PA-24 "250")
O-540-A1C5	Piper Aircraft: Comanche (PA-24 "250")
O-540-A1D	Found Bros.: (FBA-2C) Dornier: (DO-28-B1)
O-540-A1D5	Piper Aircraft: Aztec (PA-23 "250"), Comanche (PA-24 "250"), Military Aztec (U-11A) Dornier: (DO-28)
O-540-A2B	Aero Commander: (500) Mid-States Mfg. Co.: Twin Courier (H-500), (U-5)
O-540-A3D5	Piper Aircraft: Navy Aztec (PA-23 "250")
O-540-B1A5	Piper Aircraft: Apache (PA-23 "235")
O-540-B1B5	Piper Aircraft: Comanche (PA-24 "250") Doyn Aircraft: Doyn-Piper (PA-24 "250")
O-540-B1D5	Wassmer: (WA-421)
O-540-B2B5	Piper Aircraft: Pawnee (PA-25 "235"), Cherokee (PA-28 "235"), Aztec (PA-23 "235") Intermountain Mfg. Co.: Call Air (A-9) Rawdon Bros.: Rawdon (T-1) S.O.C.A.T.A.: Rallye 235CA
O-540-B2C5	Piper Aircraft: Pawnee (PA-25 "235")
O-540-B4B5	Piper Aircraft: Cherokee (PA-28 "235") Embraer: Corioca (EMB-710) S.O.C.A.T.A.: Rallye 235GT, Rallye 235C Maule: Star Rocket (MX-7-235), Super Rocket (M-6-235), Super Std. Rocket (M-7-235)

O-540-E4A5	Piper Aircraft: Comanche (PA-24 “260”) Aviamilano: Flamingo (F-250) Siai-Marchetti: (SF-260), (SF-208)
O-540-E4B5	Britten-Norman: (BN-2) Piper Aircraft: Cherokee Six (PA-32 “260”)
O-540-E4C5	Pilatus Britten-Norman: Islander (BN-2A-26), Islander (BN-2A-27), Islander II (BN-2B-26), Islander (BN-2A-21), Trislander (BN-2A-Mark III-2)
O-540-F1B5	Omega Aircraft: (BS-12D1) Robinson: (R-44)
O-540-G1A5	Piper Aircraft: Pawnee (PA-25 “260”)
O-540-H1B5D	Aero Boero: 260
O-540-H2A5	Embraer: Impanema “AG” Gippsland: GA-200
O-540-H2B5D	Aero Boero: 260
O-540-J1A5D	Maule: Star Rocket (MX-7-235), Super Rocket (M-6-235), Super Std. Rocket (M-7-235)
O-540-J3A5	Robin: R-3000/235
O-540-J3A5D	Piper Aircraft: Dakota (PA-28-236)
O-540-J3C5D	Cessna Aircraft: Skylane RG
O-540-L3C5D	Cessna Aircraft: TR-182, Turbo Skylane RG
IO-540-C1B5	Piper Aircraft: Aztec B (PA-23 “250”), Comanche (PA-24 “250”)
IO-540-C1C5	Riley Aircraft: Turbo-Rocket
IO-540-C4B5	Piper Aircraft: Aztec C (PA-23 “250”), Aztec F Wassmer: (WA4-21) Avions Pierre Robin: (HR100/250) Bellanca Aircraft: Aries T-250 Aerofab: Renegade 250
IO-540-C4D5	S.O.C.A.T.A.: TB-20
IO-540-C4D5D	S.O.C.A.T.A.: Trinidad TB-20
IO-540-D4A5	Piper Aircraft: Comanche (PA-24 “260”) Siai-Marchetti: (SF-260)
IO-540-D4B5	Cerva: (CE-43 Guepard)

IO-540-J4A5	Piper Aircraft: Aztec (PA-23 “250”)
IO-540-R1A5	Piper Aircraft: Comanche (PA-24)
IO-540-T4A5D	General Aviation: Model 114
IO-540-T4B5	Commander: 114B
IO-540-T4B5D	Rockwell: 114
IO-540-T4C5D	Lake Aircraft: Seawolf
IO-540-V4A5	Maule: MT-7-260, M -7-260 Aircraft Manufacturing Factory
IO-540-V4A5D	Brooklands: Scoutmaster
IO-540-W1A5	Maule: MX-7-235, MT-7-235, M7-235
IO-540-W1A5D	Maule: Star Rocket (MX-7-235), Super Rocket (M-6-235), Super Std. Rocket (M-7-235)
IO-540-W3A5D	Schweizer: Power Glider
AEIO-540-D4A5	Christen: Pitts (S-2S), S-2B) Siai-Marchetti: SF-260 H.A.L.: HPT-32 Slingsby: Firefly T3A
AEIO-540-D4B5	Moravan: Zlin-50L H.A.L.: HPT-32
AEIO-540-D4D5	Burkhart Grob: Grob G, 115T Aero
TIO-540-C1A	Piper Aircraft: Turbo Aztec (PA-23-250)
TIO-540-K1AD	Piper Aircraft
TIO-540-AA1AD	Aerofab Inc.: Turbo Renegade (270)
TIO-540-AB1AD	S.O.C.A.T.A.: Trinidad TC TB-21
TIO-540-AB1BD	Schweizer
TIO-540-AF1A	Mooney Aircraft: “TLS” M20M
TIO-540-AG1A	Commander Aircraft: 114TC
TIO-540-AK1A	Cessna Aircraft: Turbo Skylane T182T
LTIO-540-K1AD	Piper Aircraft

### Unsafe Condition

(e) This AD results from reports of 10 additional cylinder head separations since issuing AD 2008-19-05, on cylinder S/Ns not listed in that AD. We are issuing this AD to prevent loss of engine

power due to cracks at the head-to-barrel interface in the cylinder assemblies and possible engine failure caused by separation of a cylinder head, which could result in loss of control of the aircraft.

## **Compliance**

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

## **Engines Overhauled or Cylinder Assemblies Replaced Since New**

(g) If your engine was overhauled or had a cylinder assembly replaced since new, do the following:

(1) Before further flight, inspect the maintenance records and engine logbook to determine if the overhaul or repair facility installed ECi cylinder assemblies, P/N AEL65102, with cylinder head, PN AEL85099, S/N 1138-02 through S/N 35171-22, or S/N 35239-01 through S/N 42179-30, in your engine.

(2) If your cylinder assemblies are not ECi, P/N AEL65102, no further action is required.

(3) If your cylinder assemblies are ECi, P/N AEL65102, but the S/N is not listed in this AD, no further action is required.

(4) If the cylinder assemblies are ECi, P/N AEL65102, and if the S/N is listed in this AD, do the following:

## **Group "A" Cylinder Assemblies; S/N 1138-02 Through S/N 35171-22**

(i) For Group "A" cylinder assemblies:

(A) Perform an initial visual inspection as specified in paragraphs (h) through (i) of this AD, and an initial compression test as specified in paragraphs (j) through (m) of this AD, within the next 10 operating hours time-in-service (TIS), if the cylinder assembly has 350 or more operating hours TIS on the effective date of this AD, but fewer than 2,000 operating hours TIS.

(B) Perform an initial visual inspection as specified in paragraphs (h) through (i) of this AD, and an initial compression test as specified in paragraphs (j) through (m) of this AD, within the next 10 operating hours TIS, or before exceeding 350 operating hours TIS, whichever occurs later, if the cylinder assembly has fewer than 350 operating hours TIS on the effective date of this AD.

(C) Replace cylinder assemblies installed in helicopter engines within the next 25 operating hours TIS after the effective date of this AD if the cylinder assembly has 1,500 operating hours TIS or more on the effective date of this AD.

(D) Replace cylinder assemblies installed in airplane engines within the next 25 operating hours TIS after the effective date of this AD if the cylinder assembly has 2,000 operating hours TIS or more on the effective date of this AD.

(E) Perform repetitive visual inspections as specified in paragraphs (h) through (i) of this AD, and repetitive compression tests as specified in paragraphs (j) through (m) of this AD, within every 50 operating hours TIS.

(F) Replace cylinder assemblies installed in helicopter engines that pass the visual inspections and compression tests, no later than 1,500 operating hours TIS after the effective date of this AD.

(G) Replace cylinder assemblies installed in airplane engines that pass the visual inspections and compression tests, no later than 2,000 operating hours TIS after the effective date of this AD.

### **Group “B” Cylinder Assemblies; S/N 35239-01 through S/N 42179-30**

(ii) For Group “B” cylinder assemblies:

(A) Perform an initial visual inspection as specified in paragraphs (h) through (i) of this AD, and initial compression test as specified in paragraphs (j) through (l) of this AD, within the next 10 operating hours TIS.

(B) Replace the cylinder assembly within the next 25 operating hours TIS after the effective date of this AD if the cylinder assembly has 350 or more operating hours TIS on the effective date of this AD.

(C) Replace cylinder assemblies that pass the initial visual inspections and compression tests, before exceeding 350 operating hours TIS after the effective date of this AD.

### **Visual Inspection**

(h) Visually inspect each cylinder head around the exhaust valve side for cracks or any signs of black or white residue of combustion leakage from cracks.

(i) Replace cracked cylinder assemblies before further flight.

### **Cylinder Assembly Compression Test**

(j) Perform a standard cylinder differential compression test.

(k) During the compression test, if the cylinder pressure gauge reads below 70 pounds-per-square-inch, apply a water and soap solution to the side of the leaking cylinder, near the head-to-barrel interface.

(l) Replace the cylinder assembly before further flight if air leakage and bubbles are observed on the side of the cylinder assembly, near the head-to-barrel interface.

(m) For Group “A” cylinder assemblies only, repair or replace the engine cylinder assembly before further flight if the cause of the low gauge reading in paragraph (k) of this AD is from leaking intake or exhaust valves, or from leaking piston rings.

### **Prohibition of Group “B” ECI Cylinder Assemblies Affected by This AD**

(n) After the effective date of this AD, do not install any Group “B” ECI cylinder assembly, P/N AEL65102, onto any engine and do not attempt to repair or reuse Group “B” cylinder assemblies.

### **Alternative Methods of Compliance**

(o) The Manager, Special 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**

(p) Under 14 CFR 39.23, we will not approve special flight permits for this AD for engines that have failed the visual inspection or the cylinder assembly compression test required by this AD.

## **Related Information**

(q) Contact Peter W. Hakala, Aerospace Engineer, Special Certification Office, FAA, Rotorcraft Directorate, 2601 Meacham Blvd., Fort Worth, TX 76193; e-mail: peter.w.hakala@faa.gov; telephone (817) 222-5145; fax (817) 222-5785, for more information about this AD.

Issued in Burlington, Massachusetts, on December 22, 2009.

Peter A. White,

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

[FR Doc. E9-30732 Filed 12-30-09; 8:45 am]