

# CONSIGNE DE NAVIGABILITE

définie par la DIRECTION GENERALE DE L'AVIATION CIVILE

*Les examens ou modifications décrits ci-dessous sont impératifs. La non application des exigences contenues dans cette consigne entraîne l'inaptitude au vol de l'aéronef concerné.*

## TELEDYNE CONTINENTAL MOTORS

### Moteurs à pistons séries -360 et -520

Remplacement du vilebrequin

#### 1) MATERIELS CONCERNES :

**Moteurs à pistons TELEDYNE CONTINENTAL types suivants :**

- Moteurs neufs produits avant le 31/12/1980 : IO-360, LTSIO-360, TSIO-360, IO-520, LIO-520, LTSIO-520, TSIO-520.
- Moteurs reconstruits comportant un numéro de sérialisation inférieur à ceux indiqués dans le SB n° CSB 96-8 du 25/06/1996 : IO-360, LTSIO-360, TSIO-360, IO-520, LIO-520, LTSIO-520, TSIO-520.
- Moteurs révisés en usine comportant un numéro de sérialisation dans la tranche des 901Z03H et inférieur : IO-360, LTSIO-360, TSIO-360, IO-520, LIO-520, LTSIO-520, TSIO-520.
- Moteurs ROLLS-ROYCE IO-360, TSIO-360 tous numéros de sérialisation.

#### 2/ ACTIONS :

Les prescriptions techniques de l'A.D FAA 97-26-17 annexée sont rendues impératives. Elles concernent le remplacement des vilebrequins de fabrication non "VAR" (mention précisée sur la fonderie du vilebrequin).

#### 3/ DELAIS D'APPLICATION :

A la prochaine révision générale du moteur ou lors de la prochaine dépose du vilebrequin (à la première des deux échéances).

#### 4/ Références :

- AD FAA 97-26-17
- SB TCM CSB 96-8
- SB TCM MSB 96-10

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Cette CN remplace la CN 87-174-IMP(AB).

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**DATE D'ENTREE EN VIGUEUR : 21 FEVRIER 1998**

d/AK

Date : 11/02/98

**TELEDYNE CONTINENTAL MOTORS**  
**Moteurs à pistons séries -360 et -520**

**98-077-IMP(A)**

**BW 98-01  
TELEDYNE CONTINENTAL  
AIRWORTHINESS DIRECTIVE  
ENGINE  
SMALL AIRCRAFT & ROTORCRAFT**

**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.

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, POLTRONE AVIOINTERIORS34-200T and POLTRONE AVIOINTERIORS34-220T; 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 (Airworthiness Directive) 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 Airworthiness Directive. For engines that have been modified, altered, or repaired so that the performance of the requirements of this Airworthiness Directive is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (d) of this Airworthiness Directive. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this Airworthiness Directive; 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 Airworthiness Directive, 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 TELEDYNE CONTINENTAL MOTORS Critical Service Bulletin 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 TELEDYNE CONTINENTAL MOTORS IO-360, LTSIO-360, TSIO-360, IO-520, LIO-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 TELEDYNE CONTINENTAL MOTORS Mandatory Service Bulletin No. MSB96-10, dated August 15, 1996, and, if necessary, replace with a serviceable part.

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Note 2: Accomplishment of the ultrasonic inspection required by this Airworthiness Directive does not fulfill any requirements for magnetic particle inspection or any other inspections specified in TELEDYNE CONTINENTAL MOTORS 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 Non destructive Testing or MIL-STD-410 or FAA-approved equivalent, or must be trained by TELEDYNE CONTINENTAL MOTORS 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 (888) 826-5874. 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.