N2702L

1981 Cessna 414A

LH Engine Logbook

SMOH

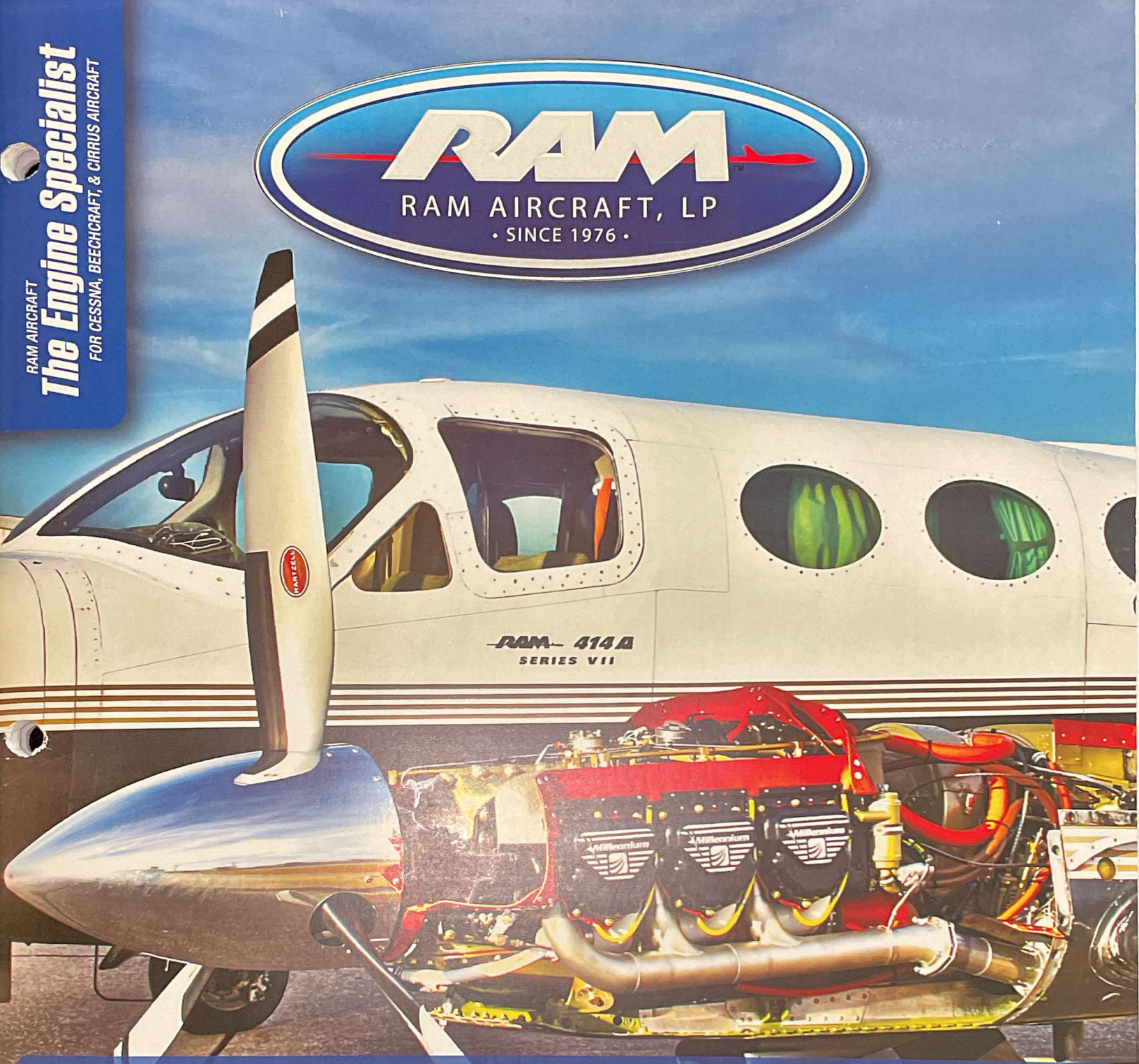
2021 - 2025

MSN: 414A-0608

Prepared by the worldwide aviation specialists at RidgeAire, Inc.

RAM AIRCRAFT
The Engine Specialist
FOR CESSNA, BEECHCRAFT, & CIRRUS AIRCRAFT

RAM AIRCRAFT, LP
• SINCE 1976 •



ENGINE MAINTENANCE RECORDS

Aircraft Registration N2702L

Engine Position Left

Engine Serial No. 514121

7505 Karl May Dr. | P.O. Box 5219 | Waco Regional Airport | Waco, TX 76708 | Phone: (254) 752-8381 | Fax: (254) 752-3307 | www.ramaircraft.com

RAM AIRCRAFT, LP
• SINCE 1976 •

ENGINE
MAINTENANCE RECORDS

Log No. 1

Aircraft Registration No. N2702L

Engine Manufacturer Continental

Model TSIO-520-NB

Serial No. 514121

Date installed on aircraft 10.4.2021

Time Between Overhauls (TBO) 1600 Hours

If used on multi-engine aircraft:

☐ Right ☒ Left

Waco Regional Airport
7505 Karl May Drive • P.O. Box 5219 • Waco, Texas 76708
Phone: (254) 752-8381 Fax: 254-752-3307
www.ramaircraft.com

Page No. 1

DATE	TOTAL TIME IN SERVICE	TOTAL TIME SINCE OVERHAUL	TACH OR RECORDING METER TIME	DESCRIPTION OF WORK PERFORMED— SIGNATURE & CERTIFICATION NO. OF PERSON PERFORMING WORK
				TOTALS brought forward from previous page

Date	Total Time In Service	Total Time Since Overhaul	Recording Meter Time
8/18/2021	4424.1	0.0	

RAM™

RAM Aircraft, Limited Partnership • Waco Regional Airport

CONTINENTAL TSIO-520-NB Series IV Left Engine S/N 514121

Above referenced engine overhauled to new parts limits per FAR 43.2(a)(1)(2) to conform w/CMI SM X-30574 and CMI M-0 Standard Practice Maintenance Manual. Applicable AD's and Service Bulletins C/W at this time. All gears cleaned, polished when required, inspected, magnetic particle inspected, and no cracks found. Finish and dimensional limits within RAM Gear Inspection Specification No. 1818, Rev. P dated 07/19/2017. Above referenced engine modified to TSIO-520-NB 325 HP per STC SE4327SW-D Rev.4. Installed new RAM camshaft p/n 1058-20, s/n XI20061 per STC SE4327SW-D. Installed new lifters p/n SA628488 (int), p/n SA646277 (exh). AD 10-11-04 n/a to lifter p/n installed. AD 97-26-17 c/w per installation of overhauled VAR crankshaft p/n 642396, s/n D919 per TCM CSB96-8. C/W ultrasonic inspection per MSB96-10B, due at next overhaul or when crankshaft removed. AD 99-19-01 n/a per crankshaft date of manufacture I/A/W TCM MSB99-3C. AD 2000-23-21 N/A to crankshaft serial number/date of manufacture I/A/W TCM Mandatory Service Bulletin MSB00-5D. Engine assembled with new RAM crankcase p/n 2922-01, s/n 20L0281. Installed new Superior steel cylinders. Installed overhauled oil cooler p/n 2600-1, s/n 1753084. C/W AD 89-24-01 R1 per installation of starter adapter p/n 642085A4 with current scavenge pump gears. AD 2012-10-13 and MSB11-4B Starter Adapter inspection. N/A per p/n installed or manufacture date. Installed .030/.040 inch undersize starter adapter spring p/n S539800M30/M40 per STC SE09846SC. Installed new RAM/FAA/PMA fuel nozzles p/n 2562-14D. TCM Service Bulletin SB06-1A N/A per installation of RAM fuel nozzles. Engine accessories exchanged for overhauled or new units with exception of prop governor, vacuum pump, hydraulic pump and tach generator which were not installed per this work order. Installed new Plane-Power alternator C28-150 (weight 13.0 lbs), s/n H-V051424. This may require a weight and balance change. Installed overhauled alternator drive coupling p/n 646655, s/n QAA077345. New Slick pressurized magnetos p/n 6320 installed per STC SE4651SW-D and pressurized. Slick Service Bulletins SB1-12 (Points assy.), SB1-19 (Impulse coupling stop pins) and SB2-19 (Impulse coupling rivets) N/A per S/N or the manufacture date. MSB94-8D on magneto timing procedure c/w per timing to STC degree requirements with TDC locator and protractor with pointer. Engine modified to TSIO-520-NB per Continental Service Bulletin M-75-6 Rev. 1. P/N 652130 & 652131 rocker arms installed. Installed RAM FAA-PMA oil cooler baffle p/n 1253-1, rocker arm cover gaskets p/n 1387-1, spring loaded induction clamps p/n 1170-2 and double clamp p/n 1170-5. Category 1 thru 3 CMI Service Bulletin Compliance Listing in RAM Manual. Engine ground run on test stand per RAM specifications for 3 hours. Engine run-in with Aeroshell 100 Mineral oil. See RAM Recommended Oil Grade Maintenance Tip MT-1 for recommended oils. Engine approved for return to service for the work performed. Engine preserved per Continental M-0, Standard Practice Maintenance Manual temp. storage up to 90 days. Pertinent details on file under Project No. 9950.

Lawrence P. Garcia

RAM Aircraft, Limited Partnership, P.O. Box 5219, Waco Texas 76708 CRS VA1R551K

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DATE	TOTAL TIME IN SERVICE	TOTAL TIME SINCE OVERHAUL	TACH OR RECORDING METER TIME	DESCRIPTION OF WORK PERFORMED— SIGNATURE & CERTIFICATION NO. OF PERSON PERFORMING WORK

AIR IMPRESSIONS, INC.
PROFESSIONAL AIRCRAFT SERVICE

7929 Karl May Dr.
Waco, Texas 76708
CRS No. AK6R541N

Engine TT: 4424.1
Engine SMOH: 00.0 (8/2021)
Prop SMOH: 00.0 (8/2021)
Hour Meter: 1246.1
Date: 10/04/2021

TCM TSIO-520-NB RAM SIV S/N L-514121

Installed above referenced engine in left position of 414A-0608 with zero hours since RAM overhaul. Installed Hartzell Propeller, P/N PHC-C3YF-2UF, S/N EB1542 with zero hours since overhaul. Prop governor overhauled, P/N 821710, S/N 1494497U. Installed new vacuum pump, P/N AA442CW, S/N 343474. Reused customer tach generator and hydraulic pump. Installed RAM supplied new turbo charger, P/N 407810-003 S/N H-YEL00153. Installed overhauled wastegate assembly, P/N 470908-9002, S/N H-P1000123. Installed new fuel and hose hoses (Aeroquip Integral fire sleeve) meeting TSO-C53A TYPE D and TSO-C75 TYPE III. C/W A.D. 2000-01-16 per paragraph (b), (c), (d) and (e). See A.D. listing for next compliance and paragraph (g) compliance 7830.8 Aircraft or 10/2030. C/W A.D. 84-26-02 per new induction air filter installed. (Next due at 1546.1 HM.) Installed new prop deice brush assemblies. Engine serviced with Aeroshell "Mineral Oil'. Installed fuel flow transducer per STC SE5726SW. Engine systems set-up to Continental and RAM Specs. All A.D.'s researched through bi-weekly 2021-19. See A.D. listing in log binder for all current and future compliance times. Above work done in accordance with TCM and Cessna Service Manual and Air Impressions, Inc. 100 Hour/Annual Checklist. Engine ground run-up leak checked good and approved for return to service. Pertinent details are on file under work order 5256.

Air Impressions, Inc.
CRS# AK6R541N

AIR IMPRESSIONS, INC.
PROFESSIONAL AIRCRAFT SERVICE

7929 Karl May Dr.
Waco, Texas 76708
CRS No. AK6R541N

I certify this Engine has been inspected in accordance with a 100 HR Inspection and has been determined to be in an airworthy condition.

DATE 10/04/2021 HM 1246.1
ENGINE TT 4424.1
ENGINE SMOH: 00.0 (8/2021)
WORK ORDER #5246
SIGNED
AIR IMPRESSIONS, INC
REPAIR STATION # AK6R541N

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ENGINE MODEL TSIO-520-NB
ENGINE S/N (L) 514121
REG NO N270ZL
WORK ORDER 0592

Premier Aircraft Service

Premier Aircraft Service, Inc.
3804 Falcon Way W
Hangar 165
Fort Worth, TX 76108
Phone 562.881.5345

DATE 10/21/2022
A/C TSN 1319.3
ENG TT (L) 1319.3
HOBBS 644.8

Left Engine Entries

- Replaced vacuum pump with overhauled 442CW S/N 10DJ10

DATE 10/21/2022 SIGNED _____ Work Order 0592

Chad Cox, License: AP3782800 IA

Air Impressions, Inc.

7929 Karl May Dr
Waco, Texas 76708
CRS No. AK6R541N

Engine TT: 4516.6
Engine SMOH: 92.5 (8/2021)
Prop SMOH: 92.5 (8/2021)
Hour Meter: 1338.6
Date: 12/12/2022

TCM TSIO-520-NB RAM SIV S/N L-514121

On above referenced engine, removed all cowling for 100HR/Annual Inspection. Cleaned and gapped spark plugs. Drained oil, installed new oil filter and refilled engine with Aeroshell 100W Plus oil. Checked magneto timing. Inspected plug harness and all engine electrical. Checked all engine controls for movement and attach points. Inspected intake and exhaust system, condition and integrity of all engine accessories. Inspected engine mount, all baffles, and cowling. Inspected prop, spinner and bulkhead. Inspected all fuel, oil, and hydraulic lines and fittings. Ran compression check and readings were: #1) 64/80, #2) 60/80 #3) 68/80, #4) 72/80, #5) 70/80 and #6) 62/80. C/W A.D. 2000-01-16 per paragraphs (b), (c), (d), (e). (Paragraph (b) next due 1388.6 HM.) Installed new overboard exhaust pipe. Installed overhauled fuel pump, P/N 646210-11A4, S/N A278805BR. Engine systems set-up to Continental and RAM Specs. All A.D.'s researched through bi-weekly 2022-24. See A.D. listing for current and future compliance times. Above work done in accordance with Continental and Cessna Service Manual and Air Impressions, Inc. 100 Hour/Annual Checklist. Engine ground run-up leak checked good and approved for return to service. Pertinent details are on file under work order 5597

Air Impressions, Inc.
CRS# AK6R541N

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AIR IMPRESSIONS, INC
PROFESSIONAL AIRCRAFT SERVICE

7929 Karl May Dr.
Waco, Texas 76708
CRS No. AK6R541N

I certify this Engine has been inspected in accordance with a 100 HR Inspection and has been determined to be in an airworthy condition.
DATE 12/12/2022 HM 1338.6
ENGINE TT 4516.6
ENGINE SMOH: 92.5 (8/2021)
WORK ORDER #5597
SIGNED _____
AIR IMPRESSIONS, INC
REPAIR STATION # AK6R541N

Cessna

Sipes Aircraft, LLC Lt Engine
Livingston Air Park
220 Air Park Drive
Livingston, TX 77351
02-10-2023

Cessna 414A 0608 TSIO-520 Hobbs 1376
Drained oil and removed oil filter.
Inspected filter for metal. Serviced
engine with Aeroshell 100W and
installed AA48108 oil filter; torqued
and safety. Degreased engine
and cowling. Engine ground run
and leak checked good - END -
Gary Sipes for Sipes Aircraft LLC
- AP4081907 17

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THE H COMPANY
HOUSTON EXECUTIVE AIRPORT
1900 CARDIFF RD
BROOKSHIRE, TX 77423

5/60/2023 N2702L 414A 414A0608 H/M 1424.1
LEFT ENGINE

Drain oil and replace filter with new AA4108-2. Cut removed filter open and inspect for metal contamination. No discrepancies noted at this time. Serviced engine with Aeroshell W100 oil. Ground ran engine and checked for leaks. I certify that with respect to the work performed; this aircraft was repaired and inspected in accordance with current FAA regulations. Only those items specified in the work order have been inspected and found to be airworthy and returned to service. No other representations concerning airworthiness are expressed or implied.

Richard A Ellis AP411174632

THE H COMPANY
HOUSTON EXECUTIVE AIRPORT
1900 CARDIFF RD
BROOKSHIRE, TX 77423

8/21/2023 N2702L 414A 414A0608 H/M 1446.6
LEFT ENGINE

Drain oil and replace filter with new AA4108-2. Cut removed filter open and inspect for metal contamination. No discrepancies noted at this time. Serviced engine with Aeroshell W100 oil. Ground ran engine and checked for leaks. I certify that with respect to the work performed; this aircraft was repaired and inspected in accordance with current FAA regulations. Only those items specified in the work order have been inspected and found to be airworthy and returned to service. No other representations concerning airworthiness are expressed or implied.

Richard A Ellis AP411174632

THE H COMPANY
1900 CARDIFF RD
BROOKSHIRE TX, 77423

Left Engine
10/20/2022 N421LK 421C1017 H/M 0 ACTT 6115.9
GTSIO-520-N S/N 610116 TTSN 6032.0 TTSMOH 1109.7
LEFT ENGINE

Completed 100 Hour/Annual inspection this date in accordance with FAR 43 Appendix D and using Cessna 421C maintenance manual as a reference. Compressions were as follows: #1) 78/80 #2) 70/80 #3) 76/80 #4) 50/80 #5) 72/80 #6) 30/80. Drain oil and replace filter with new CH48109-1 filter. Cut removed filter open and inspect for metal contamination. No discrepancies noted at this time. Serviced engine with Aeroshell W-100 oil. Ground ran engine and checked for contamination, No discrepancies were noted at nthis time Lubricate wastegate with Mouse Milk penetrating oil. Inspect and lubricate all engine controls. All AD's checked thru bi-weekly 2023-22.

C/W AD 07-05-15: Starter adapter assembly and crankshaft gear. Complied with part 2 viscous dampener end play check. All measurements were well within the limits. NOTE: Part 2 next due at H/M 6117.0, part 3 next due at H/M 6163.0.

I certify that I have inspected this engine in accordance with current FAR's and a 100 Hour/Annual inspection and was found to be in airworthy condition at this time and is approved for return to service.

Kenneth Griffith AP4673543471A

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THE H COMPANY
HOUSTON EXECUTIVE AIRPORT
1900 CARDIFF RD
BROOKSHIRE, TX 77423

11/21/2023 N2702L 414A 414A0608 H/M 1451.8
LEFT ENGINE

Drain oil and replace filter with new AA4108-2. Cut removed filter open and inspect for metal contamination. No discrepancies noted at this time. Serviced engine with Aeroshell W100 oil. Ground ran engine and checked for leaks. I certify that with respect to the work performed; this aircraft was repaired and inspected in accordance with current FAA regulations. Only those items specified in the work order have been inspected and found to be airworthy and returned to service. No other representations concerning airworthiness are expressed or implied.

Kenneth Griffith AP467354347

THE H COMPANY
HOUSTON EXECUTIVE AIRPORT
1900 CARDIFF RD
BROOKSHIRE, TX 77423

5/30/2023 N2702L 414A 414A0608 H/M 1424.1
LEFT ENGINE

Drain oil and replace filter with new AA4108-2. Cut removed filter open and inspect for metal contamination. No discrepancies noted at this time. Serviced engine with Aeroshell W100 oil. Ground ran engine and checked for leaks. I certify that with respect to the work performed; this aircraft was repaired and inspected in accordance with current FAA regulations. Only those items specified in the work order have been inspected and found to be airworthy and returned to service. No other representations concerning airworthiness are expressed or implied.

Kenneth Griffith AP467354347

THE H COMPANY

THE H COMPANY
1900 CARDIFF RD
BROOKSHIRE TX, 77423
Left Engine

11/17/2023 N2702L 414A 414A0608 H/M 1465.6 ACTT 6045.6
GTSIO-520-N S/N 610116 TTSN 4643.6 TTSMOH 222.2
LEFT ENGINE

Completed 100 Hour/Annual inspection this date in accordance with FAR 43 Appendix D and using Cessna 414A maintenance manual as a reference. Compressions were as follows: #1) 78/80 #2) 72/80 #3) 78/80 #4) 72/80 #5) 77/80 #6) 76/80. Drain oil and replace filter with new CH48109-1 filter. Cut removed filter open and inspect for metal contamination. No discrepancies noted at this time. Serviced engine with Aeroshell W-100 oil. Ground ran engine and checked for contamination, No discrepancies were noted at nthis time Lubricate wastegate with Mouse Milk penetrating oil. Inspect and lubricate all engine controls. All AD's checked thru bi-weekly 2023-22.

C/W AD 07-05-15: Starter adapter assembly and crankshaft gear. Complied with part 2 viscous dampener end play check. All measurements were well within the limits. NOTE: Part 2 next due at H/M 6117.0.

I certify that I have inspected this engine in accordance with current FAR's and a 100 Hour/Annual inspection and was found to be in airworthy condition at this time and is approved for return to service.

Kenneth Griffith AP467354347IA

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wo WO_1261

Engine L page 1 of 1

First Line AERO

First Line Aero, LLC 458 CR 1618 Rusk, TX 75785 903-316-8331

N2702L **CONT MOTOR, TSIO-520-NB, S/N: 514121** **July 31, 2024**

TACH. 1726.4

LH Engine Oil change due. Drained oil from engine. Took oil sample. Removed oil filter, cut open oil filter, no defects found. Removed and cleaned oil sump screen, no defects found. Installed oil sump screen w/ new crush gasket. Installed new oil filter and serviced engine w/ oil. Installed (10) P/N 100W Aeroshell - Oil, Installed P/N AN900-10 - Gasket, Installed P/N CH48108-1 - Champion Oil Filter, Installed P/N AOA - Oil Analysis Kit.

The listed maintenance was assisted by the following apprentices: Uryan Aracena

Work performed IRW Teledyne-Continental Motors MM's where applicable. Operational and leak check performed, no defects noted at this time. With respect to the work performed, this L engine is approved for return to service.

Andrew Trampus A&P 4896008

13 August, 2024 Hobbs 1789
N2702L S/N 414A0608
Cessna 414A
Powerplant L/H engine
Lubricated waste gate. This aircraft is approved for return to service with respect to the above work performed

Bryce Williams A&P 4916774 WO-10192

8-15-24 N2702L Hobbs: 1793.0
Changed oil and filter left engine. Cut old filter and check for metal—no discrepancies noted. Wash engine. Serviced with Aeroshell w100. David Bogan A&P 455216543

wo WO_1353

Engine L page 1 of 1

First Line AERO

First Line Aero, LLC 458 CR 1618 Rusk, TX 75785 903-316-8331

N2702L **CONT MOTOR, TSIO-520-NB, S/N: 514121** **September 05, 2024**

TACH 1826.6

LH engine oil change due. Drained ENG oil, took sample. Removed and cleaned Eng sump screen, replaced drain plug crush gasket. Cut open oil filter and inspected filter element, No defects noted at this time. Installed new oil filter. Serviced ENG with 10 qts of XC20W50. Installed (10 qt) P/N XC20W50 - Oil, Installed P/N AA48109 - Tempest Oil Filter, Installed P/N AOA - Oil Analysis Kit, Installed P/N AN900-10 - Gasket.

The listed maintenance was assisted by the following apprentices: Jonathan Bryan and Ben Lightfoot

Work performed Continental MM's where applicable. Operational and leak check performed, no defects noted at this time. With respect to the work performed, this LH Engine is approved for return to service.

Andrew Trampus A&P 4896008

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Engine L · page 1 of 1

wo: WO_1382

First Line Aero

First Line Aero, LLC · 458 CR 1618 · Rusk, TX 75785 · 903-316-8331

N2702L **CONT MOTOR, TSIO-520-NB, S/N: 514121** **October 21, 2024**

TACH: 1863.4

Opened engine cowling. Drained engine oil. Took sample of oil. Changed oil filter and safety wired. Installed quick drain plug per STC SA4024NM. Serviced oil sump. Installed (10 qt) P/N XC20W50 - Oil, P/N AA48109 - Tempest Oil Filter, and AOA - Oil Analysis Kits. Ground leak check performed, no leaks noted. With respect to the work performed, this engine L is approved for return to service.

T.J. Hunter A&P/IA 3554698

Wingspan Aviation
1322 County Road 1143 Tyler TX, 75704

L/H Eng.

Date: 18 Apr 25 Tach: 1152.5 ENG: TSIO-520-NB SN: 514121 TSMOH:926.5

Inspected engine in accordance with Cessna 414/414A series AMM. Compression is as follows: #1 76 #2 73 #3 75 #4 74 #5 74 #6 73 /80 psi. Replaced Vacuum pump with overhauled unit PN: RAP442CW SN: 210551. Replaced all 12 spark plugs with new PN: URHB32E. Drained oil, removed and replaced oil filter with new Tempest oil filter PN: AA48109. Serviced engine with 12qts. Phillips X/C 20W-50 oil. Cut and inspected filter no defects noted. All work was completed in accordance with TSIO-520 overhaul manual and Cessna series 414/414A AMM. I certify that this engine has been inspected in accordance with an annual inspection guide and has been determined to be airworthy.

Name: Colton Maughan Signature: Cert. No: A&P3928436 IA

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Oil Recommendations

Mineral Oil & Mineral Based Oils

Break-in procedures: RAM uses Mineral Oil.
Normal operations: RAM uses Mineral Based Ashless Dispersant (AD) oils.

Ashless Dispersant (AD) Oil

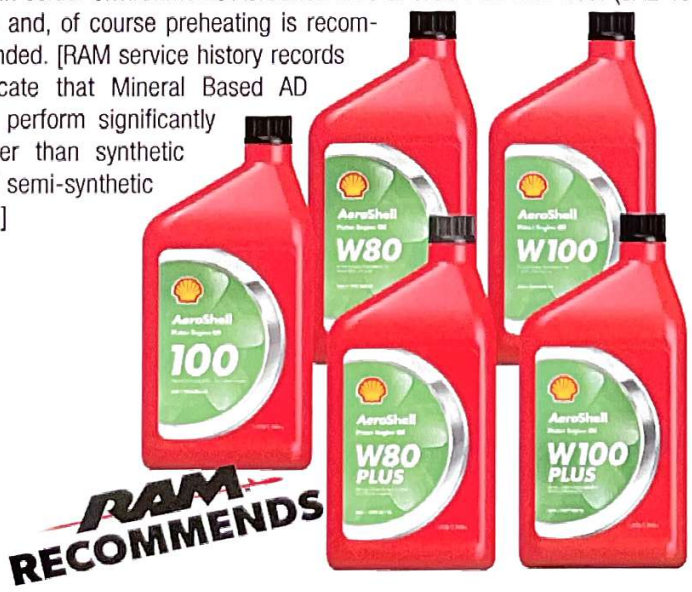
Ashless Dispersant Oil could be written as Ashless and Dispersant Oil. There are two distinct features to remember about AD oil. Ashless stems from a requirement to clarify that the oil does not leave behind any ashes, or burning embers as it cleans. Decades ago in aviation history, oils that cleaned involved metallic cleaning particles that left embers. Such glowing metallic embers contributed to preignition. Detergent oils have long since been removed from aviation piston engines. Aviation oils that clean are required to be Ashless. When an oil has Dispersant qualities, the particles created and removed by cleaning are suspended (dispersed) within the oil. Being dispersed, they are collected better by the oil filter. During the initial engine break-in period, RAM believes that AD cleansing is premature. RAM recommends a non dispersant Mineral Oil during the initial twenty-five hour break-in period of an aircraft piston engine, or replacement cylinder.

Break-in Oil

The use of break-in oil and performing break-in procedures should be followed whether replacing one cylinder or six. For direct drive and geared engines, Mineral Oil such as SAE 50 AeroShell Oil 100 should be used. This procedure should be followed for the first twenty-five hours of operation (and can continue to as much as 100 hours depending on the cylinder bore material used). The oil should be changed as soon as oil consumption stabilizes, but no later than the first twenty-five hours of operation. At that time, oil should be changed to an Ashless Dispersant (AD) Mineral Based Oil.

Single Viscosity – Mineral Based AD Oil

RAM recommends Single Viscosity Mineral Based (AD) Oils such as: AeroShell W100 and W100 Plus Anti-wear (SAE 50 wt.) when typical ground level engine starting temperatures are not less than 40° F. When operating in colder environments AeroShell W80 or W80 Plus Anti-wear (SAE 40 wt.) and, of course preheating is recommended. [RAM service history records indicate that Mineral Based AD oils perform significantly better than synthetic and semi-synthetic oils.]



Multi-Viscosity – Mineral Based AD Oil

Differing operating conditions and / or availability may warrant the use of multi-viscosity oils. Most important to RAM is that the oil be mineral based. RAM recommends a multi-viscosity ashless dispersant mineral based oil such as Phillips 66 X/C 20W-50. [RAM service history records indicate that Mineral Based AD oils perform significantly better than synthetic and semi-synthetic oils.]

Preheat

Preheat is recommended when engine starting temperatures are below 40° F. Preheat equipment can be purchased through numerous aviation supply companies, as well as through RAM's Parts Catalog.

Oil & Filter Change

RAM recommends changing the oil and filter every 50 hours or 4 months whichever occurs first. More frequent oil changes are encouraged.

Two major reasons for frequent oil changes are:
(1) Flush out metal particles. (2) Flush out acid contamination.

Frequent Oil Changes

- **Flush out metal particles**

Both Lycoming and Continental Motors (CMI) engines include parts that have a proven history of normal wear that deposits normal wear particles of metal into the oil. Oil filters contribute significantly to capturing these wear particles, but not as effectively as frequently changing the oil.

- **Flush out acid contamination**

With four-cycle gasoline engines it is an unavoidable fact that acids collect in the oil. Acids are formed when combustion by- products and unburned gasoline leak past (blow-by) the piston rings into the crankcase. Acids are corrosive. They cause rust as well as pitting of lifter faces. Acids are not removed by oil filters or by changing filters. The only way to remove acids is to remove the oil that has become acid contaminated.

Oil Viscosity

Points made are well taken on both sides of the issue of whether to use single or multi grade oils. In the final analysis, you know that your aircraft is subjected to extreme temperature variations and starting conditions. Many aircraft fly frequently. Many aircraft don't fly enough. Successes and lack of successes, suggests there is simply not one viscosity that is always the best for all flight environments. In general RAM sees the following:

- Multi-Viscosity Mineral Based (AD) oil performs well in high usage airplanes.
- Single Viscosity Mineral Based (AD) oil performs well in high or low usage airplanes.

Synthetic & Semi-synthetic vs. Mineral Based Oil

RAM service history records are much less favorable for engines that have a history of being operated on synthetic blends or semi-synthetic oil products. RAM encourages using Mineral Based (AD) Oils only, single or multi-viscosity as conditions require.