

**SERVICE BULLETIN****SB19-07**

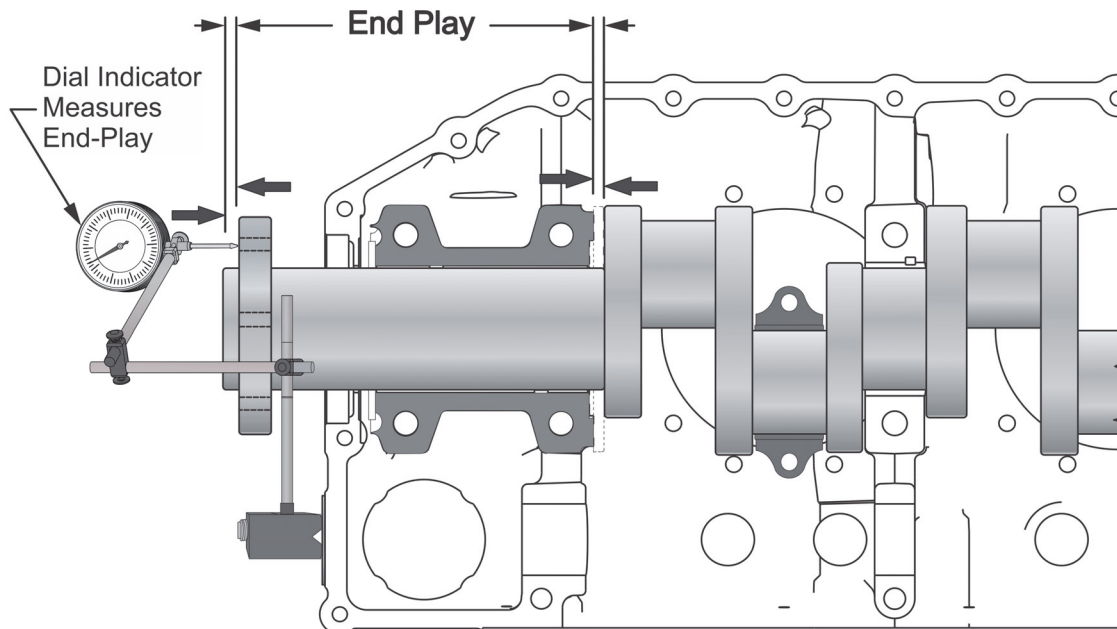
Compliance Will Enhance Safety

**TECHNICAL PORTIONS  
FAA APPROVED****SUBJECT:** Crankshaft End Play Check**PURPOSE:** Recommended crankshaft end play inspection for installed engines**COMPLIANCE:** Perform inspection no later than the next scheduled 100-Hour/Annual inspection.**MODELS****AFFECTED:** Continental O-200, IO-240, IO-360, TSIO-360, O-470, IO-470, GTSIO-520, IO-520, TSIO-520, IO-550, TSIO-550 aviation gasoline (AvGas) engines identified by serial number in Table 1, Affected Engines**I. GENERAL INFORMATION**

Continental Aerospace Technologies™ (Continental®) has seen evidence of excessive crankshaft end play for a limited production of engines (reference Table 1 on page 2) produced between 1 OCT 2018 and 1 JAN 2019. Continental employs a crankcase thrust washer design to reduce wear directly on the crankcase thrust face surface. Crankshaft “end play” is measured as the clearance between the crankcase thrust washer and the axial mating surface of the crankshaft (see Figure 1).

**II. SCOPE**

If crankshaft end play exceeds the limits shown in Table 2 on page 4, conditions exist which may propagate premature engine wear. Assess oil contamination; check for evidence of abnormal amounts of aluminum in the oil filter (reference Section III, “INSPECTIONS”) and perform a standard check for crankshaft end play on installed engines.



**Figure 1. Measuring End Play (section view, for reference only)**

**Table 1. Identified Engine Serial Numbers, produced between 1 OCT 2018 and 1 JAN 2019**

Engine Model/Spec.	Serial Numbers
0200D3B	1036572
0470R76B	1036629
0470R78B	1037117
0470R81B	1036605
GTSI0520L6B	1036631
I0240B32B	1036574
I0240B32B	1036576
I0360DB21B	1036507
I0520BB79B	1036691
I0520CB8B	1037014
I0550B128B	1036817
I0550B80B	1036601
I0550B82B	1036415
I0550B82B	1036567
I0550B82B	1036599
I0550B89B	1036598
I0550B89B	1036630
I0550B89B	1036830
I0550C49B	1036917
I0550C49B	1036979
I0550C72B	1036586
I0550C72B	1036607
I0550C72B	1036608
I0550C72B	1036818
I0550D13B	1036529
I0550D15B	1036523
I0550G10B	1036904
I0550L6B	1036606
I0550N68B	1036502
I0550N68B	1036544
I0550N68B	1036547
I0550N68B	1036588
I0550N68B	1036609
I0550N68B	1036610
I0550N68B	1036611
I0550N68B	1036612
I0550N68B	1036613
I0550N68B	1036696
I0550N68B	1036920
I0550N68B	1036921
I0550N68B	1036923

Engine Model/Spec.	Serial Numbers
I0550N68B	1037128
R-0470J11F	1036466
R-0470R74B	1036842
R-0470U18B	1036773
R-GTSI0520L3B	1036417
R-GTSI0520L3B	1036423
R-I0240B32B	1036626
R-I0240B32B	1036871
R-I0360ES27B	1036737
R-I0360KB6B	1036677
R-I0470L21B	1036495
R-I0520BB65B	1036578
R-I0520BB87B	1036561
R-I0520CB31B	1036489
R-I0520CB31B	1036494
R-I0520CB8B	1036777
R-I0520D112B	1036888
R-I0520D172B	1037110
R-I0520F13B	1037021
R-I0520F17B	1036543
R-I0520F56B	1036521
R-I0520F64B	1036560
R-I0520L46B	1036731
R-I0520L47B	1036510
R-I0520MB1B	1036771
R-I0520MB1B	1036772
R-I0550B82B	1036562
R-I0550B82B	1036914
R-I0550B83B	1036441
R-I0550D24B	1036535
R-I0550D27B	1036401
R-I0550G5B	1036686
R-I0550N41B	1036571
R-I0550N41B	1036836
R-I0550N41B	1036893
R-I0550N43B	1036517
R-I0550N43B	1036589
R-I0550N55B	1036482
R-I0550N68B	1036570
R-I0550N68B	1036713
R-I0550N68B	1036715

Engine Model/Spec.	Serial Numbers
R-I0550N6B	1036584
R-I0550N7B	1036795
R-TSI0360EB23B	1036766
R-TSI0360FB15B	1036563
R-TSI0360FB9B	1036676
R-TSI0360MB2B	1036409
R-TSI0520R9B	1036750
R-TSI0520VB10F	1036531
R-TSI0520VB10F	1036753
R-TSI0520VB9F	1036530
R-TSI0550C20B	1036436
TSI0520C6B	1036717
TSI0520M7B	1036805
TSI0520NB5B	1036635
TSI0520R9B	1036573
TSI0520R9B	1036806
TSI0520VB9F	1036591
TSI0550K1B	1036534
TSI0550K1B	1036541
TSI0550K1B	1036552
TSI0550K1B	1036559
TSI0550K1B	1036614
TSI0550K1B	1036615
TSI0550K1B	1036616
TSI0550K1B	1036617
TSI0550K1B	1036702
TSI0550K1B	1036799
TSI0550K1B	1036800
TSI0550K1B	1036814
TSI0550K1B	1036820
TSI0550K1B	1036821
TSI0550K1B	1036823
TSI0550K1B	1036825
TSI0550K1B	1036903
TSI0550K1B	1036928
TSI0550K1B	1036952
TSI0550K1B	1036972
TSI0550N1B	1036926

### III. INSPECTIONS

#### A. Safety Preparations

1. Turn off the Ignition Switch and Master Power Switch according to the aircraft manufacturer's instructions. Turn the fuel selector valve to the **OFF** position and disconnect engine electrical power according to the aircraft manufacturer's instructions.
2. Remove engine compartment cowling and aircraft accessories that obstruct access to measuring the crankshaft end play (face of the crankshaft flange) according to the aircraft manufacturer's instructions.
3. Remove the propeller, spinner and back-plate according to the aircraft manufacturer's primary ICA, if required to position dial indicator gauge head.

NOTE: If a vertical surface attached to the crankcase is accessible (spinner back-plate, De-ice ring, rear of crankshaft prop flange, etc.), the inspection may be performed without removing the propeller.

#### B. Oil Inspection

1. If oil analysis has been performed prior to the date of this service bulletin, review the analysis report(s) for findings of high or abnormal amounts of aluminum.
2. Remove the oil filter and perform an oil filter inspection according to the instructions in M-0, "Standard Practice Maintenance Manual", Section 6-4.8.2.3. Assess and record any evidence of high or abnormal amounts of aluminum material present within the filter.

#### WARNING

**Turn the ignition switch off, verify continuity between the magneto capacitor and aircraft ground, and disconnect engine electrical power prior to commencing any engine maintenance. Turn off the fuel supply to the engine. Do not stand or place equipment within the arc of the propeller.**

NOTE: As each part is disconnected and removed it must be identified. Photographs can be a valuable asset for orientation of parts and components during engine re-assembly.

#### C. Verify Crankshaft End Play

The following procedure allows end play measurement with the engine installed in the aircraft. Ensure the crankshaft end play does not exceed specified limits (reference Table 2, "Crankshaft End Play Limits," on page 4).

NOTE: Crankshaft end play is to be measured in an assembled and torqued crankcase. Figure 1 section view is representative and should be used for reference only.

1. Secure a dial indicator (M-0, Standard Practice Maintenance Manual, Chapter 2-1) to the front of the crankcase (see Figure 1, the magnetic base shown is for reference only).
  - a. If vertical surface attached to the crankcase is accessible (spinner back plate, De-ice ring, rear of crankshaft prop flange, etc.), the inspection can be performed without removing the propeller.
  - b. If mounting the dial indicator can not be properly achieved without removing the propeller, the propeller must be removed.

2. Move the crankshaft to the rear of the engine as far as possible.
3. Position the dial indicator gauge head (contact point) to the vertical face of the crankshaft prop flange (see Figure 1) or an accessible vertical surface attached to the crankshaft prop flange and set the gage to read “0.”
4. Slide the crankshaft to the front of the engine as far as possible.
5. Record dial indicator end play measurement.
  - a. If end play exceeds the limits defined in Table 2, it may be necessary to disassemble the crankcase and examine the crankcase and/or crankshaft for wear, damage, or to replace any unserviceable components. Contact Continental Customer Service Department directly at 1(800) 326-0089 for further instructions.
  - b. If end play is within limits (see Table 2), remove the dial indicator and reinstall (if removed) the propeller, spinner and back-plate according to the aircraft manufacturer's primary ICA. If the propeller was removed, perform a Leak Check according to M-0 “Standard Practice Maintenance Manual”, Section 6-4.11.2.3.

**Table 2. Crankshaft End Play Limits**

Engine Model	Maintenance / Overhaul Manual	Section
GTSIO-520	X30045	Table of Limits, Section B-2
IO-240	M-6	Appendix D
IO-360	M-7	Appendix D
IO-470	X30588	Table of Limits, Section 72-30-17
IO-520	M-11	Table of Limits
IO-550	M-16	Appendix D
O-200	M-2	Appendix D
O-470	X30586	Table of Limits, Section 72-30-17
TSIO-360	M-8	Appendix D-7
TSIO-520	X30574	Table of Limits, Section 72-30-16
TSIO-550	M-18	Appendix D

6. If any equipment was removed to gain inspection access, continue with engine assembly according to the primary Instructions for Continued Airworthiness (ICA). Install any removed engine compartment cowling and aircraft accessories according to the aircraft manufacturer's instructions.
7. Turn the fuel selector valve to the **ON** position and connect engine electrical power according to the aircraft manufacturer's instructions.
8. Perform ground run-up to normal operating temperature according to the Airplane Flight Manual/ Pilot’s Operating Handbook (AFM/POH) published by the aircraft manufacturer.
9. Create the appropriate logbook entries detailing compliance actions taken in accordance with this Service Bulletin, SB19-07. If there is no evidence of high or abnormal amounts of aluminum in the oil filter and the crankshaft end play is within specification, return to service.

#### IV. WARRANTY

Standard warranty practices apply. Visit the Continental web site at [www.continental.aero](http://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.

##### A. Allowances/Reimbursements

Eligible Allowance / Reimbursement Type	Labor Hours <sup>1</sup>	Parts
Oil filter inspection	inc.	inc.
Crankshaft end play inspection	1	inc.

1. at published shop rate

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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