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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2005-22358; Directorate Identifier 2005-NE-20-AD; Amendment 39-14632; AD 2006-12-07]

RIN 2120-AA64

Airworthiness Directives; Engine Components Inc. (ECi) Reciprocating Engine Cylinder Assemblies

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

ACTION: Final rule.

SUMMARY: The FAA is superseding an existing airworthiness directive (AD) for Lycoming Engines (formerly Textron Lycoming) models 320, 360, and 540 series, "Parallel Valve" reciprocating engines, with certain Engine Components Inc. (ECi) cylinder assemblies, part number (P/N) AEL65102 series "Classic Cast", installed. That AD currently requires replacing these ECi cylinder assemblies. This AD requires the same actions, but replaces the "Engine Models" Table 1 and "Engines Installed On, But Not Limited To" Table 2 with corrected tables. Also, this AD corrects the casting part number. This AD results from reports of applicability errors found in AD 2005-26-10. We are issuing this AD to prevent loss of engine power due to cracks in the cylinder assemblies and possible engine failure caused by separation of a cylinder head.

DATES: This AD becomes effective July 11, 2006.

ADDRESSES: You may examine the AD docket on the Internet at *http://dms.dot.gov* or in Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Peter Hakala, Aerospace Engineer, Special Certification Office, FAA, Rotorcraft Directorate, 2601 Meacham Blvd., Fort Worth, TX 76193; telephone (817) 222-5145; fax (817) 222-5785.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with a proposed AD. The proposed AD applies to Lycoming Engines models 320, 360, and 540 series, "Parallel Valve" reciprocating engines, with certain ECi cylinder assemblies, P/N AEL65102 series "Classic Cast", installed. We published the proposed AD in the Federal Register on February 24, 2006 (71 FR 9480). That action proposed to require the same actions as AD 2005-26-10, but would

replace the "Engine Models" Table 1 and "Engines Installed On, But Not Limited To" Table 2 with corrected tables. Also, that action proposed to correct the casting part number.

Examining the AD Docket

You may examine the docket that contains the AD, any comments received, and any final disposition in person at the Docket Management Facility Docket Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone (800) 647-5227) is located on the plaza level of the Department of Transportation Nassif Building at the street address stated in ADDRESSES. Comments will be available in the AD docket shortly after the DMS receives them.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comments received.

Request To Change All References to Casting P/N AEL65099

One commenter requests that we change all references to casting P/N AEL65099 to read "casting head markings EC 65099-REV-1" to more accurately describe the actual markings. We agree, and made the reference changes in the AD.

Request To Explain Another Set of Numbers on the Cylinder

The same commenter requests that we explain that the set of numbers appearing on the cylinder below and to the left of the SN, in the form of "12345-67" is not used for determining applicability. We agree, and have added a statement to point this out in the AD.

Update to Related Information

Under paragraph (k), Related Information, we updated the reference to ECi Service Bulletin No. 05-08, Revision 1, dated December 29, 2005, to Revision 2, dated February 28, 2006.

Conclusion

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

We estimate that 7,557 ECi cylinder assemblies are installed on Lycoming engines in the United States. We estimate that it will take about two workhours per engine to perform the aircraft inspections of the cylinder assemblies for applicability, and that the average labor rate is $65 per workhour. From the Lycoming Engines "Removal and Installation Labor Allowance Guidebook", dated May 2000, the complete cylinder replacement for a four cylinder engine takes 12 hours, while the complete cylinder replacement for a six cylinder engine takes 16 hours. Required parts will cost about $1,000 per cylinder assembly. Based on these figures, we estimate that the total cost of the AD

to U.S. operators to be $9,152,140. ECi indicated that they might give operators and repair stations credit for returned cylinder assemblies toward the purchase of new ECi cylinder assemblies.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in subtitle VII, part A, subpart III, section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

(1) Is not a "significant regulatory action" under Executive Order 12866;

(2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary at the address listed under ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends 14 CFR part 39 as follows:

PART 39–AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by removing Amendment 39-14431 (70 FR 76385, December 27, 2005), and by adding a new airworthiness directive, Amendment 39-14632, to read as follows:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

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

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

2006-12-07 Engine Components Incorporated (ECi): Amendment 39-14632. Docket No. FAA-2005-22358; Directorate Identifier 2005-NE-20-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective July 11, 2006.

Affected ADs

(b) This AD supersedes 2005-26-10, Amendment 39-14431.

Applicability

(c) This AD applies to Lycoming Engines (formerly Textron Lycoming) models 320, 360, and 540 series, parallel valve, reciprocating engines:

(1) Specified in Table 1 of this AD; and

(2) With ECi cylinder assemblies, part number (P/N) AEL65102 series "Classic Cast", having casting head markings EC 65099-REV-1; and

(3) With serial numbers (SNs) 1 through 9879 (SN may have an "L" prefix for a long reach spark plug), (sold from January 1997 to September 2001) installed.

(4) The set of numbers appearing on the cylinder, below and to the left of the SN, in the form of "12345-67" is not used for determining applicability.

TABLE 1.—ENGINE MODELS

Cylinder head part No.	Installed on engine models
AEL65102–NST04	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.
	IO–320–A1A, A2A, B1A, B1B, B1C, B1D, B1E, B2A, D1A, D1AD, D1B, D1C, E1A, E1B, E2A, E2B.
	AEIO–320–D1B, D2B, E1A, E1B, E2A, E2B.
	AIO–320–A1A, A1B, A2A, A2B, B1B, C1B.
	LIO–320–B1A.
AEL65102–NST05	IO–320–C1A, C1B, C1F, F1A.
	LIO–320–C1A.
AEL65102–NST06	O–320–A1A, A2A, A2B, A2C, A3A, A3B, A3C, E1A, E1B, E2A, E2C, (also, an O–320 model with no suffix). IO–320–A1A, A2A.

Cylinder head part No.	Installed on engine models
AEL65102–NST07	IO–320–B1A, B1B.
	LIO–320–B1A.
AEL65102–NST08	O–320–B1A, B1B, B2A, B2B, B3A, B3B, B3C, C1A, C1B, C2A, C2B, C3A, C3B, C3C, D1A, D1B, D2A, D2B, D2C.
AEL65102–NST10	O–360–A1A, A1C, A1D, A2A, A2E, A3A, A3D, A4A, B1A, B1B, B2A, B2B, C1A, C1C, C1G, C2A, C2B, C2C, C2D, D1A, D2A, D2B.
	IO–360–B1A, B1B, B1C.
	HO–360–A1A, B1A, B1B.
	HIO–360–B1A, B1B.
	AEIO–360–B1B.
	O–540–A1A, A1A5, A1B5, A1C5, A1D, A1D5, A2B, A3D5, A4A5, A4B5, A4C5, A4D5, B1A5, B1B5, B1D5, B2A5, B2B5, B2C5, B2C5D, B4A5, B4B5, B4B5D, D1A5, E1A, E4A5, E4B5, E4C5, F1A5, F1B5, G1A5, G2A5.
	IO–540–C1B5, C1C5, C2C, C4B5, C4B5D, C4C5, D4A5, D4B5, N1A5, N1A5D.
AEL65102–NST12	O–360–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.
	HO–360–C1A.
	LO–360–A1G6D, A1H6.
	HIO–360–B1A, B1B, G1A.
	LTO–360–A1A6D.
	TO–360–A1A6D.
	IO–360–B1B, B1BD, B1D, B1E, B1F, B1F6, B1G6, B2E, B2F, B2F6, B4A, E1A, L2A, M1A, M1B.
	AEIO–360–B1B, B1D, B1E, B1F, B1F6, B1G6, B1H, B2F, B2F6, B4A, H1A, H1B.
	O–540–A4D5, B2B5, B2C5, B2C5D, B4B5, B4B5D, E4A5, E4B5, E4B5D, E4C5, G1A5, G1A5D, G2A5, H1A5, H1A5D, H1B5, H1B5D, H2A5, H2A5D, H2B5D.
	IO–540–C4B5, C4B5D, C4D5, C4D5D, D4A5, D4B5, D4C5, N1A5, N1A5D, T4A5D, T4B5, T4B5D, T4C5D, V4A5, V4A5D.
	AEIO–540–D4A5, D4B5, D4C5, D4D5.
AEL65102–NST26	IO–540–J4A5, R1A5.
	TIO–540–C1A, E1A, G1A, H1A.
AEL65102–NST38	IO–360–F1A.
	TIO–540–AA1AD, AB1AD, AB1BD, AF1A, AG1A, AK1A, C1A, C1AD, K1AD.
	LTIO–540–K1AD.
AEL65102–NST43	O–360–J2A.
	O–540–F1B5, J1A5D, J1B5D, J1C5D, J1D5D, J2A5D, J2B5D, J2C5D, J2D5D, J3A5, J3A5D, J3C5D.
	IO–540–AB1A5, W1A5, W1A5D, W3A5D.
AEL65102–NST44	O–540–L3C5D.

For information, the subject 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	
O–320–A1A	Piper Aircraft: Tri-Pacer (PA–22 "150", PA–22S "150"), Apache (PA–23), Pawnee (PA–25).
	Doyn Aircraft: Doyn-Cessna (170, 170A, 170B).
	Mooney Aircraft: Mark (20A).
	Dinfia: Ranquel (1A–46).
	Simmering-Graz Pauker: Flamingo (SGP–M–222).
	Aviamilano: Scricciolo (P–19).
	Vos Helicopter Co.: Spring Bok.
O–320–A1B	Piper Aircraft: Tri-Pacer (PA–22 "150", PA–22S "150"), Apache (PA–23).
	Doyn Aircraft: Doyn-Cessna (170, 170A, 170B).
	S.O.C.A.T.A.: Horizon (Gardan).
O–320–A2A	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).
	Intermountain Mfg. Co.: Call Air Texas (A–5, A–5T).
	Lake Aircraft: Colonial (C–1).
	Rawdon Bros.: Rawdon (T–1, T–15, T–15D).
	Shinn Engineering: Shinn (2150–A).
	Dinfia: Ranquel (1A–46).
	Neiva: (1PD–5802).
	Sud: Gardan-Horizon (GY–80).
	LaVerda: Falco (F8L Series II, America).
	Malmo: Vipan (MF1–10).
	Kingsford Smith: Autocrat (SCRM–153).
	Aero Commander: 100.
O–320–A2B	Piper Aircraft: Tri-Pacer (PA–22 "150", PA–22S "150"), Cherokee (PA–28 "150"), Super Cub (PA–18 "150").
	Champion Aircraft: Challenger (7GCA, 7GCB, 7KC), Citabria (7GCAA, 7GCRC), Agriculture (7GCBA).
	Beagle: Pup (150).
	Artic: Interstate S1B2.
	Robinson: R–22.
	Varga: Kachina 2150A.
O–320–A2C	Robinson: R–22.
	Cicare: Cicare AG.
	Bellanca Aircraft: Citabria 150 (7GCAA), Citabria 150S (7GCBC).
O–320–A2D	Piper Aircraft: Apache (PA–23).
O–320–A3A	Doyn Aircraft: Doyn-Cessna (170, 170A, 170B).
	Corben-Fettes: Globe Special (Globe GC–1B).
O–320–A3B	Piper Aircraft: Apache (PA–23).
	Doyn Aircraft: Doyn-Cessna (170, 170A, 170B).
	Teal II: TSC (1A2).
O–320–B1A	Piper Aircraft: Apache (PA–23 "160").
	Doyn Aircraft: Doyn-Cessna (170, 170A, 170B).
	Malmo: Vipan (MF1–10).
O–320–B1B	Piper Aircraft: Apache (PA–23 "160").
	Doyn Aircraft: Doyn-Cessna (170, 170A, 170B)

O–320–B2A	Piper Aircraft: Tri-Pacer (PA–22 "160", PA–22S "160").
O–320–B2B	Piper Aircraft: Tri-Pacer (PA–22 "160", PA–22S "160").
	Beagle: Airedale (D5–160).
	Fuji-Heavy Industries: Fuji (F–200).
	Uirapuru: Aerotec 122.
O–320–B2C	Robinson: R–22.
O–320–B2D	Maule: MX–7–160.
O–320–B2E	Lycon.
O–320–B3A	Piper Aircraft: Apache (PA–23 "160").
	Doyn Aircraft: Doyn-Cessna (170, 170A, 170B).
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	Hundustan 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: Vipan (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: Vipan (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 Aeroplace Co.: NAC–1 Freelance.
	Nash Aircraft Ltd.: Petrel.
O–360–A3AD	S.O.C.A.T.A.: TB–10.
	Robin: Aiglon (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.
O–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: (WA–421).
	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

(d) This AD results from reports of applicability errors found in AD 2005-26-10. We are issuing this AD to prevent loss of engine power due to cracks in the cylinder assemblies and possible engine failure caused by separation of a cylinder head.

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.

Engines Not Overhauled or Repaired Since New

(f) If your engine has not been overhauled or had any major repair since new, no further action is required.

Engines Overhauled or Repaired Since New

(g) If your engine was overhauled or repaired since new, do the following:

(1) Determine if ECi cylinder assemblies, P/N AEL65102 series "Classic Cast", having casting head markings EC 65099-REV-1 and SNs 1 through 9879 (SN may have an "L" prefix for a long reach spark plug) are installed on your engine, as follows:

(i) Inspect the engine log books and maintenance records for reference to the subject ECi cylinder assemblies.

(ii) If the engine log books and maintenance records did not record the P/N and SN of the cylinder assemblies, visually inspect the cylinder assemblies and verify the P/N and SN of the cylinder assemblies.

(2) If the cylinder assemblies are not ECi, P/N AEL65102 series "Classic Cast", having casting head markings EC 65099-REV-1, no further action is required.

(3) If any cylinder assembly is an ECi P/N AEL65102 series "Classic Cast", having casting head markings EC 65099-REV-1 and a SN 1 through 9879 (SN may have an "L" prefix for a long reach spark plug), do the following:

(i) If the cylinder assembly has fewer than 800 operating hours-in-service (HIS) on the effective date of this AD, replace the cylinder assembly at no later than 800 operating HIS. No action is required until the operating HIS reaches 800 hours.

(ii) If the cylinder assembly has 800 operating HIS or more on the effective date of this AD, replace the cylinder assembly within 60 operating HIS after the effective date of this AD.

Definition of a Replacement Cylinder Assembly

(h) For the purpose of this AD, a replacement cylinder assembly is defined as follows:

(1) A serviceable cylinder assembly made by Lycoming Engines.

(2) A serviceable FAA-approved, Parts Manufacturer Approval cylinder assembly from another manufacturer.

(3) A serviceable ECi cylinder assembly, P/N AEL65102 series, "Titan", having casting P/N AEL85099.

(4) A serviceable ECi cylinder assembly, P/N AEL65102 series "Classic Cast", having casting head markings EC 65099-REV-1, that has a SN 9880 or higher (SN may have an "L" prefix for a long reach spark plug).

Prohibition of Cylinder Assemblies, P/N AEL65102 Series ''Classic Cast'', Having Casting Head Markings EC 65099-REV-1 and SNs 1 Through 9879

(i) After the effective date of this AD, do not install any ECi cylinder assembly, P/N AEL65102, having casting head markings EC 65099-REV-1 that has a SN 1 through 9879 (SN may have an "L" prefix for a long reach spark plug), onto any engine.

Alternative Methods of Compliance

(j) 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.

Related Information

(k) ECi Service Bulletin No. 05-08, Revision 2, dated February 28, 2006, pertains to the subject of this AD.

Issued in Burlington, Massachusetts, on May 31, 2006.
Thomas A. Boudreau,
Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.
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