

Airworthiness Directive Schedule

Lycoming LTO-360 and TO-360 Series Engines

28 February 2019

- Notes:**
1. This AD schedule is applicable to Lycoming **LTO-360 and TO-360** series engines manufactured under FAA Type Certificate Number **E26EA**.
 2. The Federal Aviation Administration (FAA) is the National Airworthiness Authority (NAA) responsible for the issue of State of Design Airworthiness Directives (ADs) for Lycoming reciprocating engines. State of Design ADs applicable to these engines can be obtained directly from the FAA website at http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAD.nsf/MainFrame?OpenFrameSet
 3. Where a NZ AD is based on a foreign AD, compliance may be shown with either the NZ AD or the equivalent State of Design AD, because they will have essentially the same requirements i.e. the logbook will need to list all the NZ ADs, but the CAA will accept compliance with the equivalent State of Design AD as a means of compliance with the NZ AD. (The same as happens now for an imported aircraft.)
 4. Manufacturer service information referenced in Airworthiness Directives listed in this schedule may be at a later approved revision. Service information at later approved revisions can be used to accomplish the requirements of these Airworthiness Directives.
 5. The date above indicates the amendment date of this schedule.
 6. New or amended ADs are shown with an asterisk *
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From 1 October 2012 the Civil Aviation Authority of New Zealand (CAA) will no longer rewrite the text of State of Design ADs. Applicable State of Design ADs will be listed below and can be obtained directly from the National Airworthiness Authority (NAA) web site. The link to the FAA web site is available on the CAA website at http://www.caa.govt.nz/airworthiness-directives/states-of-design/ 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.		
* DCA/LYC/224A	Lycoming Parallel Valve Cylinder and Head Assemblies – Inspection	14

DCA/LYC/128 Centre Main Bearing Retention - Inspection

- Applicability:** As detailed except those engines affected by DCA/LYC/141
- Requirement:** Accomplish Lycoming SB 327C
- Compliance:**
1. Within the next 10 hours TIS on engines that have accumulated more than 600 hours.
 2. Within the next 50 hours TIS on engines that have accumulated more than 500 hours.
 3. At any time metal contamination is evident in the lubrication suction screens.
 4. The inspections may be discontinued upon compliance with DCA/LYC/131. (FAA ADs 71-05-02 and 72-21-06 refer)
- Effective Date:** 31 August 1970

DCA/LYC/136 Crankcase Bearing Dowel Replacement - Modification

- Applicability:** As detailed
- Requirement:** Accomplish Lycoming SI 1225D
- Compliance:** At next overhaul
- Effective Date:** 30 June 1972

DCA/LYC/156 Rotator Type Inlet Valves - Replacement

- Applicability:** HIO-360-O1A and any other engines not specifically listed in Lycoming SI 1280C which have been fitted with rotator type inlet valves
- Requirement:** Some engines have been incorrectly fitted with rotator type inlet valves during overhaul or cylinder replacement. Remove rotator type inlet valves and replace with conventional intake valves P/N 73117.
- Compliance:** Within the next 25 hours TIS
- Effective Date:** 15 May 1975

DCA/LYC/174F FAA AD 96-09-10 Oil Pump Impellers – Replacement

- Applicability** Engines fitted with sintered iron or aluminium oil pump impellers.
- Textron Lycoming SB 524 lists specific models and S/N that may be affected. All new, overhauled and remanufactured engines shipped from Textron Lycoming after 31 March 1985 are in compliance with this AD.
- Any engines that have complied with DCA/LYC/174B, C, D or E will have the latest (steel) oil pump impellers fitted and are in compliance with this airworthiness directive. Any engines that have complied with Textron Lycoming SB No. 456B, C, D, E or SB 524 will have the latest (steel) oil pump impellers fitted, and are in compliance with this AD. For engines overhauled by other facilities, the type of oil pump impeller fitted must be determined. Examination of overhaul records or physical inspection to determine type of oil pump impeller fitted is required.
- Note 1:** No action required if already in compliance with DCA/LYC/174E. This AD revised with Lycoming SI No. 1009AJ now at revision AT and to include note 2 with no change to the AD requirement.
- Requirement:** To prevent failure of engine oil pumps, replace sintered iron or aluminium oil pump impellers per Textron Lycoming SB 524.
- Note 2:** Lycoming SI No. 1009AT and SB No. 524 or later FAA approved revisions pertains to the subject of this AD.
(FAA AD 96-09-10 refers)

Compliance: Sintered iron oil pump impellers:

Within the next 25 hours TIS unless previously accomplished.

Aluminium oil pump impellers (whichever occurs sooner):

- a) At the next oil pump removal, or
- b) Next engine overhaul (Not to exceed the hours specified for the particular engine model in SI 1009AS). Except for engines that have already exceeded the hours specified, or are within 200 hours TIS of reaching it, within the next 200 hours TIS, or
- c) By 18 January 2010.

Effective Date: DCA/LYC/174D - 2 August 1996
 DCA/LYC/174E - 30 August 1996
 DCA/LYC/174F - 18 December 2008

DCA/LYC/182 FAA AD 90-04-06 Propeller Governor Line Support - Inspection and Modification

Applicability: All four cylinder engines with rear mounted propeller governor and external oil line

Requirement: To prevent oil line fracture and loss of engine oil, inspect and modify oil line installation per Textron Lycoming SB 488A. If any leaks, damage or interference condition found, or if support clamps are not properly installed, before further flight, replace oil line and attachment end fittings with new parts even though installed parts may show no signs of visible damage.

(FAA AD 90-04-06 refers)

Compliance: Inspection - within next 50 hours TIS or when oil line is removed for any reason, whichever is the sooner

Modification - at next engine overhaul

Effective Date: 30 March 1990

DCA/LYC/187 FAA AD 92-12-05 Piston Pin - Removal

Applicability: Models listed in Textron Lycoming SB 501B

Requirement: To prevent piston pin failure, accomplish the following:

1. For engines with S/N's listed in Textron Lycoming SB 501B, remove all piston pins P/N LW-14077 and replace with serviceable parts.
2. For engines not listed by S/N in SB 501B, determine if piston pin P/N LW-14077 purchased from Textron Lycoming or a Textron Lycoming distributor from 18 June 1991 through 5 August 1991 has been fitted. Remove these pins from service and replace with serviceable parts.
3. Piston pins P/N LW-14077 purchased from Textron Lycoming or a Textron Lycoming distributor from 18 June 1991 through 5 August 1991 that are not installed in engines are considered unairworthy and shall not be placed in service.

(FAA AD 92-12-05 refers)

- Compliance:**
1. At 100 hours TTIS or within next 50 hours TIS, whichever is the later.
 2. At 100 hours TTIS or within next 50 hours TIS whichever is the later.
 3. Before installation.

Effective Date: 2 October 1992

DCA/LYC/190A FAA AD 97-01-03 Piston Pin - Removal

Applicability: Piston Pins P/N LW-14077 that were originally shipped from Textron Lycoming during the time period 15 December 1995 through 17 September 1996.

These piston pins may have been obtained individually, or be installed in:-
Models and S/Ns of engines listed in Textron Lycoming Service Bulletin 527C.
Overhauled engines and cylinder kits (including Superior Air Parts supplied kits that use P/N LW-14077 piston pins).

Note 1: Piston pins P/N LW-14077, are not fitted to O-235 series engines.

Requirement: To prevent piston pin failure and engine stoppage, accomplish SB 527C. Piston Pins marked with code 17328 (per SB527B Figure 1) must be removed before further flight.

(FAA AD 97-01-03 refers)

Compliance: Before 50 hours TTIS (piston pins). For piston pins that have already exceeded 50 hours TTIS, before further flight.

Note 2: The aircraft may be operated to a location where the requirements of this AD can be accomplished.

Effective Date: DCA/LYC/190 16 October 1996
DCA/LYC/190A 6 June 1997

DCA/LYC/191 FAA AD 96-23-03 High Pressure Fuel Pump - Inspection

Applicability: Model IO-320, LIO-320, AEIO-320, IO-360, LIO-360, AEIO-360, HIO-360, TO-360, IO-540, O-540-L, LIO-540 and AEIO-540 series engines with high pressure fuel pumps P/N LW-15473 that have manufacturing date codes 154739506, 154739507 or 154739510.

Requirement: To prevent an in-flight engine stoppage due to fuel starvation, accomplish the following:-

Determine if the engine is fitted with a high pressure fuel pump P/N LW-15473 with manufacturing date codes 154739506, 154739507 or 154739510 per Textron Lycoming SB 525A. If any of these high pressure fuel pumps is found fitted, inspect and if necessary repair or replace with a serviceable high pressure pump per SB 525A before further flight.

(FAA AD 96-23-03 refers)

Compliance: Within next 5 hours TIS.

Effective Date: 4 November 1996

DCA/LYC/193A Crankshaft – Inspection and Replacement

Applicability: Model 320 series engines limited to 160 horsepower, and
Model 360 series engines fitted with fixed pitch propellers,

Except the following engines fitted to helicopters or with solid crankshafts: model HO-360 series, model HIO-360 series, model LHIO-360 series, model VO-360 series and model IVO-360 series, and model O-320-B2C, O-360-J2A, AEIO-360-B4A, O-360-A4A, -A4G, -A4J, -A4K, -A4M and -C4F engines.

This AD is not applicable to engines with crankshafts with "PID" stamped on the outside diameter of the propeller flange.

Note 1: No action required if already in compliance with DCA/LYC/193. This AD revised with Lycoming SB No. 530 now at revision B and to include note 4 with no change to the AD requirement.

Requirement: To prevent crankshaft failure, which can result in engine failure, propeller separation, and forced landing, accomplish the following:

Visually inspect the inside diameter (ID) of the crankshaft for corrosion pits, per Textron Lycoming MSB 505B.

If corrosion pits are found during this inspection, accomplish the following before further flight:

(i) If the crankshaft is installed in the engine such as during an on-wing inspection, perform a fluorescent penetrant inspection (FPI) per MSB 505B.

(ii) If the crankshaft is removed from the engine at overhaul, perform a magnetic particle inspection (MPI) per MSB 505B.

If any crankshaft is found cracked during FPI or MPI, replace the crankshaft with a serviceable part before further flight.

If corrosion pits but no cracks are found on the ID of the crankshaft during the initial visual inspection and the ID does not exceed the maximum ID specified in MSB 505B, repeat the FPI at intervals not to exceed 100 hours TIS since last FPI or until a serviceable crankshaft is installed in the engine.

If no corrosion pits or cracks are found on the ID of the crankshaft during the initial visual inspection, perform a visual inspection at intervals not to exceed 5 years since last inspection, or at the next engine overhaul or disassembly, whichever occurs sooner.

Note 2: After accomplishing the initial inspection (visual and, if necessary, the FPI or MPI), report findings of any pits or cracks to the CAA. Please ensure that the report references this AD.

Note 3: The application of Urethabond 104 to the inner bore of the crankshaft and confirmed by stamping of the letters "PID" on the outside diameter of the propeller flange per Textron Lycoming MSB 530B, constitutes terminating action to this AD.

Note 4: Lycoming SB No. 530B and MSB No. 505B or later FAA approved revisions pertains to the subject of this AD.

(FAA AD 98-02-08 refers)

Compliance: Initial Inspection:

For engines shipped new from Textron Lycoming prior to and including December 31, 1984, and that have never been overhauled, or any engine remanufactured or overhauled and that has accumulated 1,000 hours or more TIS since remanufacture or overhaul, inspect within the next 100 hours TIS, or 6 months, whichever occurs sooner, unless previously accomplished.

For engines shipped new from Textron Lycoming after 31 December 1984, and that have never been overhauled, or any engine remanufactured or overhauled and that has accumulated less than 1,000 hours TIS since remanufacture or overhaul, inspect at the earliest occurrence of the following:

(i) The next engine overhaul or disassembly.

(ii) Within 10 years of the original shipping date or within the next 6 months, whichever occurs later.

(iii) Within 1,000 hours TIS since remanufacture or overhaul, or within the next 6 months, whichever occurs later.

Repetitive inspections:

Repetitive inspection intervals are dependent on the findings of the initial inspection and are required as specified within the requirements of this AD.

Effective Date: DCA/LYC/193 - 13 March 1998
DCA/LYC/193A - 18 December 2008

DCA/LYC/196A Piston Pin Plug Wear – Inspection

Applicability: All Lycoming engines fitted with piston pin end plugs P/N 60828 or LW-11775.

Note 1: This AD revised to clarify the applicability and the compliance.

Note 2: This AD is not applicable to engines fitted with piston pin end plugs P/N 72198. Engines manufactured, overhauled or rebuilt by Lycoming after February 1999 are fitted with piston pin end plugs P/N 72198.

Requirement: To prevent abnormal wear of piston pin plugs which could result in engine failure, inspect the oil screen, the oil filter element, the oil suction screen and the oil from the filters as applicable per Lycoming SI 1492C of later FAA approved revisions.

If abnormal aluminium or iron content is found accomplish corrective actions per manufacturer instructions before further flight.

(Lycoming Service Instructions 1267C and 1492C refer)

Compliance: For all remanufactured and overhauled engines fitted with affected piston pin end plugs:

Within the first 10 hours TIS and the next 25 hours TIS, and thereafter at intervals not to exceed 50 hours TIS.

For all other engines in service fitted with affected piston pin end plugs:

At the next oil/oil filter change or before 50 hours TIS whichever is the sooner, and thereafter at intervals not to exceed 50 hours TIS.

Effective Date: DCA/LYC/196 - 28 January 1999
DCA/LYC/196A - 25 June 2009

DCA/LYC/204B FAA AD 2004-10-14 Propeller Strike – Crankshaft Gear Inspection

Applicability: All direct drive piston engines except O-145, O-320-H, O-360-E, LO-360-E, TO-360-E, LTO-360-E, and TIO-541 series.

Note 1: DCA/LYC/204B revised to include note 3 and clarify note 2 with regard to requirements for certifying release-to-service after maintenance.

Requirement: To prevent loosening or failure of the crankshaft gear retaining bolt as result of a propeller strike, which may cause sudden engine failure, accomplish the following:

Inspect the crankshaft counter-bored recess, the alignment dowel, the bolt hole threads and the crankshaft gear for wear galling corrosion and fretting per steps 1 through 5 of Lycoming MSB No.475C. Repair if Necessary per MSB 475C.

Remove the existing gear retaining bolt and lockplate from service and install a new bolt and lockplate per steps 6 and 7 of MSB No.475C.

Do not reinstall any gear retaining bolt and lockplate that were removed in accordance with this AD.

Note 2: This AD mandates a particular inspection of one of the components of Lycoming engines that was found to be necessary by the United States FAA. Inspection by AD was required because the component was not adequately covered by the existing inspection requirements. As such this AD is additional to and not in lieu of the inspections required in the event of a prop strike.

The manufacturer's instructions for continued airworthiness include SB 533A which relates to maintenance which may be required in the event of a prop strike. The CAA strongly recommends compliance with Lycoming Mandatory SB 533A.

(FAA AD 2004-10-14 refers)

Compliance: Compliance with this AD is required before further flight if the engine has experienced a propeller strike.

Note 3: Compliance with this AD may be accomplished by adding the AD requirement to the aircraft AD logbook as a repetitive inspection, interval "as required".

Note 4: For the purposes of this AD a propeller strike is defined as follows:

1. Any incident, whether or not the engine is operating, that requires repair to the propeller other than minor dressing of the blades.
2. Any incident during engine operation in which the propeller impacts a solid object that causes a drop in RPM and also requires structural repair of the propeller (incidents requiring only paint touch-up are not included). This is not restricted to propeller strikes against the ground.
3. A sudden RPM drop while impacting water, tall grass, or similar yielding medium, where propeller damage is not normally incurred.
4. The preceding definitions include situations where an aircraft is stationary and the landing gear collapses causing one or more blades to be substantially bent, or where a hanger door (or other object) strikes the propeller blade. These cases should be handled as sudden stoppages because of potentially severe side loading on the crankshaft flange, front bearing, and seal in the absence of oil pressure.

Effective Date: DCA/LYC/204 - 24 June 2004
DCA/LYC/204A - 25 September 2008
DCA/LYC/204B - 30 October 2008

DCA/LYC/210 FAA AD 2006-12-07 ECI Classic Cast Cylinders – Inspection and Replacement

Applicability: Models 320, 360 and 540 series parallel valve engines, specified in table 1 fitted with ECI cylinder assemblies P/N AEL65102 series "Classic Cast" having casting head markings EC 65099-REV- 1 and with S/Ns 1 through to 9879.

Note 1: The set of numbers appearing on the cylinder below and to the left of the S/N in the form of "12345-67" is not used for determining applicability.

TABLE 1.

Cylinder head P/N	Installed on engine models
AEL65102-NST04	O-320-A1B, A2B, A2C, A2D, A3A, A3B, B2B, B2C, B2D, B2E, B3B, B3C, C2B, C2C, C3B, C3C, D1A, D1AD, D1B, D1C, D1D, D1F, D2A, D2B, D2C, D2F, D2G, D2H, D2J, D3G, E1A, E1B, E1C, E1F, E1J, E2A, E2B, E2C, E2D, E2E, E2F, E2G, E2H, E3D, E3H. IO-320-A1A, A2A, B1A, B1B, B1C, B1D, B1E, B2A, D1A, D1AD, D1B, D1C, E1A, E1B, E2A, E2B. AEIO-320-D1B, D2B, E1A, E1B, E2A, E2B. AIO-320-A1A, A1B, A2A, A2B, B1B, C1B. LIO-320-B1A.
AEL65102-NST05	IO-320-C1A, C1B, C1F, F1A. LIO-320-C1A.
AEL65102-NST06	O-320-A1A, A2A, A2B, A2C, A3A, A3B, A3C, E1A, E1B, E2A, E2C, (also, an O-320 model with no suffix). IO-320-A1A, A2A.
AEL65102-NST07	IO-320-B1A, B1B. LIO-320-B1A.

AEL65102-NST08	O-320-B1A, B1B, B2A, B2B, B3A, B3B, B3C, C1A, C1B, C2A, C2B, C3A, C3B, C3C, D1A, D1B, D2A, D2B, D2C.
AEL65102-NST10	O-360-A1A, A1C, A1D, A2A, A2E, A3A, A3D, A4A, B1A, B1B, B2A, B2B, C1A, C1C, C1G, C2A, C2B, C2C, C2D, D1A, D2A, D2B. IO-360-B1A, B1B, B1C. HO-360-A1A, B1A, B1B. HIO-360-B1A, B1B. AEIO-360-B1B. O-540-A1A, A1A5, A1B5, A1C5, A1D, A1D5, A2B, A3D5, A4A5, A4B5, A4C5, A4D5, B1A5, B1B5, B1D5, B2A5, B2B5, B2C5, B2C5D, B4A5, B4B5, B4B5D, D1A5, E1A, E4A5, E4B5, E4C5, F1A5, F1B5, G1A5, G2A5. IO-540-C1B5, C1C5, C2C, C4B5, C4B5D, C4C5, D4A5, D4B5, N1A5, N1A5D.

Cylinder head P/N	Installed on engine models
AEL65102-NST12	O-360-A1A, A1AD, A1D, A1F, A1F6, A1F6D, A1G, A1G6, A1G6D, A1H, A1H6, A1J, A1LD, A1P, A2A, A2D, A2F, A2G, A2H, A3A, A3AD, A3D, A4A, A4AD, A4D, A4G, A4J, A4JD, A4K, A4M, A4N, A4P, A5AD, B1A, B2C, C1A, C1C, C1E, C1F, C1G, C2A, C2B, C2C, C2D, C2E, C4F, C4P, D2A, F1A6, G1A6. HO-360-C1A. LO-360-A1G6D, A1H6. HIO-360-B1A, B1B, G1A. LTO-360-A1A6D. TO-360-A1A6D. IO-360-B1B, B1BD, B1D, B1E, B1F, B1F6, B1G6, B2E, B2F, B2F6, B4A, E1A, L2A, M1A, M1B. AEIO-360-B1B, B1D, B1E, B1F, B1F6, B1G6, B1H, B2F, B2F6, B4A, H1A, H1B. O-540-A4D5, B2B5, B2C5, B2C5D, B4B5, B4B5D, E4A5, E4B5, E4B5D, E4C5, G1A5, G1A5D, G2A5, H1A5, H1A5D, H1B5, H1B5D, H2A5, H2A5D, H2B5D. IO-540-C4B5, C4B5D, C4D5, C4D5D, D4A5, D4B5, D4C5, N1A5, N1A5D, T4A5D, T4B5, T4B5D, T4C5D, V4A5, V4A5D. AEIO-540-D4A5, D4B5, D4C5, D4D5.
AEL65102-NST26	IO-540-J4A5, R1A5. TIO-540-C1A, E1A, G1A, H1A.
AEL65102-NST38	IO-360-F1A. TIO-540-AA1AD, AB1AD, AB1BD, AF1A, AG1A, AK1A, C1A, C1AD, K1AD. LTIO-540-K1AD.
AEL65102-NST43	O-360-J2A. O-540-F1B5, J1A5D, J1B5D, J1C5D, J1D5D, J2A5D,

	J2B5D, J2C5D, J2D5D, J3A5, J3A5D, J3C5D. IO-540-AB1A5, W1A5, W1A5D, W3A5D.
AEL65102-NST44	O-540-L3C5D.

Requirement: To prevent loss of engine power due to cracks in the cylinder assemblies and possible engine failure caused by separation of a cylinder head. If your engine was overhauled or repaired since new, do the following:

1. Determine if ECi cylinder assemblies, P/N AEL65102 series "Classic Cast", with casting P/N EC 65099-REV-1 and S/Ns 1 through 9879 are installed on your engine.

Note 2: Serial numbers may have an "L" prefix for a long reach spark plug.

If the cylinder assemblies are not ECi, P/N AEL65102 series "Classic Cast", with casting P/N EC 65099-REV-1, no further action is required.

2. If any cylinder assembly is an ECi P/N AEL65102 series "Classic Cast", with casting P/N EC 65099-REV-1 and a S/Ns 1 through 9879, replace the cylinder assembly.

(FAA AD 2006-12-07 refers)

- Compliance:**
1. By 29 July 2006.
 2. Before the cylinder assembly exceeds 800 hours TIS or within 50 hours TIS, whichever occurs later.

Effective Date: 29 June 2006

DCA/LYC/217 FAA AD 2002-12-07 Oil Filter Converter Plate Gasket – Inspection and Replacement

Applicability: This AD is applicable to the following reciprocating engines models that were manufactured new, rebuilt or overhauled, or had the oil filter converter plate kit P/N LW-13904 or gasket P/N LW13388 replaced after 1 April 1999.

Model O-320-H1AD, -H1BD, -H2AD, -H2BD, -H3AD and -H3BD engines

Model (L)O-360-A1AD, -A1F6D, -A1G6D, -A1LD, -A3AD, -A4AD, -A5AD and -E1A6D engines

Model IO-360-A1B6D, -A1D6D, -A3B6D, -A3D6D, -C1E6D, -J1AD and -J1A6D engines

Model (L)TO-360-A1A6D, -C1A6D, -E1A6D and -F1A6D engines

Model TIO-360-C1A6D engines

Model (L)HIO-360 -E1AD, -E1BD and -F1AD engines

Model O-540-H1A5D, -H1B5D, -H2A5D, -H2B5D, -J1A5D, -J1B5D, -J1C5D, -J1D5D, -J2A5D, -J2B5D, -J2C5D, -J2D5D, -J3A5D, -J3C5D and -L3C5D engines

Model IO-540-C4D5D, -K1A5D, -K1B5D, -K1E5D, -K1F5D, -K1G5D, -K1J5D, -L1A5D, -L1B5D, -M1A5D, -M1B5D, -M2A5D, -T4A5D, -T4B5D, -T4C5D, -U1A5D, -U1B5D, -V4A5D, -W1A5D and -W3A5D engines

Model (L)TIO-540-K1AD, -S1AD, -AA1AD, -AB1AD, -AB1BD, -F2BD, -J2BD, -N2BD, -R2AD, -T2AD and -V2AD engines

Model AEIO-540-L1B5D engines

Model TIO-541-E series engines

Model TIGO-541-D1A, -D1B and -E1A engines

Model IO-720-A1BD, -B1BD, -C1BD, -D1BD and -D1CD engines

- Note 1:** This AD supersedes DCA/LYC/199A and introduces requirement 3 as a terminating action to the repetitive replacement requirements of the converter plate gasket P/N LW-13388 and the oil converter plate kit P/N LW-13904.
- Requirement:** To prevent complete loss of engine oil and possible seizure of the engine and fire due to oil leaks between the converter plate and accessory housing, accomplish the following:
1. For engines with more than 50 hours TSN, TSO or time since the last replacement of the oil filter converter plate gasket P/N LW-13388 or the oil filter converter plate P/N LW-13904:
Replace the converter plate gasket or converter plate kit per paragraphs 1 and 2 of Lycoming MSB 543A dated 30 August 2000 before further flight.
 2. For engines with less than 50 hours TSN, TSO or time since the last replacement of the oil filter converter plate gasket P/N LW-13388 or the oil filter converter plate P/N LW-13904:
Inspect the oil filter base for signs of oil leaks between the oil filter base and the accessory housing and also inspect for any evidence of the gasket extruding beyond the perimeter of the base. If any oil leaks are found, or if the seal is damaged, extruded, displaced or deteriorated, replace the converter plate gasket or converter plate kit per paragraphs 1 and 2 of MSB 543A before further flight.
 3. Replace the oil filter converter plate gasket or oil filter converter plate kit per part II or part III of Lycoming Supplement No. 1 of MSB 543A dated 4 October 2000, or Lycoming MSB 543B dated 1 July 2003.
- Note 2:** Replacement of oil filter converter plate gasket P/N LW-13388 with a new gasket P/N 06B23072 per part II or part III of Supplement No. 1 of MSB 543A, or MSB 543B is a terminating action to requirements 1 and 2 of this AD.
- Note 3:** Lycoming SB No. 543A and Supplement No. 1 of MSB 543A pertains to the subject of this AD. SB No. 543B has superseded SB No. 543A and Supplement No. 1 of MSB 543A.
(AD 2002-12-07 refers)
- Compliance:**
1. Before further flight unless previously accomplished, and thereafter replace the converter plate gasket P/N LW-13388 or the oil converter plate kit P/N LW-13904 at intervals not to exceed 50 hours TIS.
 2. Within the next 10 hours TIS or the next 3 days, whichever occurs sooner unless previously accomplished, and thereafter replace the converter plate gasket P/N LW-13388 or the oil converter plate kit P/N LW-13904 at intervals not to exceed 50 hours TIS.
 3. By 18 December 2009, unless previously accomplished.
- Effective Date:** 18 December 2008

DCA/LYC/218 FAA AD 2009-26-12 ECI Titan Cylinders – Inspection and Replacement

- Applicability:** Model 320, 360 and 540 series parallel valve engines listed in table 1 of this AD, fitted with Engine Components Incorporated (ECi) Titan cylinder assembly P/N AEL65102, S/N 1138-02 through to 35171-22 and 35239-01 through to 42179-30 and cylinder head P/N AEL85099.
- Note 1:** This AD supersedes DCA/LYC/216. Since the issue of that AD there have been another 10 cylinder head separations of cylinder S/N not listed in that AD. The applicability of this AD revised to expand the affected cylinder assembly S/N range through to 42179-30.
- Note 2:** If the engine has not been overhauled since new, or a cylinder assembly has not been replaced since new, no further action is required.

- Note 3:** All affected cylinder assemblies are fitted with a cylinder head P/N AEL85099. The cylinder head P/N is located near the intake and exhaust valve springs at the top of the cylinder head. The cylinder assembly P/N which is difficult to see is located at the crankcase end of the cylinder assembly.
- Note 4:** The set of numbers appearing on the cylinder above and to the left of the S/N in the form of "123456" is not used for determining applicability.

Table 1:

Cylinder Assembly P/N:	Installed on Engine Models:
AEL65102-NST04	O-320- A1B, A2B, A2C, A2D, A3A, A3B, B2B, B2C, B2D, B2E, B3B, B3C, C2B, C2C, C3B, C3C, D1A, D1AD, D1B, D1C, D1D, D1F, D2A, D2B, D2C, D2F, D2G, D2H, D2J, D3G, E1A, E1B, E1C, E1F, E1J, E2A, E2B, E2C, E2D, E2E, E2F, E2G, E2H, E3D, E3H. IO-320- A1A, A2A, B1A, B1B, B1C, B1D, B1E, B2A, D1A, D1AD, D1B, D1C, E1A, E1B, E2A, E2B. AEIO-320- D1B, D2B, E1A, E1B, E2A, E2B. AIO-320- A1A, A1B, A2A, A2B, B1B, C1B. LIO-320- B1A
AEL65102-NST05	IO-320- C1A, C1B, C1F, F1A. LIO-320- C1A
AEL65102-NST06	O-320- A1A, A2A, A2B, A2C, A3A, A3B, A3C, E1A, E1B, E2A, E2C, (also, an O-320 model with no suffix). IO-320- A1A, A2A.
AEL65102-NST07	IO-320- B1A, B1B. LIO-320- B1A.
AEL65102-NST08	O-320- B1A, B1B, B2A, B2B, B3A, B3B, B3C, C1A, C1B, C2A, C2B, C3A, C3B, C3C, D1A, D1B, D2A, D2B, D2C.
AEL65102-NST10	O-360- A1A, A1C, A1D, A2A, A2E, A3A, A3D, A4A, B1A, B1B, B2A, B2B, C1A, C1C, C1G, C2A, C2B, C2C, C2D, D1A, D2A, D2B. IO-360- B1A, B1B, B1C. HO-360- A1A, B1A, B1B. HIO-360- B1A, B1B. AEIO-360- B1B. O-540- A1A, A1A5, A1B5, A1C5, A1D, A1D5, A2B, A3D5, A4A5, A4B5, A4C5, A4D5, B1A5, B1B5, B1D5, B2A5, B2B5, B2C5, B4A5, B4B5, D1A5, E1A, E4A5, E4B5, E4C5, F1A5, F1B5, G1A5, G2A5. IO-540- C1B5, C1C5, C2C, C4B5, C4B5D, C4C5, D4A5, D4B5, N1A5.

Cylinder Assembly P/N:	Installed on Engine Models:
AEL65102-NST12	O-360- A1A, A1AD, A1D, A1F, A1F6, A1F6D, A1G, A1G6, A1G6D, A1H, A1H6, A1J, A1LD, A1P, A2A, A2D, A2F, A2G, A2H, A3A, A3AD, A3D, A4A, A4AD, A4D, A4G, A4J, A4JD, A4K, A4M, A4N, A4P, A5AD, B1A, B2C, C1A, C1C, C1E, C1F, C1G, C2A, C2B, C2C, C2D, C2E, C4F, C4P, D2A, F1A6, G1A6. HO-360 –C1A. LO-360- A1G6D, A1H6. HIO-360- B1A, B1B, G1A. LTO-360- A1A6D.

	TO-360-A1A6D. IO-360-B1B, B1BD, B1D, B1E, B1F, B1F6, B1G6, B2E, B2F, B2F6, B4A, E1A, L2A, M1A, M1B. AEIO-360-B1B, B1D, B1E, B1F, B1F6, B1G6, B1H, B2F, B2F6, B4A, H1A, H1B. O-540-A4D5, B2B5, B2C5, B2C5D, B4B5, B4B5D, E4A5, E4B5, E4C5, G1A5, G2A5, H1A5, H1A5D, H1B5, H1B5D, H2A5, H2A5D, H2B5D. IO-540-C4B5, C4B5D, C4D5, C4D5D, D4A5, D4B5, D4C5, N1A5, N1A5D, T4A5D, T4B5, T4B5D, T4C5D, V4A5, V4A5D AEIO-540-D4A5, D4B5, D4C5, D4D5.
AEL65102-NST26	IO-540-J4A5, R1A5. TIO-540-C1A, E1A, G1A, H1A.
AEL65102-NST38	IO-360-F1A. TIO-540-AA1AD, AB1AD, AB1BD, AF1A, AG1A, AK1A, C1A, C1AD, K1AD. LTIO-540-K1AD.
AEL65102-NST43	O-360-J2A. O-540-F1B5, J1A5D, J1B5D, J1C5D, J1D5D, J2A5D, J2B5D, J2C5D, J2D5D, J3A5, J3A5D, J3C5D. IO-540-AB1A5, W1A5, W1A5D, W3A5D.
AEL65102-NST44	O-540-L3C5D.

Requirement:

To prevent loss of engine power due to cracks in the cylinder assembly head-to-barrel interface and possible engine failure caused by separation of a cylinder head, accomplish the following:

1. Inspect the aircraft logbooks and/or the aircraft and determine if the engine has been overhauled since new, or if a cylinder assembly has been replaced since new.

No further action is required if the engine has not been overhauled since new, or a cylinder assembly has not been replaced since new.

If the engine has been overhauled since new, or a cylinder assembly has been replaced since new, determine if any ECI Titan cylinder assemblies P/N AEL65102, S/N 1138-02 through to 35171-22 and 35239-01 through to 42179-30 and cylinder head P/N AEL85099 is fitted to the aircraft engine.

No further action is required if an ECI cylinder assembly P/N AEL65102 is not fitted to the engine.

No further action is required if an ECI cylinder assembly P/N AEL65102 is fitted to the engine, and the S/N is not an affected S/N.

If an affected S/N cylinder assembly is fitted to the engine, accomplish requirement 2 of this AD.

2. Visual Inspection:

Inspect the area around the exhaust valve side of the cylinder for cracks and any signs of black or white residue. Replace cracked cylinder assemblies before further flight. Information on cylinder assembly visual inspection can be found in ECI MSB No. 08-1.

Compression test:

Accomplish a standard cylinder differential compression test. If the cylinder pressure is below 70 lbs/square inch, apply a water and soap solution to the side of the leaking cylinder near the head-to-barrel interface.

If air leaks and bubbles are observed on the side of the cylinder assembly near the head-to-barrel interface, replace the cylinder assembly before further flight.

For cylinder assemblies P/N AEL65102, S/N 1138-02 through to 35171-22 only, if the low cylinder pressure reading is as a result of leaking inlet or exhaust valves, or leaking piston rings, repair or replace the engine cylinder assembly before further flight.

3. Cylinder assemblies P/N AEL65102, S/N 35239-01 through to 42179-30 shall not be fitted to any engine, and shall not be repaired or reused.

(FAA AD 2009-26-12 refers)

Compliance:

1. Before further flight.

2. For cylinders with S/N 1138-02 through to 35171-22:

Accomplish a visual inspection and compression test before exceeding 350 hours TTIS on the cylinder, or within the next 10 hours TIS for a cylinders with between 350 hours TTIS and 2000 hours TTIS whichever occurs sooner, unless previously accomplished and thereafter at intervals not to exceed 50 hours TIS.

Replacement of cylinder assemblies fitted to helicopter engines: Before exceeding 1500 hours TTIS for cylinders that pass the visual inspection and compression tests, or within the next 25 hours TIS for cylinders with more than 1500 hours TTIS, whichever occurs sooner.

Replacement of cylinder assemblies fitted to aeroplane engines: Before exceeding 2000 hours TTIS for cylinders that pass the visual inspection and compression tests, or within the next 25 hours TIS for cylinders with more than 2000 hours TTIS, whichever occurs sooner.

For cylinders with S/N 35239-01 through to 42179-30:

Within the next 10 hours TIS accomplish a visual inspection and compression test.

Replace cylinders that pass the initial visual inspection and compression tests before exceeding 350 hours TTIS, and for cylinders with 350 or more hours TTIS replace within the next 25 hours TIS.

3. From 4 February 2010

Effective Date: 4 February 2010

DCA/LYC/223A FAA AD 2012-03-07 Carburetors – Inspection and Replacement

Applicability: All Lycoming reciprocating engines fitted with model HA-6 carburetors P/N 10-5219-XX, 10-5224-XX, 10-5230-XX, 10-5235-XX, 10-5253-XX, 10-5255-XX, 10-5283-XX, 10-6001-XX, 10-6019-XX and 10-6030-XX including all dash numbers.

Note 1: DCA/LYC/223A revised to clarify the applicability with no change to the AD requirement. Affected carburetors have a 'machined-from-billet' body.

Requirement: To prevent the mixture control sleeve from rotating in the carburetor body which could result in fuel restriction and a loss of engine power, accomplish the inspections and corrective actions specified in FAA AD 2012-03-07.

Note 2: A copy of FAA AD 2012-03-07 can be obtained from the FAA AD website at http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAD.nsf/MainFrame?OpenFrameSet

(FAA AD 2012-03-07 refers)

Compliance: Within the next 50 hours TIS from 29 March 2012 (the effective date of DCA/LYC/223), unless previously accomplished.

Effective Date: DCA/LYC/223 - 29 March 2012
DCA/LYC/223A - 31 May 2012

From 1 October 2012 the Civil Aviation Authority of New Zealand (CAA) will no longer rewrite the text of State of Design ADs. Applicable State of Design ADs will be listed below and can be obtained directly from the National Airworthiness Authority (NAA) web site. The link to the FAA web site is available on the CAA website at <http://www.caa.govt.nz/airworthiness-directives/states-of-design/>
 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.

* **DCA/LYC/224A Lycoming Parallel Valve Cylinder and Head Assemblies – Inspection**

Applicability: All Lycoming engines fitted with parallel valve cylinder and head assemblies listed in Table 1 of Lycoming Mandatory Service Bulletin (MSB) 634, dated 11 October 2018, or later FAA approved revision.

Note: DCA/LYC/224A revised to introduce a repetitive inspection requirement for affected parallel valve cylinder and head assemblies, until replacement per requirement 2 of this AD. Affected cylinder and head assemblies were supplied in cylinder kits and installed on all parallel valve engines (except O-235 model engines), that were supplied by Lycoming Engines between 1 September 2013 and 30 April 2015. To identify affected cylinder and head assemblies refer to Lycoming MSB 634.

Requirement: To prevent loss of engine power due to a cracked cylinder assembly, accomplish the following:

1. **Inspection:**
 Inspect affected parallel valve cylinder and head assemblies for visible discolouration/residue on the cylinder fins. If residue is found on the cylinder fins, then the cylinder may be cracked and further investigation is required. Accomplish a compression test on affected cylinders (refer to Lycoming Service Instruction 1191A). If the compression value does not meet OEM requirements, then the cylinder may be cracked and further investigation is required. Any loss of compression may be due to a cracked cylinder assembly. If a whistling sound is evident while accomplishing the compression test, then the cylinder may be cracked and further investigation is required. If a cracked cylinder assembly is found, then replace all affected parallel valve cylinder and head assemblies fitted on the engine, before further flight.
2. **Replacement:**
 Remove and replace all parallel valve cylinder and head assemblies listed in Table 1 of MSB 634, dated 11 October 2018, or later FAA approved revision. Affected parallel valve cylinder and head assembly listed in Table 1 of MSB 634 shall not be overhauled, refurbished, or repaired and returned to service. From the effective date of this AD, an affected parallel valve cylinder and head assembly listed in Table 1 of MSB 634, shall not be installed on any engine.

Compliance:

1. **Inspection:**
 Within the next 50 hours TIS and thereafter at intervals not to exceed 50 hours TIS until requirement 2 of this AD is accomplished.
2. **Replacement:**
 Replace all affected cylinder and head assemblies at the next engine overhaul.

Effective Date: DCA/LYC/224 - 25 October 2018
 DCA/LYC/224A - 28 February 2019