

**97-26-17 Teledyne Continental Motors and Rolls-Royce, plc: Amendment 39-10260.  
Docket 93-ANE-08. Supersedes AD 87-23-08, Amendment 39-5735.**

{New-98-1}

Applicability: Teledyne Continental Motors (TCM) IO-360, LTSIO-360, TSIO-360, IO-520, LIO-520, LTSIO-520 and TSIO-520 series reciprocating engines built on or prior to December 31, 1980; rebuilt TCM IO-360, LTSIO-360, TSIO-360, IO-520, LIO-520, LTSIO-520 and TSIO-520 series reciprocating engines with serial numbers lower than those listed in TCM Critical Service Bulletin (SB) No. CSB96-8, dated June 25, 1996; TCM factory overhauled IO-360, LTSIO-360, TSIO-360, IO-520, LIO-520, LTSIO-520 and TSIO-520 series reciprocating engines with serial number of 901203H and lower; and Rolls-Royce, plc IO-360 and TSIO-360 series reciprocating engines with any serial number. These engines are installed on but not limited to the following aircraft: Raytheon (formerly Beech) models 95-C55, 95-C55A, D55, D55A, E55, E55A, 58, 58A, 58P, 58PA, 58TC, 58TCA, S35, V35, V35A, V35B, E33A, E33C, 35-C33A, 36, A36, F33A, F33C and A36TC; Bellanca model 17-30A; Cessna models 172XP, A185, A188, T188C, 206, T206, 207, T207, 210, T210, P210, 310R, T310P, T310Q, T310R, 320D, 320E, 320F, 336, 337, T337, P337, 340, 401, 402, 414 and T41B/C; Colemill conversion of Commander 500A; Goodyear Airship Blimp 22; Maule Model M-4-210, M-4-210C, M-4-210S, M-4-210T, and M-5-210C; Mooney model M20-K; Navion model H; Pierre Robin HR 100; The New Piper Aircraft, Inc. (formerly Piper Aircraft Company) models PA28-201T, PA28R-201T, PA28RT-201T, PA34-200T and PA34-220T; Prinair Dehavilland Heron; Reims models FR172, F337 and FT337; and Swift Museum Foundation, Inc. models GC-1A and GC-1B equipped with the IO-360 engine.

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

Compliance: Required as indicated, unless accomplished previously.

To prevent crankshaft failure and subsequent engine failure, accomplish the following:

(a) At the next engine overhaul, or whenever the crankshaft is next removed from the engine, after the effective date of this AD, whichever occurs first, determine if the crankshaft was manufactured using the airmelt or vacuum arc remelt (VAR) process in accordance with the identification procedure described in TCM Critical SB No. CSB96-8, dated June 25, 1996. If the crankshaft was manufactured using the airmelt process or if the manufacturing process is unknown, remove the crankshaft from service and replace with a serviceable crankshaft manufactured using the VAR process.

(b) For all TCM IO-360, LTSIO-360, TSIO-360, IO-520, IO-520, LTSIO-520 and TSIO-520

and Rolls-Royce, plc IO-360 and TSIO-360 engine models that have VAR crankshafts installed, regardless of serial number; at the next and every subsequent crankshaft removal from the engine case or installation of a replacement crankshaft, prior to crankshaft installation in the engine, conduct an ultrasonic inspection of the crankshaft in accordance with the procedures specified in TCM Mandatory SB No. MSB96-10, dated August 15, 1996, and, if necessary, replace with a serviceable part.

Note 2: Accomplishment of the ultrasonic inspection required by this AD does not fulfill any requirements for magnetic particle inspection or any other inspections specified in TCM or Rolls-Royce, plc overhaul manuals.

(c) The ultrasonic inspection of the crankshaft must be performed by a non-destructive test (NDT) ultrasonic (UT) Level II inspector who is qualified under the guidelines established by the American Society of Nondestructive Testing or MIL-STD-410 or FAA-approved equivalent, or must be trained by TCM personnel or their designated representative on how to accomplish and conduct this inspection procedure. The person approving the engine for return to service is required to verify that the UT inspection was accomplished in accordance with the requirements of this paragraph.

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

Note 3: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the Atlanta Aircraft Certification Office.

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

(f) The actions required by this AD shall be done in accordance with the following TCM service documents:

Document No.	Pages	Date
CSB96-8.....	1-6	June 25, 1996.
Total pages: 6.		
MSB96-10.....	1-3	August 15, 1996.
Total pages: 3.		

This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Teledyne

Continental Motors, P.O. Box 90, Mobile, AL 36601; telephone (334) 438-3411. Copies may be inspected at the FAA, New England Region, Office of the Assistant Chief Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(g) This amendment becomes effective on January 23, 1998.