SERVICE BULLETIN

SB24-05

Contains important information pertaining to your aircraft engines.
Compliance Will Enhance Safety

TECHNICAL PORTIONS
FAA APPROVED

SUBJECT: Continental® PRIME engine cylinder and valve assemblies, Part No. 658804 and 658836

PURPOSE: Notify owners, operators, distributors, and maintenance facilities of a potential cylinder assembly discrepancy.

COMPLIANCE: Within 50 operating hours, or the next cylinder maintenance event

MODELS AFFECTED: IO-370-C1F, IO-370-CL, IO-370-CM, IO-370-D3A, IO-370-DA3A type certified engines and spare parts purchased for those engine models.
Listed Continental engine cylinders may have been assembled with the incorrect valve guides between August 2023 and January 2024. The suspect cylinder valve assembly serial numbers are provided in Section II

I. GENERAL INFORMATION

Continental discovered a number of engine cylinders assembled with the incorrect valve guides. Incorrectly assembled cylinder assembly component dimensional stack-up indicates the incorrectly installed valve guides may interfere with valve travel and the installed valve keys.

The affected engines must be partially disassembled in order to measure the height of the installed valve guide in the cylinder head. To minimize labor, instructions are provided to inspect the valve guides on the engine. Refer to Serial Number Locations depicted in Figure 1 to determine where to look for the Serial Number on the assembly.

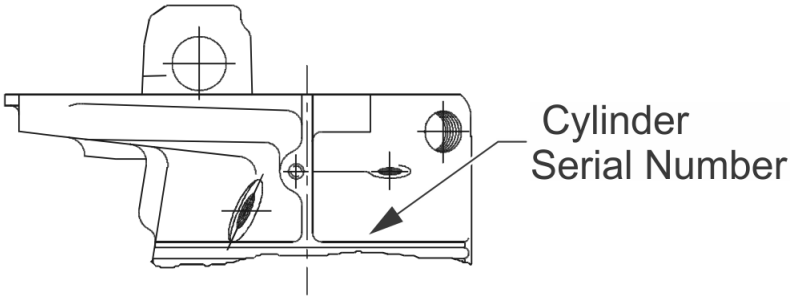

Figure 1. Cylinder Marking Locations

CONTINENTAL AEROSPACE TECHNOLOGIES
P.O. Box 90 Mobile, AL 251.436.8299

II. AFFECTED SERIAL NUMBERS

Engine cylinder valve assemblies with serial numbers listed below may have been incorrectly assembled. Inspect the valve guides according to the instructions provided. This bulletin only applies to cylinders manufactured between the dates specified in the **Models Affected** paragraphs above.

Table 1. Parallel Valve Serial Numbers

Part No. 658804

AC23HA827	AC23JA247	AC23JA258	AC23JA270	AC23JA284	AC23JA790
AC23JA216	AC23JA249	AC23JA259	AC23JA271	AC23JA285	AC23JA793
AC23JA222	AC23JA250	AC23JA260	AC23JA272	AC23JA286	AC23JA795
AC23JA223	AC23JA252	AC23JA262	AC23JA273	AC23JA288	AC23JA799
AC23JA225	AC23JA255	AC23JA264	AC23JA274	AC23JA781	AC23JA800
AC23JA241	AC23JA256	AC23JA266	AC23JA279	AC23JA783	AC23JA802
AC23JA246	AC23JA257	AC23JA268	AC23JA281	AC23JA784	

Part No. 658836

AC20AA569	AC23GA460	AC23GA788	AC23GA836	AC23GB023	AC23GB099
AC22FA692	AC23GA463	AC23GA795	AC23GA840	AC23GB071	
AC23GA453	AC23GA471	AC23GA797	AC23GA849	AC23GB073	
AC23GA455	AC23GA472	AC23GA798	AC23GA855	AC23GB076	
AC23GA456	AC23GA473	AC23GA830	AC23GA858	AC23GB078	
AC23GA457	AC23GA476	AC23GA835	AC23GB022	AC23GB082	

III. SAFE FOR MAINTENANCE

Before performing any engine maintenance, perform the following steps to avoid the possibility of an uncommanded engine start.

WARNING

To Prevent the Possibility of Serious Bodily Injury or Death, Verify the following conditions prior to performing any Inspection, Repair or Movement of the Propeller:

Aircraft Master Power and Magneto Switches.....OFF

Fuel Selector Valve .....OFF

Throttle Position ..... CLOSED

Mixture Control..... IDLE/CUTOFF

Set Brakes and Place Wheel Chocks Forward and Aft of the Main Landing Gear Tires; Install Aircraft Tie-Downs and Verify Cabin Door Latch is OPEN. Do Not Stand or Place Equipment in the Arc of the Propeller.

IV. CYLINDER DISASSEMBLY

Inspection of the cylinders may be accomplished on the aircraft, using a section of nylon rope to keep the valves from falling into the combustion chamber. Alternatively, the cylinders may be removed from the engine and disassembled at a workbench.

Special Tools or Supplies Required

- Aircraft Tool Supply Part No. 3602 (or equivalent) Valve Spring Compressor
- Eight (8) feet of clean, braided 3/8” diameter nylon rope
- Mechanical fingers - optional
- 0.25-0.35” OD telescoping retrieval magnet - optional

Aircraft Tool Supply
Part Number 3602
Valve Spring Compressor

Figure 2. Valve Spring Compressor

1. Prepare a clean work area to accommodate the removed rocker covers, rocker arms, and associate hardware.
2. Remove the aircraft cowling and baffling necessary to gain access to the cylinders according to the aircraft manufacturers instructions.
3. Disconnect the ignition harness from the top spark plugs in each cylinder according to the engine Instructions for Continued Airworthiness (ICA).
4. Remove the top spark plugs from each cylinder according to the engine ICA.
5. Remove the rocker covers and gasket from each cylinder according to the engine ICA; discard the rocker cover gasket.

NOTE: The rocker arm shaft is easier to remove from the cylinder head when tension is removed from the rocker arm.

6. Rotate the crankshaft in the normal direction of rotation until the piston of the cylinder to be worked on is at bottom dead center (BDC) - both valves will be closed. When the valves close, the rocker arm foot will be near even with the ball and the valve springs will be extended.
7. Remove the rocker shaft thrust buttons from each end of the rocker shaft.
8. Remove the rocker shaft from rocker boss.
9. Remove the intake and exhaust rocker arms from the cylinder and set aside. Mark the cylinder and location (INT or EXH) from which the rocker was removed.

10. Remove the pushrods from the pushrod tubes and mark the location from which they were removed. Place protective plugs in the openings of the pushrod tubes to avoid contamination.

11. Tie a large knot approximately 8 inches from one end of the braided rope. Carefully insert the remaining long section of 3/8 inch braided rope through the upper spark plug hole in to the cylinder, leaving the knotted end outside of the spark plug hole.

12. Slowly rotate the crankshaft in the normal direction until the piston compresses the rope against the valves.

13. Compress the valve springs using an Aircraft Tool Supply Valve Spring Compressor Part No. 3602 (Figure 3). Remove the valve keys from the valve stem (Figure 3) and remove the valve springs from the lower valve spring retainers.

Figure 3. Compress Valve Springs with Valve Spring Compressor

NOTE: After inspection, the valve, springs and retainers (if serviceable) must be re-installed in the same locations from which they were removed.

14. Remove the intake or exhaust valve upper retainer, valve springs, and lower valve spring retainers. Identify location and position from which the parts are removed for re-assembly.

15. Proceed to the INSPECTION instructions in “Section V” to determine if the valve guides are the correct part number for the installation.

16. Repeat steps 6 through 15 for each cylinder to inspect the installed valve guide configuration.

V. INSPECTION

Measure the distance from the top of the intake and exhaust valve guide flange (Figure 4) to the tip of the valve guides. The design measurements are listed in Table 2. If the *exposed* portion of the valve guides installed in the *parallel valve* cylinders measures *greater than* the defined dimension in Table 2, the valve guide is suspect.

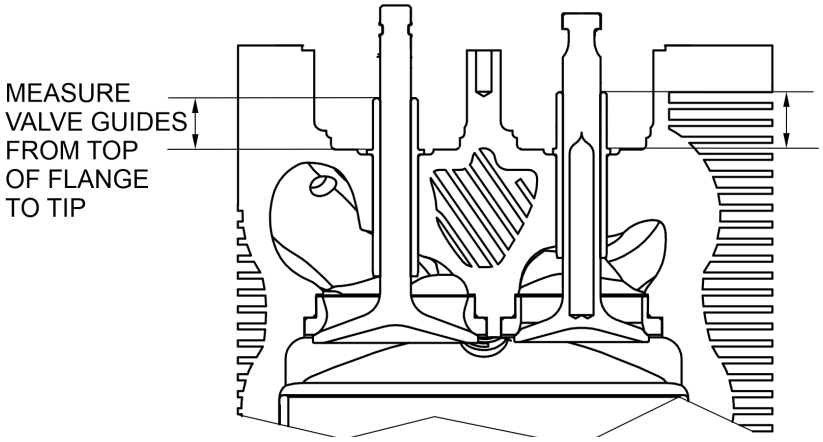

Figure 4. Measure Valve Guides

Table 2. Installed Valve Guide Dimensions

	Parallel Valve	
	INTAKE	EXHAUST
Part No.	AEL61681	AEL74230HC
Full Length	2.300-2.320	2.140-2.160
Exposed	0.650-0.685	0.710-0.760

If the valve guide measurement ***is not*** within the dimensional limits, the installed valve guide is the incorrect part number for the assembly - Remove and replace the cylinder valve assembly, rocker arms, rocker shaft and valve keys. If the valve guide measurement is within specifications, proceed to instructions in Section VI.

VI. VALVE SPRING AND ROCKER ARM INSTALLATION

NOTE: If assembling the valve springs for core return, the removed valve keys may be used for temporary cylinder assembly. New valve keys are required for return to service.

1. Install the valve springs and retainers with *new* valve keys according to the engine ICA.
2. Rotate the crankshaft in the opposite direction of rotation to relieve pressure from the rope and remove the rope from the combustion chamber.
3. If the valve guide passed inspection, proceed with reassembly according to the engine ICA. If the valve guide measurement was not within specification, replace the cylinder according to the engine ICA.
4. Inspect removed spark plugs for serviceability and obtain replacements, if necessary.
5. Install spark plugs in top spark plug holes according to the engine ICA.

6. Reconnect the ignition harness to the top spark plugs according to the engine ICA.

VII. FOLLOW-ON MAINTENANCE

1. Perform an engine start and ground run-up according to the engine ICA. Perform any engine adjustments necessary after cylinder installation.
2. If one or more cylinders are replaced, perform an engine break-in according to the engine ICA to ensure rings are properly seated. Verify oil consumption returns to normal levels after engine break-in is complete.

VIII. WARRANTY

Standard warranty practices apply. Visit the Continental web site at www.continental.aero to obtain copies of Continental Warranty Policies. Continental reserves the right to request copies of invoices and maintenance records to verify warranty applicability.

Complete and email a copy of the linked Compliance Form, along with a copy of the work invoice (*and a copy of the repair agency's W-9 if the repairs are accomplished by a repair facility in the Continental United States*) upon completion for reimbursement. Continental reserves the right to request copies of invoices and maintenance records to verify warranty applicability.

A. Allowances/Reimbursements

Eligible Allowance / Reimbursement Type	Labor Hours[1]
Inspect cylinder valve train configuration	**2.0**
Remove and replace cylinder valve assembly (per cylinder, per side of engine; first cylinder)	**4.0**
Remove and replace cylinder valve assembly (per cylinder; second and subsequent cylinder on the same side as the first)	**2.0**

1. Not to exceed allowable hours at published shop rate

B. Contact Us

Contact Continental Technical Services at one of the numbers listed below if you have any questions concerning the technical content of this Service Document.

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