Airworthiness Directive Schedule

Components & Equipment

Electrical Equipment – Reciprocating Engines

27 October 2022

Notes:

1. This AD schedule is applicable to electrical equipment installed on reciprocating engines. These ADs should be listed in the AD section of the reciprocating engine logbook.
2. The CAA has reviewed the Electrical Equipment AD Schedule and split this schedule into two smaller AD schedules. There is now an *Electrical Equipment - Reciprocating Engines* AD Schedule for electrical equipment installed on engines, and an *Electrical Equipment - Aircraft General* AD Schedule for electrical equipment installed on an aircraft (related to the airframe).
3. This AD schedule includes those National Airworthiness Authority (NAA) ADs applicable to electrical equipment installed on the aircraft engine. NAA ADs can be obtained directly from the applicable NAA website. The 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/
4. The date above indicates the amendment date of this schedule.
5. New or amended ADs are shown with an asterisk *

Contents

DCA/ELECT/1 Slick Magnetos Impulse Couplings - Renewal

Applicability: All Slick magnetos with impulse couplings.

Requirement: Renew impulse couplings to prevent failure due to loose pawls.

Compliance: At every overhaul.

Effective Date: 31 July 1969

DCA/ELECT/20 BTH Magnetos – Inspection and Modification

Applicability: BTH Type AG 4 and SG 4 magnetos not identified by stamp "CV 419" on the casing at the drive end. These magnetos are used on but not limited to DH Gipsy Major Series engines.

Requirement: To reduce the incidence of failures of half-speed gear wheels on affected magnetos, accomplish the following:-

1. Modification. Remove half-speed wheel P/N CX 75907 and replace with new re-designed wheel P/N CX 133241. Remove full-speed wheel P/N CX 52880 and driving pins P/N CX 70833 and replace with re-designed wheel P/N 133240 and four pins P/N CX 133239 as shown in Figure 1.
Stamp "CV 419" on the casing at the drive end of the modified magneto as illustrated in Figure 2.

2. Inspection.

(a) Distributor wheel bearings. Check that excessive stresses are not being imposed on the gear teeth by tight distributer wheel bearings or slack armature bearings, as follows:-

(i) end float of distributor
rotor spindle : 0.002" to 0.005".

(ii) side play of distributor
rotor measured on rim of
half-speed wheel : 0.0" to 0.004"

(iii) backlash between gears : 0.002" to 0.010"

(b) Distributor gear teeth. Examine for wear.

(c) Armature bearings. Failure of the fibre insulation round the outside of the armature ball race can cause gear teeth failures. If this insulation becomes loose the races may spin in their housings and the resultant wear leads to excessive play in the meshing of the gears. The following procedure should be used when magnetos are stripped for overhaul:-

(i) at the contact breaker end bearing, apply a thin coat of B.T.H. No. 92 varnish, or approved equivalent, to both sides of the standard red fibre insulator, to the inner bore of the housing and the outer periphery of the bearing race before pressing the bearing home. The end plate should be baked at 180 deg F for 8 hours.

(ii) treat the driving end insulator bearing and housing in a similar manner, but use No. 93 air drying varnish or approved equivalent. After assembly, allow adequate time (approximately 12 hours) for the varnish to set.

(iii) where spinning of the bearing has taken place with evident wear, thicker fibre insulators should be used.

Compliance: 1. Modification - not later than next magneto overhaul and before installation of replacement magnetos.

2. Inspection - during modification and each subsequent overhaul.

Effective Date: 3 April 1975

DCA/ELECT/22 Prestolite Alternators - Inspection

Applicability: All ALV-9400 through ALV-9410 Series alternators used on, but not limited to, Continental IO-520-B, BA and CM; TSIO-520-B, D, E, J, K, L and N; and GTSIO-520-C, D, H and L Series engines.

Requirement: Inspect per Prestolite SB ASM-10.

(FAA AD 76-02-07 and Continental SB TCM M75-30 refer)

Compliance: Within next 100 hours TIS and thereafter at intervals not exceeding 100 hours TIS.

Effective Date: 17 March 1976

DCA/ELECT/23 Distributor Block - Inspection

Applicability: All Slick Model 662 magnetos.

Requirement: 1. Remove distributor housing and check that length of each block retaining screw is not less than 5/8 inch and that threaded depth of holes allows complete engagement when block is fitted. If necessary tap holes (8-32) deeper to achieve this. Ensure that block is tight in housing after re-assembly.

2. Remove distributor housing and check block for security and tighten if loose.

Compliance: 1. Within next 100 hours TIS.

2. At intervals not exceeding 200 hours TIS.

Effective Date: 30 November 1976

DCA/ELECT/31 Bendix Magnetos - Inspection and Modification

Applicability: All D-2200 series magnetos with green distributor blocks and identified as follows:-

Model D8LN-2200 P/N 10-382620-51 or 10-382920-51.
Model D6LN-2230 P/N 10-382910-53 or 10-382610-53.
Model D6RN-2230 P/N 10-382910-58.

Installed on but not limited to following engines and/or engine-aircraft combinations:

Lycoming TIO-540-R2AD, -F2BD, -N2BD; IO-720-B1BD; IO-720-D1CD in Piper PA-36-375.

Requirement: Inspect per Bendix SB 606. If bushing movement detected at either end of magneto replace distributor block with serviceable part before further flight.

(FAA AD 79-12-07 refers)

Note: Lycoming SB 437 pertains to the subject of this AD.

Compliance: Within next 10 hours TIS and at intervals not exceeding 25 hours TIS until green distributor blocks P/N 10-382978 and 10-382976 are replaced with black distributor blocks P/N 10-382998 and 10-382972 respectively.

Effective Date: 2 May 1979

DCA/ELECT/35B Bendix Magnetos - Inspection

Applicability: The following magnetos which are not identified by the letter 'X' in the upper left corner of identification plate.

1. D-2000 and D-2200 series with S/N below 35480 (red label) and below 8122106 (blue label).
2. D-3200 series pressurised (blue) with S/N below 1423.
3. D-3000 and D-3200 series (blue) with S/N below 1969.

Requirement: Inspect and renew parts as necessary per Bendix SB 617, 618 or 619 as applicable. If distributor block is contaminated with brass filings or bronze coloured dust, inspect pistons through spark plug holes for evidence of burning and check valve dry tappet clearance per manufactures instructions. Rectify engine defects before further flight. (FAA AD 81-12-06R1 refers)

Note: Lycoming SBs 461, 459 and 460 pertain to the subject of this AD.

Compliance: At 100 hours TTIS and thereafter at intervals not exceeding 50 hours TIS, until gear assemblies identified with letters 'Z' or 'XO' on retaining ring end of gear axle or the letter 'L' stamped on electrode, installed.

Effective Date: DCA/ELECT/35A - 7 August 1981
DCA/ELECT/35B - 16 April 1982

DCA/ELECT/49 Impulse Couplings – Inspection and Replacement

Applicability: All TCM and Bendix S-20, S-1200, D-2000 and D-3000 series magnetos with impulse couplings installed on Lycoming AEIO- 540, HIO-540, IO-540, 0-540, and TIO-540 series engines.
These engines are installed on, but not limited to, Cessna, Maule, Mooney, Piper and Beech aircraft.

Requirement: To prevent engine stoppage due to worn impulse couplings, inspect riveted and snap ring impulse coupling assemblies with P/Ns which are listed in Table 1 of TCM MSB645 for wear, per paragraphs 1.2 through to 1.4.5 of MSB645.
Replace worn couplings, per paragraphs 2 through to 2.6 of MSB645, prior to further flight.
(FAA AD 2005-12-06 refers)

Note 1: Snap-ring impulse coupling assemblies will have an "A" stamped in the lower-right quarter of the magneto data plate.

Note 2: If you replace a snap-ring impulse coupling assembly with a riveted-impulse coupling assembly, strike out the "A" on the magneto data plate.

Note 3: TCM SB 639 contains additional information for replacing impulse coupling assemblies on TCM magnetos.

Note 4: Installing a "Shower-of-Sparks" ignition system per TCM SIL648 is a terminating action to the repetitive inspection requirements of this AD.

Compliance: **For riveted couplings**:

Within 10 hours TIS for couplings with 100 hours or more TSN or overhaul or if the TSN is unknown, and before accumulating 100 hours TSN for couplings with fewer than 100 hours TSN, and thereafter at intervals of 100 hours TIS.

For snap ring couplings:

Within 50 hours TIS for couplings with 450 hours or more TSN, and before accumulating 500 hours TSN for couplings with fewer than 450 hours TSN, and thereafter at intervals of 500 hours TIS.

Effective Date: 28 July 2005

DCA/ELECT/50B Slick Magnetos – Inspection

Applicability: All 400, 600, 4000, 4100, 4200, 4300, 4700, 6200, 6300 and 6700 series magnetos.

Note 1: Content of note 4 revised.

Requirement: To prevent magneto failure accomplish the following:

1. For 4000 and 4100 series magnetos inspect externally per Slick Service Bulletin SB2-80C. If required, replace with 4300 series magnetos.

Note 2: Slick 4000 and 4100 series magnetos are factory sealed and cannot be overhauled or serviced.

2. For 400 and 600 series magnetos inspect externally and inspect internally, per Slick Manual L-1020 and for special service information, per Slick Master Service Manual F-1100. Repair as required in accordance with the manufacturer's service information, or replace with 4300 or 6300 series magnetos.

3. For 4200 and 6200 series magnetos inspect externally and inspect internally, per Slick Manual L-1037 and for special service information, per Slick Master Service Manual F-1100. Repair or replace as required in accordance with the manufacturer's service information.

Note 3: Inspect/replace 4200 series rotor shaft bearings in accordance with SB2-88A.

4. For 4300 and 6300 series magnetos inspect externally and inspect internally, per Slick Manual L-1363 and for special service information, per Slick Master Service Manual F-1100. Repair or replace as required in accordance with the manufacturer's service information.

5. For 4700 and 6700 series magnetos inspect externally and inspect internally, per Slick Manual L-1503 and for special service information, per Slick Master Service Manual F-1100. Repair or replace as required in accordance with the manufacturer's service information.

(Slick SB2-80C, SB1-86C and SB1-89B refers)

Compliance: 1. Inspect externally within next 100 hours TIS and thereafter at intervals not to exceed 200 hours TIS. Replace the magneto before exceeding 800 hours TTIS.

For aircraft installed with a 4000 or 4100 series single non-redundant ignition system, inspect externally within 25 hours TIS, and thereafter at intervals not to exceed 25 hours TIS, per Slick SB1-89B. Replace with a 4300 series magneto at intervals not to exceed 250 hours TTIS.

2. 3. 4. & 5. Inspect externally within next 100 hours TIS, and thereafter at intervals not to exceed 100 hours TIS.

Inspect internally at 500 hours TIS since new, overhaul, or last inspection, or within 100 hours TIS whichever is the later, and thereafter at intervals not to exceed 500 hours TIS. Magneto TBO shall not exceed the applicable engine TBO.

Note 4: The 'applicable engine TBO' is either the manufacturers TBO or the TBO achieved under an TBO escalation program approved in a maintenance programme.

For aircraft installed with a 400, 600, 4200, 4300, 4700, 6200, 6300 and 6700 series single non-redundant magneto ignition system, inspect externally within 50 hours TIS, and thereafter at intervals not to exceed 50 hours TIS. Inspect internally, and repair or replace as required, at intervals not to exceed 250 hours TTIS, or 24 months regardless of hours TIS, whichever is the sooner.

Effective Date: DCA/ELECT/50 - 25 August 2005
DCA/ELECT/50A - 29 September 2005
DCA/ELECT/50B - 28 June 2007

DCA/ELECT/51E **Continental Motors and Bendix Magnetos – 500 hour Inspection**

Applicability: All S-20, S-200, S-1200, D-2000 and D-3000 series magnetos.

Note 1: This AD revised to introduce note 4 which is applicable to low utilisation aircraft in operation for less than 500 hours TIS every 4 years.

Requirement: To prevent magneto system failures, accomplish the following:

1. Riveted impulse couplings:

   Inspect magnetos fitted with riveted impulse couplings for wear per the instructions in Teledyne Continental Ignition Systems (TCI) MSB645, dated 4 April 1994, or later approved revision. Repair or replace, as required, per the manufacturer's maintenance instructions, and the instructions in Teledyne Continental Motors (TCM) Ignition Systems SB639, dated March 1993, or later approved revision.

2. Snap-ring impulse couplings:

   Inspect magnetos fitted with snap-ring impulse couplings for wear per the instructions in the latest revision of the applicable Service Support Manual. Repair or replace, as required, in accordance with the manufacturer's maintenance instructions, and the instructions in the latest approved revision of TCM Ignition Systems SB639.

3. Inspect magnetos per the instructions in Continental Motors Ignition Systems (CMI) SB643C, dated 21 July 2017, or later approved revision, and per the instructions in the latest revision of the applicable Service Support Manual, paying particular attention to all rotating parts, bearings and electrical components. Repair or replace, as required, in accordance with the manufacturer's maintenance instructions.

4. Inspect high tension ignition harnesses, starting vibrator assemblies and ignition switch assemblies, per the instructions in the latest approved revision of CMI SB643, and per the instructions in the latest revision of the applicable Service Support Manual, and per the instructions in the High Tension Ignition Harness Service Support Manual P/N X43001. Clean, repair or replace, as required, in accordance with the manufacturer's maintenance instructions.

(CMI SB643C, dated 21 July 2017, or later approved revision refers)

Compliance: 1. For riveted impulse couplings**:**

At 100 hours TIS since new, or since overhaul, or since last inspection, or within the next 50 hours TIS, whichever is the later, and thereafter at intervals not to exceed 100 hours TIS.

2. For snap-ring impulse couplings**:**

At 500 hours TIS since new, or since overhaul, or since last inspection, or within the next 100 hours TIS, whichever is the later, and thereafter at intervals not to exceed 500 hours TIS, or at engine overhaul, whichever is the sooner.

3. At 500 hours TIS since new, or since overhaul, or since last inspection, or within the next 100 hours TIS, whichever is the later, and thereafter at intervals not to exceed 500 hours TIS, or at engine overhaul, whichever is the sooner. Magneto TBO shall not exceed the applicable engine TBO.

4. At 500 hours TIS since new, or since overhaul, or since last inspection, or within the next 100 hours TIS, whichever is the later, and thereafter at intervals not to exceed 500 hours TIS, or at engine overhaul, whichever is the sooner.

Note 2: CAA Rule Part 91.603(c) requires the operator of an aircraft to comply with the manufacturer's recommended overhaul intervals. The 'applicable engine TBO' is either the manufacturers TBO or the TBO achieved under an TBO escalation program approved in a maintenance programme.

Note 3: Requirement 3 of this AD shall be accomplished in-lieu of the manufacturer's recommended 4 yearly magneto overhaul interval specified in section D of CMI SB643C for magnetos with S/N older than D15FA000(R), E15FA000(R) or F15FA000(R). For information about CMI magneto serial numbers refer to the latest revision of SIL642, "Manufacturing Serial Number Interpretation".

Note 4: For low utilisation aircraft (i.e. aircraft with less than 500 hours TIS every 4 years): Accomplish requirements 2, 3 and 4 of this AD at 500 hours TIS since new, or since overhaul, or since last inspection, or at 4 years, whichever is the sooner, and thereafter at intervals not to exceed 500 hours TIS, or every 4 years, or at engine overhaul, whichever is the sooner.

Effective Date: DCA/ELECT/51C - 31 August 2017
DCA/ELECT/51D - 28 September 2017
DCA/ELECT/51E - 30 November 2017

DCA/ELECT/24B Cancelled – Purpose fulfilled

Note: Lycoming SB 416A refers – Bendix Coil Retaining Devices, D2000/D2200 Mags.

(FAA AD 78-18-04 refers)

Effective Date: 29 September 2016

DCA/ELECT/25 Cancelled – Purpose fulfilled

Note: Lycoming SB 410 refers – Inspection of Bendix D2000 Capacitors & Lead Crimp Terminals.

(FAA AD 78-18-04 refers)

Effective Date: 29 September 2016

DCA/ELECT/26 Cancelled – Purpose fulfilled

Note: Lycoming SB 410 refers – Inspection of Bendix D2000 Capacitors & Lead Crimp Terminals.

(FAA AD 78-18-04 refers)

Effective Date: 29 September 2016

DCA/ELECT/27A Cancelled – Purpose fulfilled

Note: Lycoming SB 427A refers – Bendix Bearing P/N 10353110 in D2000/D2200 Mags.

(FAA AD 78-18-04 refers)

Effective Date: 29 September 2016

DCA/ELECT/28A Cancelled – Purpose fulfilled

Note: Lycoming SB 415A refers – Rotating Magnets to Housing Clearance – D2000/D2200 Mags.

(FAA AD 78-18-04 refers)

Effective Date: 29 September 2016

DCA/ELECT/32 Cancelled – Purpose fulfilled

Note 1: Bendix SB 605A (Incorporated in Lycoming SB 438A Housing Distortion and Coil Retention) refer.

Note 2: Bendix SB 584B (Incorporated in Lycoming SB 416A Bendix Coil Retaining Devices, D2000/D2200 Mags) refer.

(FAA AD 79-18-06 refers)

Effective Date: 29 September 2016

DCA/ELECT/34 Cancelled – Purpose fulfilled

Note: Bendix SB 605A (Incorporated in Lycoming SB 438A Housing Distortion and Coil Retention) refer.

(FAA AD 80-17-14 refers)

Effective Date: 29 September 2016

DCA/ELECT/36 Cancelled – Purpose fulfilled

Note: Bendix SB 614 refers.

(FAA AD 81-17-01 refers)

Effective Date: 29 September 2016

DCA/ELECT/37 Cancelled – Purpose fulfilled

Note: Slick Bulletin 1-81, Lycoming SB 457A and Continental SB M81-13R1 refer.

(FAA AD 81-16-05 refers)

Effective Date: 29 September 2016

DCA/ELECT/38 Cancelled – Purpose fulfilled

Note: Bendix SB 613 (Incorporated in Lycoming SB 458) refer.

(FAA AD 82-13-01 refers)

Effective Date: 29 September 2016

DCA/ELECT/39 Cancelled – Purpose fulfilled

Note: Bendix SB 623A (Incorporated in Lycoming SB 464A) refer.

(FAA AD 82-20-01 refers)

Effective Date: 29 September 2016

DCA/ELECT/46 Cancelled – Purpose fulfilled

Note: Continental CSB 641, CSB 94-1 and Lycoming SB 517 refer – Magneto Capacitor Replacement.

(FAA AD 94-06-09 refers)

Effective Date: 29 September 2016

DCA/ELECT/47A Cancelled – Purpose fulfilled

Note: Continental MSB 644 refers.

(FAA AD 94-01-03R2 refers)

Effective Date: 29 September 2016

DCA/ELECT/48 Cancelled – Purpose fulfilled

Note: Continental MSB 644 refers.

Effective Date: 29 September 2016

The 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.

*** FAA AD 2022-16-03 Magnetos S-1200 Series - Inspection**

Applicability: Continental Aerospace Technologies, Inc. reciprocating engine models identified in Table 1 to paragraph (c) of FAA AD 2022-16-03 that are fitted with a S-1200 series magneto with a S/N between F21EA057 and F21KA009R inclusive, manufactured and sold between May and November 2021; and

Lycoming Engines and Textron Lycoming/Subsidiary of Textron, Inc. reciprocating engine models identified in Table 2 to paragraph (c) of FAAAD 2022-16-03 that are fitted with a S-1200 series magneto authorized by Continental Aerospace Technologies, Inc. Parts Manufacturer Approval (PMA) Supplements 1-54, with a S/N between F21EA057 and F21KA009R inclusive, manufactured and sold between May and November 2021.

Note: There is no change to the requirements in FAA AD 2022-16-03. No corrective action required if already in compliance with FAA AD 2022-16-03.

Effective Date: 27 October 2022