

Airworthiness Directive Schedule

Engines

Continental IO-470 Series and O-470 Series

28 September 2023

Notes: 1. This AD schedule is applicable to the following Continental engine series:

Engine Series:	FAA Type Certificate:
IO-470-A/ -C	E-273
IO-470 Series	3E1
O-470 Series	E-273

2. The Federal Aviation Administration (FAA) is the National Airworthiness Authority (NAA) responsible for the issue of State of Design Airworthiness Directives (ADs) for these engines.

State of Design ADs can be obtained directly from the FAA website at: [Dynamic Regulatory System \(faa.gov\)](https://www.faa.gov/regulatory-system)

3. The date above indicates the amendment date of this schedule.

4. New or amended ADs are shown with an asterisk *

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State of Design ADs listed below are available directly from the National Airworthiness Authority (NAA) websites. Links to NAA websites are available on the CAA website at https://www.aviation.govt.nz/aircraft/airworthiness/airworthiness-directives/links-to-state-of-design-airworthiness-directives/ If additional NZ ADs need to be issued when an unsafe condition is found to exist in an aircraft or aeronautical product in NZ, they will be added to the list below.		
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DCA/CON/125A Cylinders P/N 626820 - Inspection

Applicability: IO-470-D, -E, -F, -H, -L, -M, -N, -S, -U, -V; TSIO-470-B, -C, -D which have installed 'non-H' cylinder assemblies P/N 686820 and 'H' cylinder assemblies manufactured or re-manufactured prior to April 1963.

Background: To preclude additional in-flight failure of the above cylinder assemblies the FAA has issued AD 72-20-02.

Requirement: Compliance with the FAA AD is required, except that the effective date shall be read as 31 May 1973 and para A(2) shall be read to require the inspections to be made by an appropriately licensed aircraft maintenance engineer; except that pilots may make the inspection for aircraft which are not engaged on air transport operations. (FAA AD 72-20-02 and Continental SB T235 refer)

Compliance: Within the next 25 hours TIS and thereafter at intervals not exceeding 25 hours TIS until DCA/CON/130 is accomplished.

Effective Date: 30 November 1968

DCA/CON/130 Cylinder P/N 626820 - Replacement

Applicability: IO-470-D, -E, -F, -H, -L, -M, -N, -S, -U, -V; TSIO-470-B, -C, -D which have installed 'non-H' cylinder assemblies P/N 686820 and 'H' cylinder assemblies manufactured or re-manufactured prior to April 1963.

Background: To preclude additional in-flight failure of the above cylinder assemblies the FAA has issued AD 72-20-02.

Requirement: Compliance with the FAA AD is required, except that the effective date shall be read as 31 May 1973.

Compliance: At next overhaul.

Effective Date: 31 December 1972

DCA/CON/143 Turbocharger Oil Inlet Adapter - Inspection

Applicability: Models TSIO-470-B, -C, -D; TSIO-520-B, -D, -E; GTSIO-520-C, -D, -F, -H, -J, and -K engines as listed in FAA AD 75-09-13.

Requirement: FAA AD 75-09-13.
(Rolls Royce SB T-302 and TCM M75-8 also refer)

Compliance: 1. Inspect within the next 25 hours TIS and at intervals not exceeding 25 hours TIS until aluminium adapter is replaced with a steel adapter.
2. Replace by 1 May 1976.

Effective Date: 2 May 1975

DCA/CON/148 Oil Pressure Relief Valve - Inspection

- Applicability:** New O-470, IO-470, IO-520, TSIO-520, GTSIO-520 series engines, and Rebuilt IO-346, 6-285, O-470, IO-470, IO-520, TSIO-520, GTSIO-520 series engines with S/N detailed in Rolls Royce SB T-386.
- Also all listed model engines regardless of S/N which have had oil pump assembly oil pressure relief valve screw and/or plunger changed in service during period 1 April 1978 through 5 January 1979.
- Note:** TCM SB M79-2 pertains to the subject of this AD.
- Requirement:** Inspect oil pressure relief valve housing per Rolls Royce SB T-386 and replace any components not conforming with required design. (FAA AD 79-05-09 refers)
- Compliance:** Within the next 50 hours TIS.
- Effective Date:** 6 April 1979

DCA/CON/158 Oil Filter - Removal

- Applicability:** All model IO-360, TSIO-360, O-470, IO-470, TSIO-470, IO-520, TSIO-520, GTSIO-520 and IO-550 series engines with TCM P/N 649309 or 649310 (Pro-Tech) oil filters.
- Requirement:** To prevent possible loss of oil and subsequent engine failure, remove affected oil filters from service per TCM SB M88-4. (FAA AD 88-03-06 refers)
- Compliance:** Within the next 25 hours TIS, unless already accomplished.
- Effective Date:** 8 April 1988

DCA/CON/161 Oil Filter - Removal

- Applicability:** Models IO-360, L/TSIO-360, IO-346, L/IO-470, TSIO-470, IO-520, L/TSIO-520, 6-285, IO-550, and GTSIO-520 series engines, which are installed on, but not limited to the following aircraft: Beech models C33, E33, F33, S35, V35, A36, 36, A36TC, A23, C55, D55, E55, 58, and 58TC; Cessna models R172K, 180 (S/N 53087 and up), 182 (S/N 67042 and up), F182 (S/N 00130 and up), 185 (S/N 03852 and up), 188 (S/N 03474 and up), T188 (S/N 03474 and up), 206 (S/N 05030 and up), 207 (S/N 05227 and up), T207 (S/N 05227 and up), 210 (S/N 63363-63375 and up), T210 (S/N 63373-63375 and up), P210 (S/N 278 and up), T303, 310, 320, P337, T337, 340, 401, 402, 414 series; Mooney Aircraft Corp models M20K and M20K-252TSE series; and Piper models PA-36, PA-28R-201T, PA-28-201T, PA-46-310P, PA-34-200T and PA-34-220T aircraft fitted with Champion P/N CH48108 or CH48109.
- Requirement:** To prevent operation with collapsed oil filter elements which may result in loss of oil pressure and engine failure accomplish the following:
- Inspect the engine oil filter, Champion P/N CH48108 or CH48109, and determine the date code of the filter printed on the side of the exterior. Remove from service any filter bearing any of the following date codes prior to further flight: All three digit date codes with "9" as the third digit, or date codes 3J8, 4J8, 1K8, 2K8, 3K8, 4K8, 2L8, 1M8, 1AO, or 2AO. (FAA AD 91-19-03 refers)
- Compliance:** By 29 December 1991
- Effective Date:** 29 November 1991

DCA/CON/163 Valve Retainer Key Installation - Inspection

Applicability: Continental O-200, O-300, IO/TSIO/LTSIO-360, O/IO/TSIO-470, IO/TSIO/LTSIO/GTSIO-520, and IO/TSIO/TSIOL-550 series engines listed by S/N in TCM Mandatory Service Bulletin (MSB) 93-12 that have less than 25 hours TIS.

Also engines that contain cylinder assemblies purchased from TCM between 29 July 1992 and 30 March 1993 and have less than 25 hours TIS since cylinder installation.

Affected cylinders are installed on but not limited to: Aeronca Models 15AC and S15AC; American Champion (Bellanca) Models 7ACA and 402; Beagle Model 206S; Beech Models Debonaire, Bonanza, and Baron; Bellanca Models 14-19, 14-19-2, 14-19-3, 14-19-3A, 17-30, 17-31, and 17-31TC; Cessna Models 150, 170, 172, 180, 182, 185, 188, 205, 206, 207, 210, 303, 310, 320, 335, 336, 337, 340, 401, 402, 404, 414, 421, and T41; Aero Commander Models 200, 500, and 685; Champion Models Citabria and Lancer; Maule Models Bee Dee M-4, M-4, M-4C, M-4S, M-4T, M-4-210, M-4-210C, M-4-210S, M-4-210T, and M-5-210C; Mooney Models 231 and 252; Navion series; Piper Models Arrow, Seneca, and PA46-310P; and Taylorcraft Model F-19 aircraft.

Requirement: To prevent engine failure due to a missing cylinder valve retainer key accomplish the following:-

Visually inspect each cylinder per TCM MSB 93-12. If a valve retainer is missing, or if a rotocoil, if applicable, is improperly installed, repair or replace the cylinder per the applicable TCM overhaul manual before further flight.
(FAA AD 93-10-02 refers)

Compliance: Before further flight.

Effective Date: 28 May 1993

DCA/CON/165 Oil Pick-Up Installation - Inspection

Applicability: Teledyne Continental Motors (TCM) rebuilt and overhauled Model O-470, IO-470, IO-520, TSIO-520 and IO-550 series engines listed by S/N in TCM SB M91-10, Revision 1.

Requirement: To prevent engine failure inspect engines for an incorrect oil pick-up tube per TCM SB M91-10, Revision 1. If an incorrect oil pick-up tube is installed, prior to further flight remove the oil pick-up tube and oil sump, and replace with serviceable parts.
(FAA AD 93-08-17 refers)

Compliance: Within next 50 hours TIS.

Effective Date: 3 September 1993

DCA/CON/171 Inclined Valve Cylinder Rocker Shaft Retention - Modification

Applicability: Models O-470, IO-470, IO-520, IO-550, TSIO-520 AND TSIOL-550 series, except; O-470-A, -E and -J, IO-550-G, L/TSIO-520-BE.

Requirement: To improve rocker shaft retention on engines with inclined valve cylinders and prevent engine failure, modify per Teledyne Continental SB M92-6.

Compliance: At next complete top or engine overhaul.

Effective Date: 19 January 1996

DCA/CON/173 Superior Air Parts Inc Pistons - Removal

Applicability: Models O-470-K, -L, and -R fitted with Superior Air Parts Inc pistons, P/N SA626992 or SA626992P15.

Requirement: To prevent piston failure, possible engine failure and loss of the aircraft, accomplish the following:-

Remove pistons, P/N SA626992 and SA626992P15, from service. The affected pistons can be identified by either a stamped-in P/N on the piston dome (P/N SA626992 or SA626992P15) or by a raised casting number (SA632932) along one of the piston pin bosses on the underside of the piston.
(FAA AD 96-12-04 refers)

Compliance: At the next access to the piston, top overhaul, or major overhaul, whichever occurs first.

Effective Date: 2 August 1996

DCA/CON/174 Oil Filter Adapter Assemblies - Inspection

Applicability: Cessna engine oil filter adapter assemblies, P/N 0450404-(all dash numbers), 0556004-(all dash numbers), 0556010-(all dash numbers), 0756023-(all dash numbers), 0756024-(all dash numbers), 1250403-(all dash numbers), 1250417 -(all dash numbers), 1250418-(all dash numbers), 1250921-(all dash numbers) and 1250922-(all dash numbers).

These may be installed on, but not limited to the following Teledyne Continental Motors series engines:

O-200, O-470, IO-470, TSIO-470, O-520, IO-520, TSIO-520, GTSIO-520, IO-550 and TSIO-550.

This airworthiness directive does not apply to engine oil filter adapter assemblies manufactured by Teledyne Continental Motors.

Requirement: To prevent loss of engine oil caused by loose or separated oil filter adapters, which could result in engine stoppage, accomplish the following:-

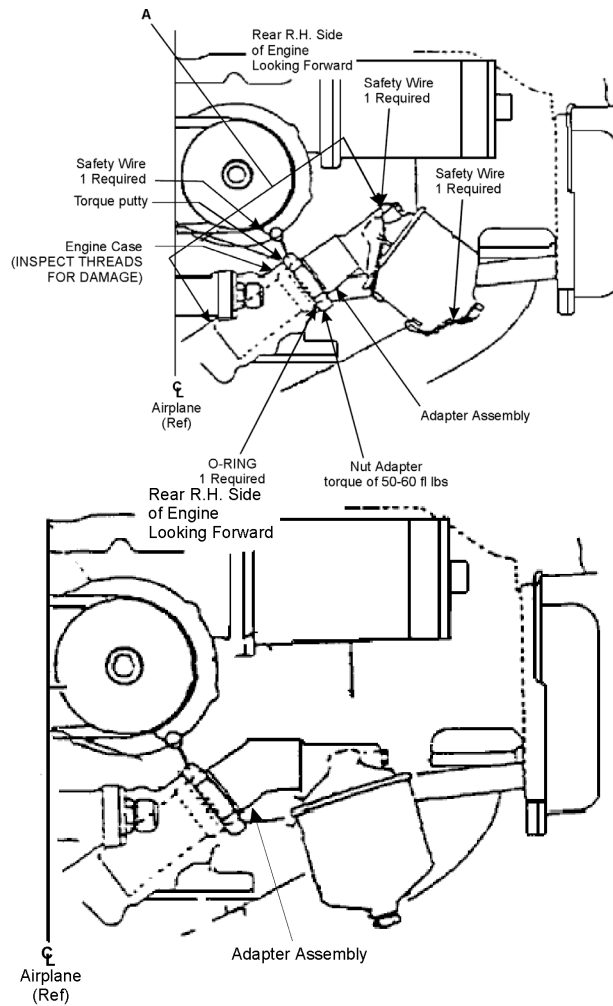
1. For oil filter adapter assemblies that do not have torque putty between the engine filter adapter assembly, nut, and oil pump housing, accomplish the following:

- (a) Inspect the adapter locking nut installation for evidence of oil leakage.
- (b) Check the torque of the adapter nut installation and ensure that the torque value is within the limits of 50 through 60 foot pounds.
- (c) If evidence of oil leakage is found or the torque is not within the 50 through 60 foot pound limit, prior to further flight, remove the adapter and filter assembly, and:
 - (i) Inspect the threads of the adapter assembly and engine for signs of damaged or cracked threads; and
 - (ii) Replace any adapter assembly and engine oil pump housing (if necessary) that have evidence of thread damage or cracks.
- (d) Apply torque putty between the engine filter adapter assembly, nut, and oil pump housing as specified in the diagram.
- (e) Reassemble the engine oil filter assembly.

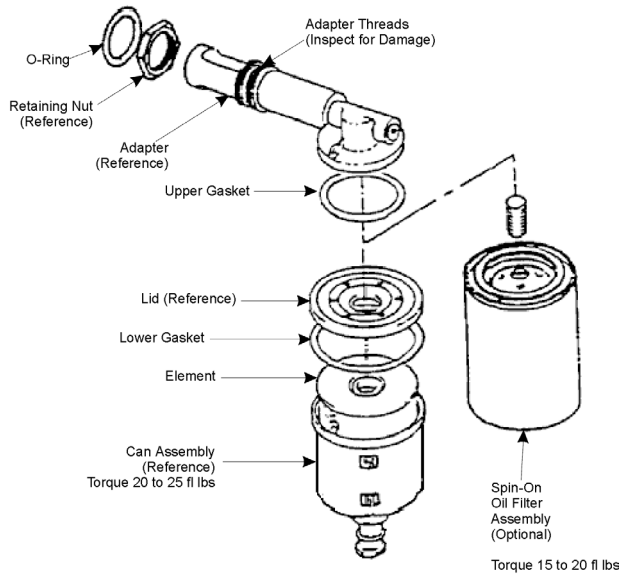
2. For oil filter adapter assemblies that do have torque putty between the engine filter adapter assembly, nut, and oil pump housing, inspect the torque putty for misalignment, evidence of oil leakage, or cracks.

If any misalignment, evidence of oil leakage, or torque putty cracks are found, prior to further flight, accomplish the requirements specified in paragraph (1) of this AD, including all subparagraphs.

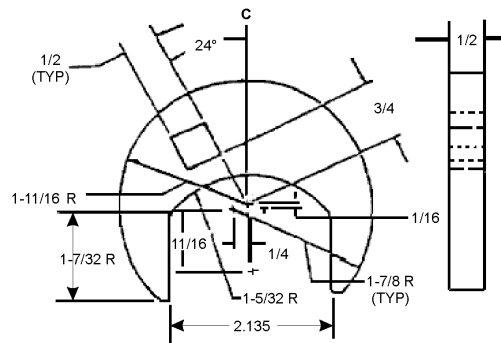
Note: Replacing the engine oil filter adapter assembly does not eliminate the repetitive inspection requirement of this AD.
(FAA AD 96-12-22 refers)



Manufactured by Teledyne
Continental Motors
Not Applicable to This AD



DETAIL A



ALL DIMENSIONS ARE INCHES

MATERIAL: 4130 (Rc. 35-38)

TOOL NUMBER SE709 IS AVAILABLE FROM THE CESSNA SERVICE PARTS CENTER

Snap-On crows foot P/N AN8508-34A have ground down the ends for clearance

Compliance: Comply with requirement 1 within the next 100 hours TIS or when the engine oil filter is removed, whichever occurs first. Thereafter accomplish requirement 2 every time the oil filter is removed.

Effective Date: 2 August 1996

DCA/CON/175A Cylinders - Removal

Applicability: Teledyne Continental Motors new and rebuilt Model O-470 and IO-470 series engines with S/N listed in Table 1 of TCM Critical Service Bulletin (CSB) CSB97-10A, dated July 15, 1997; and TCM Model E-165, E-185, E-225, O-470 and IO-470 series engines, regardless of S/N, which have cylinder(s) with P/N and purchase date as shown in Table 2 of TCM CSB97-10A.

These engines are installed on but not limited to the following aircraft: Cessna Models 180, 180A through K, 182, 182A through R, 185, 185A through E, 188, 188A, 188B, 210, 210A through C, 210-5 (205), 210-5A (205A), 310, 310A through Q; Fletcher Models FU-24 and FU-24A; Raytheon (formerly Beech) Models 35, A35 through P35, 95-55, 95-55A, 95-B55, 95-B55A and 95-B55B; and Twin Commander Aircraft, Inc. Model 500-A.

Note: Owners that have removed affected cylinders in accordance with DCA/CON/175 and TCM CSB97-10, dated June 19, 1997, are in compliance with this AD and no further action is required.

Requirement: To prevent extreme side loading of the piston, and consequent failure of the piston and engine, accomplish the following:-

1. For the TCM O-470 and IO-470 series engines listed by S/N in Table 1 of TCM CSB97-10A.

Remove from service the cylinders, six each, and the piston pins, six each, per the Inspection Instructions, Part 2-1(a) of TCM CSB97-10A.

Obtain serviceable replacement parts and reassemble the engine per the Inspection Instructions, Part 2-2 of TCM CSB97-10A.

2. For the E-165, E-185, E-225, series engines and those O-470 and IO-470 series engines not listed by S/N in Table 1 of TCM CSB97-10A.

Determine from engine log books or maintenance records if a cylinder has been replaced with a cylinder purchased in the time frames shown in Table 2 of TCM CSB97-10A.

If a cylinder was not replaced with a cylinder purchased during those time frames listed in the CSB, or if a cylinder is identified with the letter "M" or "P" steel stamped after the cylinder position number, as cylinders marked with "M" or "P" have a surface finish that has been found to be within specification, no further action is required. The cylinder position number is located at the 12 o'clock position on the cylinder mounting flange.

If a cylinder has been replaced with a cylinder purchased during those time frames listed in the CSB, remove from service the affected cylinders and piston pins per the Inspection Instructions, Part 2-1(a) of TCM CSB97-10A.

Obtain serviceable replacement parts and reassemble the engine per the Inspection Instructions, Part 2-2 of TCM CSB97-10A.
(FAA AD 97-21-02 refers)

Compliance: Within next 10 hours TIS.

Effective Date: DCA/CON/175 - 25 July 1997
DCA/CON/175A - 21 November 1997

DCA/CON/176A Cancelled - Refer to Continental Motors Publication M-O

Note: DCA/CON/176A mandated the part replacement requirements in Teledyne Continental SB97-6B. The AD and the SB identified certain parts to be replaced at the next and each subsequent engine overhaul. Continental Motors advised that SB97-6B is no longer active. The requirements in SB97-6B have now been incorporated into the Continental Aircraft Engine Maintenance Manual - Standard Practice for Spark Ignited Engines, Publication M-O.

Effective Date: 27 June 2019

DCA/CON/178 STC SE8594SW Exhaust Roller Rocker Arms - Removal

Applicability: The following engine models with Performance Engineering exhaust roller rocker arms, P/N PE92E, installed per Supplemental Type Certificate (STC) SE8594SW.

Models IO-520-A, -B, -BA, -C, -CB, -D, -E, -F, -K, -L, -M, -MB, -J; TSIO-520-A, -B, -D, -E, -F, -G, -H, -J, -K, -L, -M, -N, -P, -R, -T, -U, -UB, -AF, -CE, -VB, -WB, -NB, -LB, -KB, -JB, -EB, -DB, -BB; O-470-B, -G, -K, -L, -M, -P, -R, -S, -U; IO-470-C, -D, -E, -F, -G, -H, -L, -M, -N, -P, -R, -S, -U, -V; and IO-550-B, -C, and -G series engines.

Requirement: To prevent exhaust roller rocker arm failure, which may result in possible engine failure, accomplish the following:-

Remove from service all Performance Engineering exhaust roller rocker arms, P/N PE92E, and replace with serviceable parts, as follows:

For IO-520, TSIO-520, O-470, IO-470, and all IO-550 series engines except the IO-550-G, replace with serviceable TCM exhaust roller rocker arms, P/N 652130.

For IO-550-G series engines, replace with serviceable TCM exhaust roller rocker arms, P/N 652966.
(FAA AD 98-01-08 refers)

Compliance: Within next 25 hours TIS.

Effective Date: 13 February 1998

DCA/CON/179 Repaired Crankshafts - Inspection

Applicability: Models A-65, A65-3, A65-8, A75, A75-8, C75-12, C85, C85-8, C85-12, C90-8FJ, C90-12, O-200, O-200-A, O-300, O-300-D, IO-360-C, E-185-4, E-225-8, O-470, O-470-K, O-470-L, O-470-R, O-470-11, IO-470, IO-470-N, IO-470-S, IO-520, IO-520-D, GTSIO-520, and TSIO-520-VB reciprocating engines, with installed crankshafts repaired by Nelson Balancing Service, Bedford, Massachusetts, USA, Repair Station Certificate No. NB7R820J, between February 1, 1995, and December 31, 1997, inclusive, as listed (by work order (W/O)) in Table 1 of this AD.

Table 1

MODEL	W/O	DATE	ENGINE S/N
A-65	1152	1/25/96	
A-65	1154	2/7/96	7187
A-65	1183	2/22/96	
A-65	1185	3/28/96	
A-65	1233	6/23/96	
A-65	1290	10/29/96	
A-65	1296	11/14/96	4933868
A-65	1299	11/19/96	
A-65	1325	3/26/97	
A-65	1326	3/26/97	
A-65	1376	4/29/97	
A-65	1438	6/17/97	5890178
A-65-3	1243	8/13/96	324993
A-65-8	1541	12/2/97	

A-65-8	1276	10/5/96	5762568
A75	1156	2/7/96	5321868
A75	1255	9/3/96	
A75	1256	9/4/96	
A75-8	1275	10/5/96	5162868
C75-12F	1293	11/4/96	3316-6-12
C85	1088	10/4/95	
C85	1092	10/18/95	
C-85	1198	4/17/96	29652-7-8
C-85	1297	11/14/96	
C-85	1352	3/10/97	
C-85	1381	4/28/97	
C-85	1391	4/19/97	
C-85	1392	4/19/97	
C-85	1484	9/4/97	28487-6-12
C-85-8FJ	1139	1/17/96	29845-7-8
C-85-8FJ	1420	5/12/97	29465-7-8
C-85-12	1031	4/6/95	
C85-12	1182	3/18/96	21596-6-12
C-85-12	1217	5/15/96	
C85-12	1265	9/12/96	14657
C-85-12	1298	11/14/96	23610-6-12
C-90-8F	1471	9/6/97	42838-1-8
C-90-12	1279	10/7/96	44747-6-12
E-185-4	1124	1/16/96	25700D-1-9
E-225-8	1505	10/28/97	35477-D-9-8-P
GTSIO-520	1208	5/7/96	210114-70H
IO-360-C	1126	12/28/95	F-51439-9-C
IO-470	1028	3/23/95	87329-R
IO-470-N	1421	5/13/97	95271-1-N
IO-470-S	1331	3/11/97	102412-2-S-I
IO-520	1174	3/4/96	
IO-520-D	1167	2/22/96	
O-200	1033	4/18/95	
O-200	1043	5/12/95	
O-200	1049	6/2/95	
O-200	1076	9/11/95	214668-27A
O-200	1104	11/21/95	213830-71A
O-200	1131	1/5/96	
O-200	1142	1/18/96	265349-R
O-200	1147	1/23/96	
O-200	1190	4/13/96	
O-200	1193	4/13/96	
O-200	1195	4/13/96	
O-200	1197	4/17/96	
O-200	1213	5/13/96	
O-200	1261	9/9/96	
O-200	1303	12/5/96	
O-200	1321	2/7/97	28115
O-200	1324	2/6/97	
O-200	1344	3/2/97	
O-200	1393	5/5/97	
O-200	1413	5/7/97	61001-5-4
O-200	1430	5/23/97	
O-200	1437	6/17/97	255759A-48
O-200	1488	9/7/97	
O-200	1506	11/18/97	
O-200	1522	11/11/97	
O-200-A	1052	6/21/95	254150-A-48
O-200-A	1085	9/29/95	
O-200-A	1120	12/29/95	253971

O-200-A	1161	2/9/96	24R-469
O-200-A	1215	5/15/96	
O-200-A	1240	8/5/96	69589-8-A
O-200-A	1254	9/3/96	6105-71-A-R
O-200-A	1264	9/12/96	
O-200-A	1356	3/10/97	
O-300	1027	3/20/95	
O-300	1042	5/12/95	34012-D-6-D
O-300	1083	9/26/95	
O-300	1096	10/23/95	464481
O-300	1137	1/17/96	
O-300	1259	9/4/96	
O-300	1387	4/22/97	
O-300	1397	4/26/97	5928-9A
O-300	1403	4/28/97	
O-300	1423	6/9/97	3834D8Z
O-300	1555	1/13/98	
O-300-A	1446	6/27/97	
O-300-D	1022	3/17/95	35110-D-6-D
O-300-D	1079	9/17/95	24276-D-0-D
O-300-D	1487	9/6/97	
O-300-D	1543	12/3/97	
O-470	1046	6/1/95	
O-470	1383	4/4/97	
O-470-11	1017	2/22/95	
O-470-11	1491	10/19/97	
O-470-11	1492	10/19/97	
O-470-11	1493	10/19/97	
O-470-11	1494	10/19/97	
O-470-F	1236	7/25/96	76956-4-F
O-470-K	1087	10/3/95	47172-6-K
O-470-L	1128	1/10/96	68681-8-L
O-470-L	1359	5/19/97	68245-8-L
O-470-L	1399	4/28/97	
O-470-R	1016	2/10/95	133087-6-R
O-470-R	1086	10/3/95	
O-470-R	1165	2/22/96	
O-470-R	1178	3/10/96	
O-470-R	1201	6/2/96	83164-1-R
O-470-R	1319	1/6/97	459408
TSIO-520-VB	1055	6/9/95	

Requirement: To prevent crankshaft failure due to cracking, which could result in an inflight engine failure and possible forced landing, accomplish the following:

a) Determine if this AD applies, as follows:

1. Determine if any repair was conducted on the engine that required crankshaft removal during the February 1, 1995, to December 31, 1997, time frame; if the engine was not disassembled for crankshaft removal and repair in this time frame, no further action is required.

2. If the engine and crankshaft was repaired during this time frame, determine from the maintenance records (engine log book), and Table 1 of this AD if the crankshaft was repaired by Nelson Balancing Service, Repair Station Certificate No. NB7R820J, Bedford, Massachusetts, USA. The maintenance records should contain the Return to Service (Yellow) tag for the crankshaft that will identify the company performing the repair. Also the work order number contained in Table 1 of this AD was etched on the crankshaft propeller flange, adjacent to the closest connecting rod journal. Because some etched numbers will be difficult to see, if necessary, use a 10X magnifying glass with an appropriate light source to view the work order number. In addition, the propeller spinner, if installed, will have to be removed in order to see this number.

3. If it cannot be determined who repaired the crankshaft, compliance with this AD is required.
4. If the engine and crankshaft were not repaired during the time frame specified in a) 1, or if it is determined that the crankshaft was not repaired by Nelson Balancing Service, no further action is required.

b) Accomplish the following:

1. Perform a visual inspection as defined in paragraph b) 2 of this AD, magnetic particle inspection, and a dimensional check of the crankshaft journals, or remove from service affected crankshafts and replace with serviceable parts.
2. For the purpose of this AD, a visual inspection of the crankshaft is defined as the inspection of all surfaces of the crankshaft for cracks which include heat check cracking of the nitrided bearing surfaces, cracking in the main or aft fillet of the main bearing journal and crankpin journal, including checking the bearing surfaces for scoring, galling, corrosion, or pitting.

Note: Further guidance on all inspection and acceptance criteria is contained in applicable Overhaul or Maintenance Manuals.

3. Replace any crankshaft that fails the visual inspection, magnetic particle inspection, or the dimensional check with a serviceable crankshaft, unless the crankshaft can be reworked to bring it in compliance with:

- i) All the overhaul requirements of the appropriate Overhaul/Maintenance Manuals; or
- ii) All of the approved requirements for any repair station which currently has approval for limits other than those in the appropriate Overhaul/Maintenance Manuals.

4. For the purpose of this AD, a serviceable crankshaft is one which meets the requirements of paragraph b) 3 i) or b) 3) ii) of this AD.

Note: Crankshafts removed from engine models IO-360, IO-520, and TSIO-520 series engines are also subject to compliance with DCA/CON/177. (FAA AD 98-17-11 refers)

Compliance: By 25 October 1998

Effective Date: 25 September 1998

DCA/CON/181A Crankshafts Manufactured During 1998 - Inspection

Applicability: Model O-470, IO-470, TSIO-470, IO-520, TSIO-520, LTSIO-520, IO-550, TSIO-550, TSIOL-550, series new and rebuilt engines manufactured between January 1 1998, and December 31 1998, listed by S/N in TCM MSB 99-3C.

Also, GTSIO-520 series engines, listed by S/N in TCM CSB 99-6A.

Also any other TCM O-470, IO-470, TSIO-470, IO-520, TSIO-520, LTSIO-520, IO-550, TSIO-550, TSIOL-550, and GTSIO-520 series engines that were overhauled by facilities other than TCM, and that have had replacement crankshafts installed that were sold individually by TCM and were manufactured or rebuilt between January 1 1998, and December 31 1998. If inspections have been previously accomplished in accordance with earlier revision levels of TCM MSB 99-3 (previously CSB 99-3) or CSB 99-6, no further action is required.

Note: The engines and crankshafts that are the subject of this AD were manufactured or rebuilt by TCM during 1998. The dates that engines and crankshafts were delivered, however, may not coincide with their dates of manufacture.

Requirement: To prevent crankshaft failure due to crankshaft cheek cracks, which could result in total engine power loss, in-flight engine failure, and possible forced landing, accomplish the following:

Perform visual and ultrasonic (UT) inspections of the crankshaft for cracks per sections A and B of TCM 99-3C, or for the GTSIO-520 series engines, per sections A and B of TCM CSB 99-6A. These inspections must be performed by TCM representatives.

If a crack is found, replace the crankshaft with a serviceable crankshaft of the same P/N prior to further flight.

If no crack is found, reassemble the engine and return it to service.
(FAA AD 99-19-01 refers)

Compliance: Inspect within 10 hours TIS;

- Those engines listed by S/N on pages 3 through 12 of MSB 99-3C, or on pages 2 and 3 of TCM CSB 99-6A, with 500 hours or less TIS.
- Any other engine that was overhauled at a facility other than TCM and that has a crankshaft installed that was manufactured or rebuilt between January 1 1998 and December 31 1998, with 500 hours or less TIS.

Inspect at the next maintenance event, or within 50 hours TIS, whichever occurs first.

- Those engines listed by S/N on pages 3 through 12 of MSB 99-3C, or on pages 2 and 3 of TCM CSB 99-6A, with more than 500 hours TIS.
- Any other engine that was overhauled at a facility other than TCM and that has a crankshaft installed that was manufactured or rebuilt between January 1 1998 and December 31 1998, with more than 500 hours TIS.

After the effective date of this AD, installation of a crankshaft that was manufactured or rebuilt between January 1, 1998, and December 31, 1998, is prohibited, unless it has been inspected and reidentified per section C of TCM MSB 99-3C, or for the GTSIO-520 series engines, per section C of TCM CSB 99-6A. These inspections must be performed by TCM.

Effective Date: DCA/CON/181 - 29 April 1999
DCA/CON/181A - 30 September 1999

DCA/CON/182B Crankshaft Material - Inspection

Applicability: TCM IO-360, TSIO-360, LTSIO-360, O-470, IO-470, TSIO-470, IO-520, TSIO-520, LTSIO-520, IO-550, TSIO-550 and TSIOL-550 series engines incorporating a crankshaft listed by S/N in TCM MSB 00-5D.

Note: Applicable crankshafts are some of the crankshafts that were manufactured in the period 1 April 1998 through 31 March 2000. These may have been installed in new or rebuilt engines by TCM or installed by an organisation other than TCM during a bulk strip or field overhaul.

Requirement: To prevent failure of the crankshaft, accomplish the following:-

Remove a core sample of the crankshaft material for the purpose of metallurgical evaluation per TCM MSB 00-5D. Core removal must be accomplished using the specialised tools and equipment provided by TCM as listed in TCM MSB 00-5D. Engines may only be returned to service following receipt of TCM documented evidence that confirms the material sample was found not to exhibit any metallurgical anomalies. The TCM notification of result, is to be retained in the engine log book as an engine record.

(FAA AD 2000-23-21 refers)

Compliance: Within next 10 hours TIS, unless already accomplished.

Note: Crankshaft propeller flange core samples that were done per TCM MSB 00-5, MSB 00-5A, MSB 00-5B, or MSB 00-5C comply with this AD and must not be repeated.

Effective Date: DCA/CON/182A - 7 December 2000
DCA/CON/182B - 20 December 2001

DCA/CON/188A Superior Air Parts Cylinders – Replacement

Applicability: Superior Air Parts (SAP) cast cylinder assemblies P/Ns SA47000L-A1, SA47000L-A20P, SA47000S-A1, SA47000S-A20P, SA47000S-A21P, SA52000-A1, SA52000-A20P, SA52000-A21P, SA52000-A22P, SA52000-A23P, SA55000-A1, SA55000-A20P.

These SAP cast cylinder assemblies may be fitted to the following Teledyne Continental Motors (TCM) engines:

O-470 -G, -K, -L, -M, -P, -R, -S, -U
IO-470 -C, -D, -E, -F, -G, -H, -L, -M, -N, -P, -R, -S, -U, -V
IO-520 -A, B, BA, C, CB, D, E, F, J, K, L, M, BB, MB
TSIO-520 -AF, B, BB, C, CE, D, DB, E, EB, G, H, J, JB, K, KB, L, LB, M, N, NB, P, -R, T, UB, VB, WB
IO-550 -A, B, C, D, E, F, L

Note 1: The affected cylinder assembly S/N range in this AD has been revised to narrow the applicability even further. Accomplishment of DCA/CON/188 satisfies the requirements of this AD.

Requirement: To prevent cylinder head fatigue failure and separation at the head-to-barrel threaded interface that could lead to engine failure, accomplish the following:

1. Inspect the aircraft log books to determine which cast cylinder assemblies are fitted. If the aircraft log books do not list the P/Ns of the cylinders fitted to the engine, then visually inspect the engine to determine which cylinders are fitted.

Replace cylinder assemblies S/N 47LE053559 through to 47LF053643, and 47SE054212 through to 47SF054251, and 52D0531708 through to 52H0532197, and 55E05223 through to 55G05289, and 32WE059006 through to 32WF059067, and 32WHE05379 through to 32WHE05392, and 326WF055517 through to 326WF055532, and 36TWF05430 through to 36TWG05453, and 36WF058058 through to 36WG058124, and 366WE056944 through to 366WF057061, and 366WF057150 through to 366WF057232, and 366WF057259 through to 366WG057534, and 366WG057556, 366WG057569, 366WG057598, 366WG057616, 366WG057621, 366WG057624, and 366WJ057770 through to 366WJ057776, and 366WL058131, per Superior Air Parts Mandatory SB B06-01, revision E, dated 24 January 2007.

Note 2: These affected S/Ns were manufactured between April 2005 and November 2005.

Note 3: The affected SAP cylinder head flanges are marked: SA47000L-A1, SA47000L-A20P, SA47000S-A1, SA47000S-A20P, SA47000S-A21P, SA52000-A1, SA52000-A20P, SA52000-A21P, SA52000-A22P, SA52000-A23P, SA55000-A1, SA55000-A20P, SL32000W-A1, SL32000W-A20P, SL32000W-A21P, SL32000WH-A1, SL32000WHA20P, SL32006W-A1, SL32006W-A20P, SL32006W-A21P, SL36000TW-A1, SL36000TW-A20P, SL36000TW-A21P, SL36000TW-A22P, SL36000W-A1, SL36000W-A20P, SL36000W-A21P, SL36006W-A1, SL36006W-A20P or SL36006W-A21P.

2. Affected Superior Air Parts cast cylinder assemblies listed in Requirement 1 of this AD may not be installed on any engine.
(FAA AD 2007-04-19R1 refers)

Compliance: 1. At 150 hours TTIS (on affected SAP cylinders), or within the next 10 hours TIS, whichever is the later.

2. From the effective date of this AD.

Effective Date: DCA/CON/188 - 12 March 2007
DCA/CON/188A - 26 April 2007

DCA/CON/192 TCM EQ3 Cylinders – Inspection

Applicability: Model O-470-G, K, L, R, S, M and U engines, and
 Model IO-470-C, D, E, F, H, L, M, N, S, U, V and VO engines, and
 Model TSIO-470-B, C and D engines, and
 Model IO-520-A, B, BA, BB, C, CB, D, E, F, J, K, L, M and MB engines, and
 Model TSIO-520-AF, B, BB, C, CE, D, DB, E, EB, G, H, J, JB, K, KB, L, LB, M, N, NB,
 P, R, T, UB, VB and WB engines, and
 Model IO-550-A, B, C, D, E, F and L engines, and
 Model IOF-550-B, C, D, E, F and L engines, and
 Fitted with one or more EQ3 TCM cylinders. To identify affected cylinders refer to
 tables 1, 1A, 2 and 2A of TCM MSB No. MSB09-1B, dated 14 July 2009.

Note 1: The tables in MSB No. MSB09-1B can also be used to identify spare EQ3 cylinders
 by cylinder P/N and S/N that may have been fitted on affected engines.

These engines are installed on, but not limited to, Alexandria Aircraft LLC (formerly
 Bellanca) model 300 Super Viking aircraft; Beech Bonanza 33, 35 and 36 series
 aircraft, Beech Baron 56 and 58 series aircraft, Cessna 180, 182, 188, 205, 206, 207,
 210, 303, 310, 320, 402, and 414 model series aircraft; Aero Commander 200 and
 500 aircraft; certain Rockwell (formerly Meyers) Windecker Eagle 200 aircraft, and
 Navion aircraft.

Requirement: To prevent loss of engine power due to possible cracks in the cylinder head,
 accomplish the following:

1. Identify EQ3 cylinders in accordance with step 1 of TCM MSB No. MSB09-1B,
 dated July 14, 2009.
2. Accomplish a visual inspection of the cylinder for cracks per step 2, paragraph
 B, of TCM MSB No. MSB09-1B.
3. Replace all EQ3 cylinders per TCM MSB No. MSB09-1B.
4. An EQ3 cylinder shall not be fitted to any engine, and an engine already fitted
 with an EQ3 cylinder shall not be fitted to any aircraft.

Note 2: Initial visual inspections accomplished before the effective date of this AD per TCM
 MSB No. MSB09-1A dated 11 March 2009 complies with the initial inspection
 requirements of this AD.
 (FAA AD 2009-19-07 refers)

Compliance:

1. Within the next 20 hours TIS unless previously accomplished.
2. Before accumulating 400 hours TTIS on EQ3 cylinders, or within 20 hours TIS
 whichever occurs later unless previously accomplished, and thereafter at intervals not
 to exceed 50 hours TIS.
3. By 1300 hours TTIS.
4. From 7 October 2009.

Effective Date: 7 October 2009

DCA/CON/195 Hydraulic Valve Lifters – Inspection

Applicability: Model TCM 240, 346, 360, 470, 520 and 550 series engines, and Rolls-Royce Motors, Ltd. (R-RM) IO-240-A engines, and engines fitted with hydraulic lifters P/N 657913, 657915 or 657916.

Note 1: This AD supersedes DCA/CON/194A. The applicability of this AD revised to include TCM 346 series engines and R-RM IO-240-A engines. No action required if already in compliance with DCA/CON/194A.

Requirement: To prevent excess hydraulic valve lifter wear possibly resulting in loss of engine power and aircraft control, accomplish the following:

1. Review the aircraft logbooks and determine the manufacture date or the rebuild date of the engine, and determine if the hydraulic valve lifters have been replaced after 19 June 2009. If the engine was manufactured or rebuilt before 19 June 2009 and if none of the hydraulic lifters have been replaced after 19 June 2009 no further AD action is required. If the engine was manufactured or rebuilt after 19 June 2009, or if any of the hydraulic lifters have been replaced after 19 June 2009 accomplish requirement 2 of this AD.

2. If the engine was manufactured or rebuilt after 19 June 2009, or if any of the hydraulic lifters have been replaced after 19 June 2009 and the P/N of the hydraulic lifters cannot be determined from the engine records refer to the list of affected engine S/N in section A of TCM MSB No. MSB09-8A dated 4 December 2009. For engines listed in section A of MSB No. MSB09-8A inspect the hydraulic lifters fitted to each cylinder and determine the P/N of the hydraulic lifters per paragraphs 1 through to 3 in Section I. Action Required of MSB No. MSB09-8A, dated 4 December 2009. If an affected hydraulic valve lifter is found fitted, replace all affected hydraulic lifters per paragraphs 2.a.1) through to 2.b.4) in Step 2 of MSB No. MSB09-8A before further flight.

3. Affected hydraulic lifters P/N 657913, 657915 or 657916 shall not be fitted to any TCM 240, 346, 360, 470, 520 or 550 series engines or any R-RM IO-240-A engines.

Note 2: Accomplish the requirements of this AD per the instructions in Teledyne Continental Motors MSB No. MSB09-8A dated 4 December 2009. (FAA AD 2010-11-04 refers)

Compliance: 1. & 2. Before further flight unless previously accomplished.
3. From 24 June 2010.

Effective Date: 24 June 2010

DCA/CON/198 AVStar Fuel Servos – Inspection

Applicability: All Teledyne Continental Motors (TCM) fuel injected engines fitted with a AVStar Fuel Systems, Inc. (AFS) fuel servo diaphragm P/N AV2541801 or P/N AV2541803.

Requirement: To prevent fuel servo failure which could result in loss of engine power and aircraft control, accomplish the following:

1. Review the aircraft records and determine if an AFS fuel servo diaphragm P/N AV2541801 or P/N AV2541803 from an affected production lot listed in AFS MSB No. AFS-SB6 revision 2, dated 6 April 2011 was installed in the fuel servo any time after 20 May 2010. If the fuel servo is found fitted with an affected diaphragm, replace the fuel servo before further flight.

2. Fuel servos with an affected AFS fuel servo diaphragm P/N AV2541801 or P/N AV2541803 from the production lots listed in AFS MSB No. AFS-SB6 revision 2 shall not be fitted to any aircraft. (FAA AD 2012-03-06 refers)

Compliance: 1. Within the next 5 hours TIS unless previously accomplished.
2. From 24 February 2012.

Effective Date: 24 February 2012

State of Design ADs listed below are available directly from the National Airworthiness Authority (NAA) websites. Links to NAA websites are available on the CAA website at <https://www.aviation.govt.nz/aircraft/airworthiness/airworthiness-directives/links-to-state-of-design-airworthiness-directives/>

If additional NZ ADs need to be issued when an unsafe condition is found to exist in an aircraft or aeronautical product in NZ, they will be added to the list below.

2014-05-29 Superior Air Parts (SAP) Investment Cast Cylinder Assemblies – Inspection

Applicability: Models IO-520, TSIO-520, and IO-550 series reciprocating engines fitted with replacement Superior Air Parts, Inc. (SAP) parts manufacturer approval (PMA) investment cast cylinder assemblies, P/Ns SA52000-A1, SA52000-A20P, SA52000-A21P, SA52000-A22P, SA52000-A23P, SA55000-A1, or SA55000-A20P.

All other engine models approved for the use of CMI 520 and 550 cylinder assemblies such as the CMI 470 series engines when modified by Supplemental Type Certificate (STC), fitted with SAP investment cast cylinder assemblies, P/Ns SA52000-A1, SA52000-A20P, SA52000-A21P, SA52000-A22P, SA52000-A23P, SA55000-A1, or SA55000-A20P.

Note: This AD applies to all serial numbers for the P/Ns listed in paragraphs (c)(1) and (c)(2) of this AD. If no SAP replacement cylinders were installed during engine maintenance since the CMI engines were new, then this AD does not apply.

Effective Date: 25 April 2014

69-24-03 Carburettor – Inspection

Applicability: A-65 series, A-75 series, O-200 series, C-85 series, C-90 series, C-145 series and O-470 series fitted with Marvel Schebler models MA-3-A, MA-3-PA, MA-3-SPA, MA-4-SPA, MA-4-5, MA-5, MA-4-5-AA, MA-6AA, and HA-6 carburetors with the following listed P/Ns and S/Ns installed on the Continental model engines listed in the AD.

Compliance: Before the issue of a New Zealand Certificate of Airworthiness, or at the next Review of Airworthiness (RA), whichever is the sooner, unless previously accomplished. Repetitive inspections, if required, to be accomplished at intervals not to exceed the times specified in the FAA AD.

Effective Date: 25 August 2016

70-14-07 Fuel Injection Pump – Inspection

Applicability: Models IO-360-A, -C and -D engines.
Models IO-520-A, -B, -C, -D, -E, -F, -J and -K engines.
Models IO-470-C, -D, -E, -F, -H, -K, -L, -M, -N, -S, -J, -U, -V and -VO engines.
Models TSIO-470-B, -C and -D engines.

Note: This AD supersedes DCA/CON/128 due to that AD not being applicable to all affected engines.

Compliance: Before the issue of a New Zealand Certificate of Airworthiness, or at the next Review of Airworthiness (RA), whichever is the sooner, unless previously accomplished. Repetitive inspections, if required, to be accomplished at intervals not to exceed the times specified in the FAA AD.

Effective Date: 25 August 2016

80-06-05 Magnetos – Inspection

Applicability: Model A-65-8, A-75-8, C-85-8, C-90-8, O-200-A, O-300-A, -B, -C, -D; O-470-U, IO-360-KB, IO-470, IO-520-A, -B, -F; TSIO-470 and TSIO-520-T engines.

Compliance: Before the issue of a New Zealand Certificate of Airworthiness, or at the next Review of Airworthiness (RA), whichever is the sooner, unless previously accomplished. Repetitive inspections, if required, to be accomplished at intervals not to exceed the times specified in the FAA AD.

Effective Date: 25 August 2016

2016-16-12 ECi Cylinder Assemblies – Inspection

Applicability: Model -520 and -550 reciprocating engines, and all other CMI engine models approved to use model -520 and -550 cylinder assemblies such as the CMI model -470 when modified by supplemental type certificate (STC),

Fitted with Continental Motors Inc., San Antonio (formerly Airmotive Engineering Corp.), replacement parts manufacturer approval (PMA) cylinder assemblies, marketed by Engine Components International Division (hereinafter referred to as ECi), P/N AEC 631397, with ECi Class 71 or Class 76, S/N 1 through to S/N 61176.

Effective Date: 15 September 2016

DCA/CON/201 Exhaust Valves – Inspection

Applicability: Model O-470-50 series engines, all S/N.

Note 1: An O-470-50 engine is an O-470 series engine, or a TSIO-520-C engine that has been modified in accordance with a FAA-Approved DV Aviation STC formerly held by P Ponk Aviation. (Examples of the latter are SE4985NM and SE4988NM).

Requirement: To prevent possible exhaust valve failures due to stem wear and/or stem to head corrosion/erosion, or pitting, accomplish the following:

Inspect the head to stem area of all exhaust valves through the exhaust port for excessive corrosion/erosion, or pitting.

If severe corrosion/erosion pitting is found, or if the stem diameter has reduced by 10% or more, then replace the affected exhaust valve before further flight.

Note 2: Continental Service Bulletin M90-13 dated 16 July 1990, or later approved revision pertains to the subject of this AD.

Compliance: Within the next 100 hours TIS, unless already accomplished within the last 300 hours TIS, and thereafter at intervals not to exceed 300 hours TIS.

(NZ occurrences 16/2124 and 18/1959 refer)

Effective Date: 27 August 2020

*** 2022-04-04 Cancelled – FAA AD 2023-17-04 refers**

Effective Date: 26 October 2023

2023-02-12 Superior Air Parts Cylinder Assemblies – Inspection

Applicability: Continental IO-470, LIO-470, O-470 and TSIO-470 reciprocating engines listed in the Application Table, page 1, of Superior Air Parts, Inc. (SAP) Mandatory Service Bulletin MSB22-01 A, dated December 16, 2022 (SAP MSB22-01 A) with an installed:

(1) SAP cylinder assembly having a P/N and S/N listed in Table 1 of SAP MSB22-01 A, installed on, or after January 20, 2022; or

(2) A cylinder assembly that was repaired and installed on, or after January 20, 2022, with a SAP intake valve having P/N SA539988 and lot number 19077 O; or

(3) SAP intake valve with P/N SA539988 and lot number 19077 O.

Effective Date: 23 February 2023

2023-04-08 Cancelled – FAA AD 2023-05-16 refers

Effective Date: 16 March 2023

2023-05-16 Crankshaft Counterweight Retaining Rings – Inspection

Applicability: IO-470-A, -C, -D, -E, -F, -G, -H, -J, -K, -L, -LO, -M, -N, -P, -R, -S, -T, -U, -V, and -VO; and

O-470-A, -B, -E, -G, -H, -J, -K, -L, -M, -N, -R, -S, -T, and -U engines.

Effective Date: 16 March 2023

*** 2023-17-04 Oil Filter Adapter – Inspection**

Applicability: Engines fitted with a F&M Enterprises Inc. (F&M), or a Stratus Tool Technologies, LLC (Stratus) oil filter adapter embodied per STC SE8409SW, SE09356SC, or SE10348SC.

Effective Date: 26 October 2023