

**SERVICE BULLETIN****SB20-06**

Compliance Will Enhance Safety

**TECHNICAL PORTIONS  
FAA APPROVED****SUBJECT:** Hydraulic Lifter Assemblies**PURPOSE:** Inspect and replace affected hydraulic lifter assemblies (Part No. 657912) or lifter sockets (Part No. 657917) shipped by Continental between *17 January 2019* and *22 October 2020*.**COMPLIANCE:** Inspection upon notification of this service bulletin and replacement by next 100-Hour, Annual, or Progressive inspection, or maintenance event.**MODELS****AFFECTED:** Continental Aerospace Technologies new or rebuilt C90; C125; C145; 0200A, B, C, D; 0300A, B, C, D; G0300A, B, C, D, and RR C90; RR 0200A, B, C; RR 0300A, B, C, D aviation gasoline (AvGas) engines assembled, overhauled or repaired with affected 657912 lifter assemblies or 657917 lifter sockets.**I. GENERAL INFORMATION**

The supplier of Continental hydraulic lifters (Part No. 657912) has identified manufacturing lots (see Table 3) received by Continental between *17 January 2019* and *22 October 2020*, where the lifter socket (Part No. 657917) does not meet the specified hardness required by the engineering design specifications. The socket assembly may develop wear signatures, increasing dry valve lash beyond serviceable tolerance. Our records indicate sixty-seven (67) new or rebuilt, engines, listed by serial number in Table 1 were assembled using the suspect hydraulic lifter assemblies. Affected new, rebuilt, and overhauled engine serial numbers follow:

**Table 1. Affected New/Rebuilt Engine Model Specifications/Serial Numbers**

<b>0200A48B</b>	<b>0200D4B</b>	1039692	1038184	1039546	1038735
1037222	1038008	<b>0200D6B</b>	1038359	1039747	1038932
1037553	<b>0200D5B</b>	1037185	1038526	1039748	1038934
<b>0200A75B</b>	1037974	1037605	1038686	<b>R-0200A48B</b>	1039013
1037565	1039591	1037606	1038691	1037164	1039014
<b>0200A88B</b>	1039592	1037607	1038761	1037255	1039125
1037561	1039594	1037614	1038952	1037307	1039233
<b>0200D3B</b>	1039595	1037845	1039029	1037374	1039244
1036582	1039596	1037861	1039031	1038069	1039554
1037157	1039684	1037862	1039032	1038226	1039537
1037158	1039685	1038181	1039370	1038319	
1037159	1039686	1038182	1039371	1038402	
1037215	1039687	1038183	1039545	1038623	

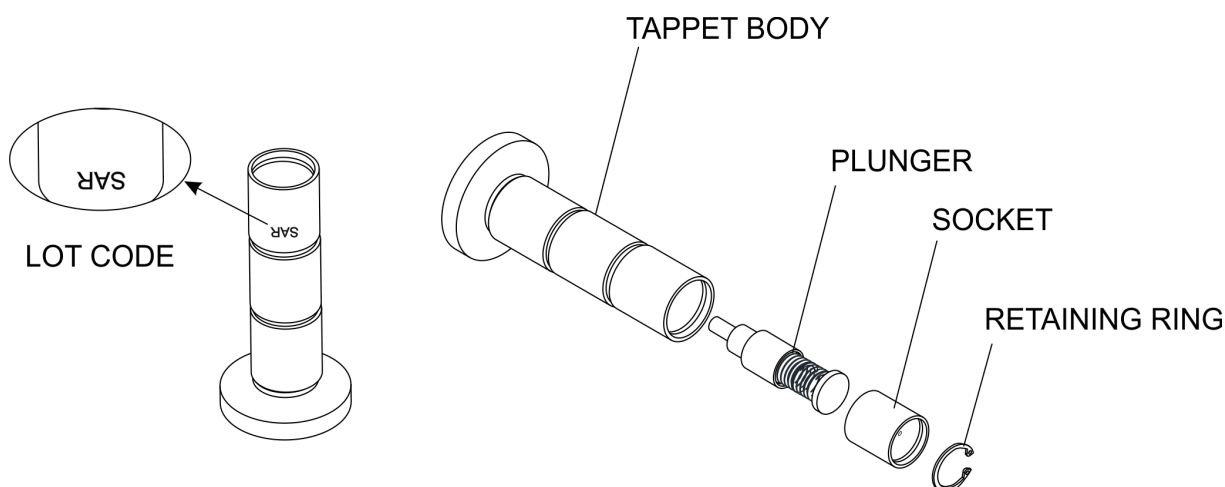
Nine (9) engines, listed in Table 2, were overhauled by Continental Services in Fairhope, AL, USA using the affected units. The same identification and inspection criteria described in Section II and Section III applies to these overhauled engine serial numbers.

**Table 2. Overhauled Engine Model Specifications/Serial Numbers**

0200A48B	252321	0200A57A	0200A84E	0200A
205452	253148	275903	252183	1033091
230986	253490	--	--	--
251472	--			

## II. IDENTIFICATION

The suspect nonconforming hydraulic lifter sockets have no identifying marks. A lot code is etched near the top of the lifter bodies (see Figure 1). The lot code is visible in the crankcase with the pushrod housings and pushrod adapters removed from the crankcase and the camshaft rotated to the top of the lobe. Affected lifter assemblies lots, listed in Table 3 contain the suspect sockets. Lifter assemblies (Part No. 657912) with these lot codes must be removed from inventory and service unless the socket is replaced.



**Figure 1. Lot Code Marking Location**

**Table 3. Affected Part No. 657912 Lifter Assembly Lot Codes**

<b>SAR</b>	<b>SFR</b>	<b>SLR</b>	<b>SDS</b>
<b>SBR</b>	<b>SGR</b>	<b>SMR</b>	<b>SES</b>
<b>SCR</b>	<b>SHR</b>	<b>SAS</b>	
<b>SDR</b>	<b>SJR</b>	<b>SBS</b>	
<b>SER</b>	<b>SKR</b>	<b>SCS</b>	

The supplier has reworked a limited quantity of lifters by replacing the affected sockets to expedite corrective action. If the lifter is identified with a lot code from Table 3, but a single punch mark (Figure 2) is present on the neck, lifter rework has been accomplished.



**Figure 2. Reworked Lifter Identification**

### III. ENGINE INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

To determine serviceability of the hydraulic lifter sockets, perform a dry valve lash inspection upon notification of this service bulletin (SB20-06). Replace the affected lifter sockets (or affected lifters) prior to, or during, the next scheduled inspection. Unless stated herein, instructions in the applicable engine Maintenance and Overhaul instructions listed in Table 4 will be used to accomplish the tasks necessary to replace the hydraulic lifter sockets or lifter assemblies.

**Table 4. Engine Instructions for Continue Airworthiness**

Engine Model	Overhaul Manual
All AvGas engines	M-0
C90; 0200A, B, C	X30010
0200D	M-2
C125, 145; 0300A, B, C, D	X30013
G0300A, B, C, D	X30019

### IV. CORRECTIVE ACTION

#### A. Service Spares

For all Part No. 657912 service spares in inventory, inspect the units on hand for the lot codes identified in Section II and return them to Continental. Continental will replace the affected hydraulic lifter assemblies on a one-for-one basis.

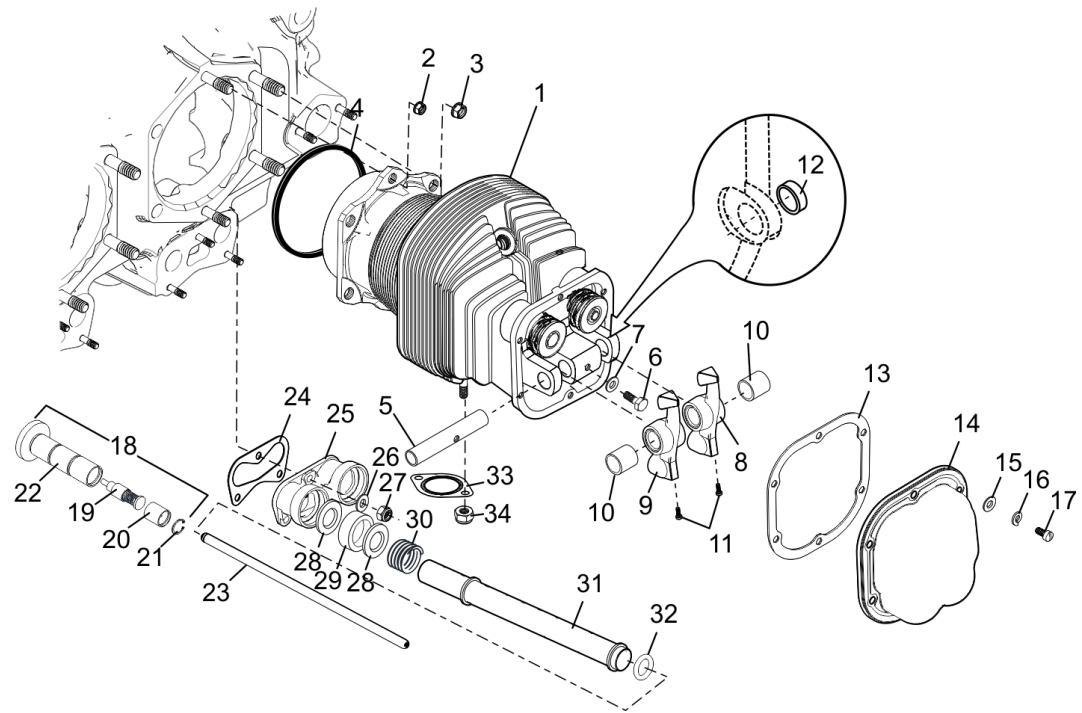
#### B. Units Installed in Engines

For the engine models listed in Table 1 and Table 2, and engine models retrofitted with removable pushrod housings, inspect the hydraulic lifter dry valve lash according to the instruction in the applicable manual(s) listed in Table 4. If dry valve lash is within tolerance, record compliance with the valve lash inspection and replace the socket (or lifter) during the next 100-Hour, Annual, or Progressive inspection or maintenance event. Sockets may be replaced by removing the valve train and pushrod housings from the cylinder.

For engine models with cylinders (Cylinder Assembly Part Numbers based on 639702, A50222, 641916, 641917, 649543, 653426, 654377, 655483, 657455, 658319) featuring swaged pushrod housings (Part No. 21284), socket replacement is not practical, engine overhaul is required. See engine removal and overhaul instructions in the applicable manual listed in Table 4.

1. Position the throttle to idle, mixture control to idle cutoff, and the fuel selector to the off position. Position the ignition switch to off and ground the magnetos.
2. Remove engine cowling and baffling to access the crankcase below the cylinders.
3. Remove the ignition harness from the spark plugs and remove the top spark plugs from the cylinders.
4. Remove the rocker covers from each cylinder discard the rocker cover gaskets.
5. Remove the intake and exhaust rocker arms from each cylinder, noting the position from which they are removed.

6. Withdraw the pushrods from the pushrod tubes, noting the position from which they are removed.
7. Use a pushrod spring compressor to compress the pushrod housing springs and withdraw the pushrod tubes from the cylinders. Discard the pushrod housing seals and O-ring; retain the springs and washers.
8. Remove the pushrod adapter and gasket from the crankcase, discard the gasket.
9. Rotate the camshaft to expose each lifter, in turn, to determine the lot code (See Section II) of the installed hydraulic lifters. If the lot code matches the lots identified in Section II, proceed with the remaining steps. If the lot code does not match the affected units, proceed to step 13 for reassembly.
10. Remove the retaining ring from the hydraulic lifter assembly, discard the retaining ring.
11. With the retaining ring removed, the socket should rise above the tappet body. Remove the socket from the tappet body.



**Figure 3. 4.062 Inch Cylinder Assembly**

**Table 5. Cylinder Assembly**

1	Cylinder Assembly	13	Gasket, Rocker Cover	25	Adapter- Pushrod
2	Nut, Flanged	14	Cover, Valve Rocker	26	Washer, Plain
3	Nut, Flanged	15	Washer, Plain	27	Nut, Self Locking
4	Packing, Cylinder Base	16	Washer, Lock	28	Washer, Plain
5	Shaft Valve Rocker	17	Bolt	29	Seal-Pushrod Housing
6	Bolt	18	Lifter Assy - Hydraulic	30	Spring-Pushrod Housing
7	Washer, Plain	19	Plunger	31	Housing-Pushrod
8	Intake Rocker Arm	20	Socket-Hyd Lifter	32	Seal-"O" ring
9	Exhaust Rocker Arm	21	Ring-Snap	33	Gasket-Exhaust Flange
10	Bushing - Valve Rocker	22	Hydraulic Tappet Body	34	Nut, Self Locking

### Table 5. Cylinder Assembly

- |    |                            |    |                         |
|----|----------------------------|----|-------------------------|
| 11 | Screw, Drive               | 23 | Tube Assy, Pushrod      |
| 12 | Bushing, Rocker Shaft Boss | 24 | Gasket, Pushrod Housing |

12. Install the new hydraulic lifter socket in the tappet body and compress the assembly until the snap-ring groove is visible. Install the new retaining ring in the groove and release tension on the socket. Verify the retaining ring is securely seated in the groove. Repeat for all hydraulic lifter locations.

NOTE: Bleed the hydraulic lifter assembly by compressing the socket to expel oil from the lifter body. This facilitates valve train assembly and dry valve lash measurement. A one inch long, 0.050" diameter rod may be inserted in the center of the socket to relieve hydraulic unit pressure.

13. Reinstall the pushrod adapters with new gaskets.
14. Install the pushrods, valve train, and rocker covers.
15. Inspect dry valve lash, side clearance and rocker arm to retainer clearance according to the engine ICA.
16. Reinstall spark plugs and ignition harness.
17. Reinstall baffling and cowling according to the aircraft manufacturer's instructions.
18. Perform a normal engine start and ground run up to verify normal engine operation and check for leaks.
19. Record compliance with SB20-06 in the engine log book.

## V. WARRANTY

The actions required to comply with this Service Document are covered, up to the Eligible Allowance provided for reimbursement, as shown below. Standard warranty practices apply. Visit the Continental web site at [www.continental.aero](http://www.continental.aero) to obtain copies of Continental Warranty Policies.

Entering the lifter lot codes in the “Details and Description” block, 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*) immediately upon completion for reimbursement. Return the suspect lifter assemblies (or sockets) to Continental for reimbursement - Contact customer service for RMA. Continental reserves the right to request copies of invoices and maintenance records to verify warranty applicability.

### Allowances/Reimbursements

Eligible Allowances for Reimbursement (parts <u>not installed</u> in engines)		Labor Hours <sup>1</sup>
1	Inspect available inventory for affected hydraulic lifter assemblies (as required, according to this Service Document, SB20-06 )	0.25

1. at published shop rate

Eligible Allowances for Reimbursement (installed in engine models with removable pushrod housings)		Labor Hours <sup>1</sup>
1	Remove valve train, remove pushrod housings, remove pushrod adapters, inspect for lot code, and replace affected hydraulic lifter sockets, and reassemble (as required, according to this Service Document, SB20-06 )	5

1. at published shop rate

Eligible Allowances for Reimbursement (installed in engine models with swaged pushrod housings)		Labor Hours <sup>1</sup>
1	Remove engine, disassemble, inspect, replace hydraulic lifter assemblies, reassemble and install engine (as required, according to this Service Document, SB20-06 )	60

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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