

# Rules and Regulations

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2008-0052; Directorate Identifier 2008-NE-01-AD; Amendment 39-15672; AD 2008-19-05]

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 adopting a new 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 "Titan", installed. This AD requires initial and repetitive visual inspections and compression tests to detect cracks at the head-to-barrel interface, replacement of cylinder assemblies found cracked, and replacement of certain cylinder assemblies, at new reduced times-in-service. This AD results from reports of 45 failures with head separations of ECi cylinder assemblies. 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.

**DATES:** This AD becomes effective October 20, 2008.

**ADDRESSES:** You can get the service information identified in this AD from Engine Components, Inc., 9503 Middlex, San Antonio, TX 78217; Phone

(800) 324-2359; fax (210) 820-8102; <http://www.eci2fly.com>.

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

#### FOR FURTHER INFORMATION CONTACT:

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](mailto:peter.w.hakala@faa.gov); 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 (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 "Titan", installed. We published the proposed AD in the **Federal Register** on May 19, 2008 (73 FR 28756). That action proposed to require initial and repetitive visual inspections and compression tests to detect cracks at the head-to-barrel interface, replacement of cylinder assemblies found cracked, and replacement of certain cylinder assemblies, at new reduced times-in-service.

#### Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647-5527) is provided in the **ADDRESSES** section. Comments will be available in the AD docket shortly after receipt.

#### Comments

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

#### Request To Reduce the Economic Impact

One commenter, the Aircraft Owners and Pilots Association, states that the 50-hour inspection interval should be increased to 100 hours, to reduce the economic impact of the cylinder assembly inspections. Another commenter, a private citizen, states that the cost of the 50-hour inspections was not considered in the NPRM economic estimate.

We do not agree. We selected the 50-hour inspection interval so that aluminum cylinder cracks could be detected before a head separation occurred. By removing leaking cylinder heads discovered during the periodic 50-hour inspections, the probability of having an in flight head separation is greatly reduced. Also, the 50-hour inspection interval coincides with the scheduled maintenance for normal engine oil and filter changes. Also, the costs of compliance in the NPRM did include costs for the additional cylinder assembly inspections. We did not change the AD.

#### Retiring Cylinder Assemblies at Time-Between-Overhaul Is Too Expensive

One commenter, a private citizen, states that it is too expensive to retire all the subject cylinder assemblies at the normal overhaul time. Another commenter, a private citizen, states that it is unreasonable for general aviation airplane owners, in Part 91 use, to be required to retire cylinder assemblies at the time-between-overhaul or at normal engine overhaul time.

We do not agree. The subject cylinder assemblies can be safely run to the normal TBO with the required 50-hour inspections, with compression tests. Because of metallurgical analysis results of the fatigue cracks in the aluminum alloy cylinder heads, and also the history of the head separation hours-in-service, the probability of a head separation is greater with the subject cylinder assemblies running past the time-between-overhaul time. Therefore, we do not consider the cylinder assemblies to be airworthy past the normal engine overhaul time. We did not change the AD.

**Cylinder Assembly Serial Number Range Is Different in the ECI Mandatory Service Bulletin**

One commenter, ECI., states that the cylinder assembly serial number range in the proposed AD for the Group “B” cylinders is slightly different from the serial numbers listed in the ECI Mandatory service Bulletin No. 08–1. The commenter states that several additional cylinder serial numbers should be included in Group “B”.

We do not agree. We researched the cylinder assembly serial numbers in the proposed AD and they are correct. The Group “A” cylinder assemblies go up to serial number 35171–22. The Group “B” cylinder assemblies start at serial number 35239–01. We discussed the serial number comment with ECI. They agree that the serial number range in the proposed AD is correct. ECI states that they have revised the serial numbers in ECI. Mandatory Service Bulletin (MSB) No. 08–1 to match the serial numbers in the AD, and issued MSB No. 08–1, Revision 3, dated August 19, 2008. We now reference this MSB Revision 3 in the AD.

**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 as proposed. 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 this AD will affect 13,000 ECI cylinder assemblies installed in aircraft of U.S. registry. The visual inspection and compression tests will take about 4 work-hours for each engine. An individual cylinder replacement will require \$1,100 for parts and 6 work-hours. Lycoming engines with a set of 4 ECI cylinders will require 12 work-hours for the cylinder replacement. Lycoming engines with a set of 6 ECI cylinders will require 16 work-hours for the cylinder replacement. We estimate 18 percent of the affected population of cylinders will be replaced. We estimate the total cost of the AD to U.S. operators

to be \$7,952,000. Our estimate is exclusive of any possible warranty coverage.

**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 adding the following new airworthiness directive:

**2008–19–05 Engine Components, Inc. (ECI):**  
Amendment 39–15672. Docket No. FAA–2008–0052; Directorate Identifier 2008–NE–01–AD.

**Effective Date**

(a) This airworthiness directive (AD) becomes effective October 20, 2008.

**Affected ADs**

(b) None.

**Applicability**

(c) 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 (SNs) are SN 1138–02 through SN 35171–22, (referred to in this AD as Group “A” cylinder assemblies); and

(2) SN 35239–01 through SN 37016–28 (referred to in this AD as Group “B” cylinder assemblies).

(3) Note that 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) Note that the set of numbers appearing on the cylinder, above and to the left of the SN, in the form of “123456” is not used for determining applicability.

TABLE 1—ENGINE MODELS

Cylinder assembly 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

TABLE 1—ENGINE MODELS—Continued

Cylinder assembly part No.:	Installed on engine models:
	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
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 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

Engine models:	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).

TABLE 2—ENGINES INSTALLED ON, BUT NOT LIMITED TO—Continued

Engine models:	Installed on, but not limited to:
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: Vipam (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: Vipam (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 .....	Lyon.
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. Avioliight: 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).

TABLE 2—ENGINES INSTALLED ON, BUT NOT LIMITED TO—Continued

Engine models:	Installed on, but not limited to:
	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: Decathlon (8KCAB-CS).
AEIO-320-E2B .....	Bellanca Aircraft. Champion Aircraft: Decathlon (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).

TABLE 2—ENGINES INSTALLED ON, BUT NOT LIMITED TO—Continued

Engine models:	Installed on, but not limited to:
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.: HIO-360-B1A (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.

TABLE 2—ENGINES INSTALLED ON, BUT NOT LIMITED TO—Continued

Engine models:	Installed on, but not limited to:
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.
O-540-E4A5 .....	Maule: Star Rocket (MX-7-235), Super Rocket (M-6-235), Super Std. Rocket (M-7-235). 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.

TABLE 2—ENGINES INSTALLED ON, BUT NOT LIMITED TO—Continued

Engine models:	Installed on, but not limited to:
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-K1A .....	Piper Aircraft.

**Unsafe Condition**

(d) This AD results from reports of 45 failures with head separations of ECi cylinder assemblies. 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**

(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 Cylinder Assemblies Not Replaced Since New**

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

**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 used ECi cylinder assemblies, P/N AEL65102, with cylinder head, PN AEL85099, with a SN 1138-02 through SN 35171-22, or a SN 35239-01 through SN 37016-28, installed.

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

(3) If the cylinder assemblies are ECi, P/N AEL65102, and if the serial number is not listed in this AD, no further action is required.

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

**Group "A" Cylinder Assemblies**

(i) For Group "A" cylinder assemblies:

(A) Perform an initial visual inspection as specified in paragraphs (h) through (j) of this AD, and an initial compression test as specified in paragraphs (k) through (o) 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 (j) of this AD, and an initial compression test as specified in paragraphs (k) through (o) of this AD, before exceeding 350 operating hours TIS, 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 (j) of this AD, and repetitive compression tests as specified in paragraphs (k) through (o) 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**

(ii) For Group "B" cylinder assemblies:

(A) Perform an initial visual inspection as specified in paragraphs (h) through (j) of this AD, and initial compression test as specified in paragraphs (k) through (o) of this AD, within an additional 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 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.

(j) Information on cylinder assembly visual inspection can be found in ECi Mandatory Service Bulletin (MSB) No. 08-1, Revision 3, dated August 19, 2008.

**Cylinder Assembly Compression Test**

(k) Compression test the cylinder assembly.

(l) Information on cylinder assembly compression testing can be found in ECi MSB No. 08-1, Revision 3, dated August 19, 2008.

(m) 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.

(n) 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.

(o) Repair or replace the engine cylinder assembly before further flight if the cause of the low gauge reading in paragraph (m) of this AD is from leaking intake or exhaust valves, or from leaking piston rings.

**Prohibition of ECi Cylinder Assemblies Affected by This AD**

(p) After the effective date of this AD, do not install any ECi cylinder assembly, P/N AEL65102, with cylinder head, P/N AEL85099, and with SN 1138-02 through SN 35171-22, or SN 35239-01 through SN 37016-28, onto any engine, and do not attempt to repair or reuse these ECi cylinder assemblies.

**Alternative Methods of Compliance**

(q) 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**

(r) 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**

(s) ECi Mandatory Service Bulletin No. 08-1, Revision 3, dated August 19, 2008, pertains to the subject of this AD.

(t) 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 September 5, 2008.

**Peter A. White,**

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

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**BILLING CODE 4910-13-P**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 71**

[Docket No. FAA-2008-0366; **Airspace Docket No. 08-ANM-5**]

**Establishment of Class E Airspace; Weiser, ID**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** This action will establish Class E airspace at Weiser Municipal

Airport, Weiser, ID. Controlled airspace is necessary to accommodate aircraft using a new Area Navigation (RNAV) Global Positioning System (GPS) Standard Instrument Approach Procedure (SIAP) at Weiser Municipal Airport, Weiser, ID. This will improve the safety of Instrument Flight Rules (IFR) aircraft executing the new RNAV GPS SIAP at Weiser Municipal Airport, Weiser, ID.

**DATES:** *Effective Date:* 0901 UTC, November 20, 2008. The Director of the Federal Register approves this incorporation by reference action under 1 CFR part 51, subject to the annual revision of FAA Order 7400.9 and publication of conforming amendments.

**FOR FURTHER INFORMATION CONTACT:** Eldon Taylor, Federal Aviation Administration, Operations Support Group, Western Service Area, 1601 Lind Avenue, SW., Renton, WA 98057; telephone (425) 203-4537.

**SUPPLEMENTARY INFORMATION:**

**History**

On June 16, 2008, the FAA published in the **Federal Register** a notice of proposed rulemaking to establish controlled airspace at Weiser, ID (73 FR 33940). Interested parties were invited to participate in this rulemaking effort by submitting written comments on the proposal to the FAA. No comments were received.

Class E airspace designations are published in paragraph 6005 of FAA Order 7400.9R signed August 15, 2007, and effective September 15, 2007, which is incorporated by reference in 14 CFR part 71.1. The Class E airspace designations listed in this document will be published subsequently in that Order.

**The Rule**

This action amends Title 14 Code of Federal Regulations (14 CFR) part 71 by establishing Class E airspace at Weiser, ID. Additional controlled airspace is necessary to accommodate IFR aircraft executing a new RNAV (GPS) approach procedure at Weiser Municipal Airport, Weiser, ID.

The FAA has determined that this regulation only involves an established body of technical regulations for which frequent and routine amendments are necessary to keep them operationally current. Therefore, this regulation: (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) does not warrant preparation of a regulatory evaluation as the anticipated

impact is so minimal. Since this is a routine matter that will only affect air traffic procedures and air navigation, it is certified that this rule, when promulgated, will not have a significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. The FAA’s authority to issue rules regarding aviation safety is found in Title 49 of the U.S. Code. Subtitle 1, Section 106 discusses the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency’s authority. This rulemaking is promulgated under the authority described in Subtitle VII, Part A, Subpart I, Section 40103. Under that section, the FAA is charged with prescribing regulations to assign the use of airspace necessary to ensure the safety of aircraft and the efficient use of airspace. This regulation is within the scope of that authority as it establishes controlled airspace at Weiser Municipal Airport, Weiser, ID.

**List of Subjects in 14 CFR Part 71**

Airspace, Incorporation by reference, Navigation (air).

**Adoption of the Amendment**

■ In consideration of the foregoing, the Federal Aviation Administration amends 14 CFR part 71 as follows:

**PART 71—DESIGNATION OF CLASS A, B, C, D, AND E AIRSPACE AREAS; AIR TRAFFIC SERVICE ROUTES; AND REPORTING POINTS**

■ 1. The authority citation for 14 CFR part 71 continues to read as follows:

**Authority:** 49 U.S.C. 106(g), 40103, 40113, 40120; E. O. 10854, 24 FR 9565, 3 CFR, 1959-1963 Comp., p. 389.

**§ 71.1 [Amended]**

■ 2. The incorporation by reference in 14 CFR 71.1 of the Federal Aviation Administration Order 7400.9R, Airspace Designations and Reporting Points, signed August 15, 2007, and effective September 15, 2007 is amended as follows:

*Paragraph 6005. Class E airspace areas extending upward from 700 feet or more above the surface of the earth.*

\* \* \* \* \*

**ANM ID, E5 Weiser, ID [New]**

Weiser Municipal Airport, ID (Lat. 44°12’17” N., Long. 116°57’38” W.)

That airspace extending upward from 700 feet above the surface within a 6-mile radius of Weiser Municipal Airport.

\* \* \* \* \*