

N23DT

1975 Cessna 421B

LH Engine

Logbook

SMOH

2023 - 2024

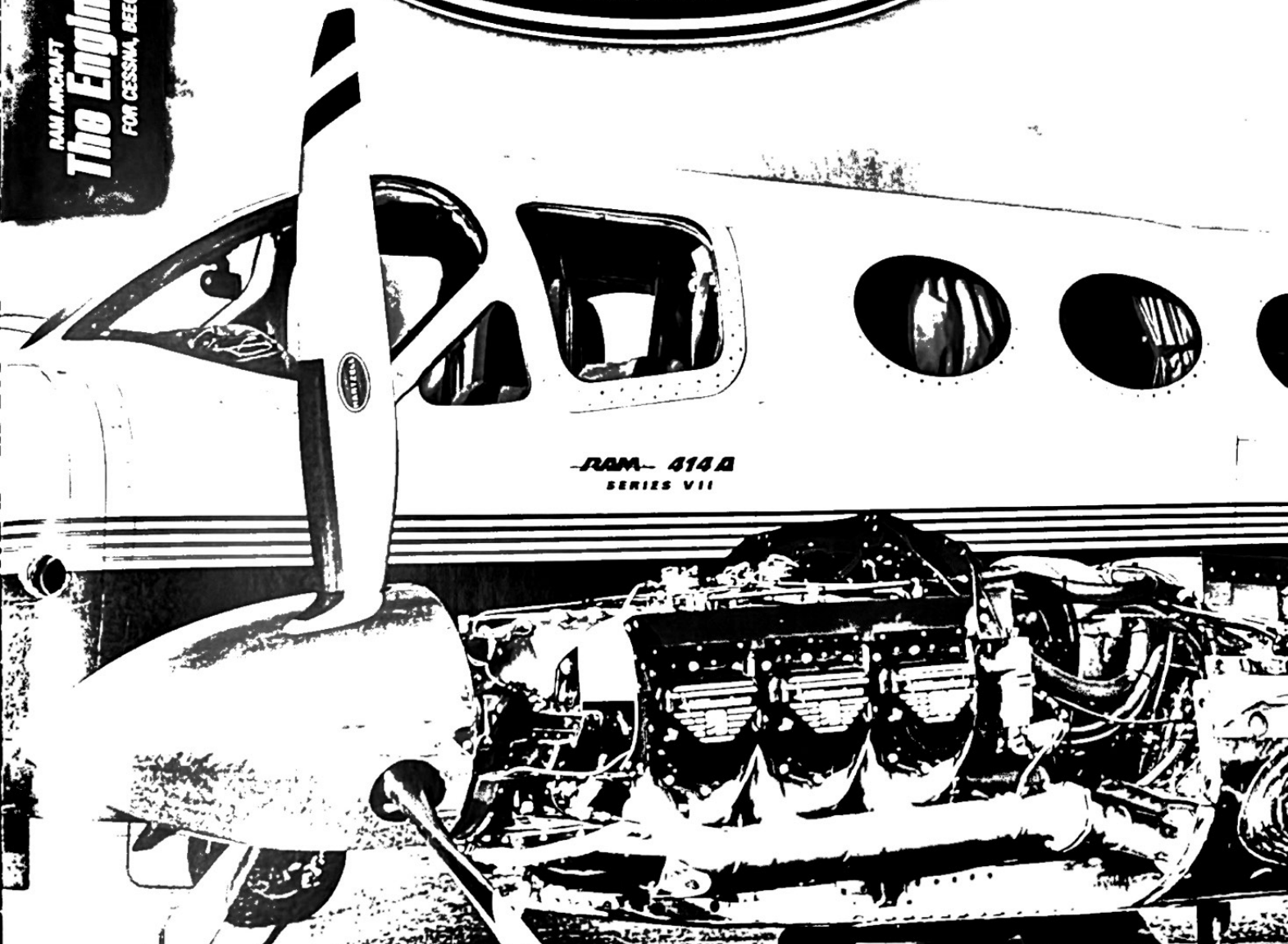
MSN: 421B-0852



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



RAM-414B
SERIES VII

ENGINE MAINTENANCE RECORDS

Aircraft Registration N1953G
Engine Position Left
Engine Serial No. 267475-R



ENGINE MAINTENANCE RECORDS

Log No. 1

Aircraft Registration No. N1953G

Engine Manufacturer Continental

Model GTS10-520-H

Serial No. 267475-R

Date installed on aircraft 1-25-2023

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

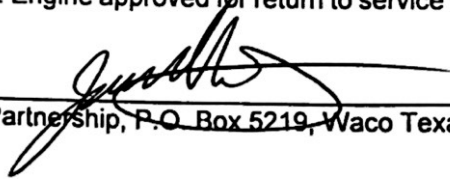
DATE	TOTAL TIME IN SERVICE	TOTAL TIME SINCE OVERHAUL	TACH OR RECORDING METER TIME	DESCRIPTION OF WORK PERFORMED— SIGNATURE & CERTIFICATION NO. OF PERSON PERFORMING WORK
				TOTALS brought forward from previous page

Date	Total Time In Service	Total Time Since Overhaul	Recording Meter Time
1-25-2023	2476.2	0.0	4165.5



CONTINENTAL GTSIO-520-H Left S/N 267475-R

Above referenced engine overhauled to new parts limits per FAR 43.2(a)(1)(2) to conform w/Continental SM X-30045, M-0, Standard Practice Maintenance Manual and I/A/W STC SE8338SW-D. 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 07/19/2016. Installed above referenced engine in left position of Cessna s/n 421B0852. Installed new RAM camshaft p/n 2621 -2 s/n XGE20075 as direct PMA replacement of Continental camshaft. Installed new lifters p/n SA628488 int. p/n SA646277 exh. AD10-11-04 n/a to lifter p/n installed. Installed overhauled VAR crankshaft p/n 635104, s/n 880833. Ultrasonic inspection C/W per MSB96-10B, due at next overhaul or when crankshaft removed. Installed overhauled prop shaft p/n 633908 s/n 1871. Installed overhauled reduction gear p/n 633265 s/n 642. Continental GTSIO-520 series engine crankshaft counterweights, p/n 652833-OH are repaired in accordance with FAA approved procedures per RAM Drawing 2618, Rev. B, dated 11-15-05. Instructions for Continued Airworthiness: Remove p/n 652833-OH counterweights at next engine overhaul and replace with new per Continental M-0, Standard Practice Maintenance Manual, except if repaired by RAM Aircraft, Limited Partnership per latest FAA approved revision of RAM Drawing 2618. Contact RAM Aircraft, L.P. at 7505 Karl May Drive, Waco TX 76708, or (254)752-8381 for replacement parts or service difficulties. AD99-19-01 n/a per crankshaft date of manufacture I/A/W Continental MSB99-6B. Engine assembled with overhauled Continental heavy style crankcase p/n 654119-8, s/n G109605R. Installed new CMI steel cylinders. CMI SB18- 08B C/W By Verifying The Letter "S" Stamped On The Cylinder Head Exhaust Ear. Superior MSB22-01 N/A per S/N. De-sludge and resealed cylinder, reinstalled McCauley propeller s/n 952338. Engine accessories exchanged for overhauled or new units except as noted. Installed overhauled prop governor p/n DCFS290D9A/T6, s/n 800064. Re-used and installed customer's vacuum pump s/n DG40560 tach generator s/n 9663. Installed new Hartzell C28-150 alternator s/n H-W021877. See weight and balance change entered in P.O.H. Installed new alternator drive coupling p/n 646655 s/n C09021422. Installed new CHT probe. Installed factory rebuilt turbocharger p/n 408610-9001, s/n H-YIR00134. Installed overhauled Continental fuel nozzles p/n 633723D19A. Continental Service Bulletin SB06-1A C/W, nozzles verified per part II of SB at overhaul. Installed Overhauled Bendix magnetos, MSB94-8D on magneto timing procedure c/w per timing to data plate TC degree requirements with TDC locator and protractor with pointer. Installed RAM FAA-PMA rocker arms p/n 1654-2, spring loaded induction clamps p/n 1170-1, and rocker box cover gaskets p/n 1366-1. AD 2000-01-16 c/w, see airframe log for details. Installed new Aeroquip integral firesleeved fuel, oil, hoses meeting TSO-C53A Type D and TSO-C75 Type III. Installed overhauled oil cooler p/n 8000464, s/n 3859601. Starter adapter shaftgear and crankshaft gear inspection, AD 2007-05-15 c/w per CAT Service Bulletin MSB94-4H Part 5 per installation of new Hartzell PMA starter adapter p/n 55273 with new CMI crankshaft gear P/N 653580 with bushing p/n 654472. Damper backlash inspection per Part 2 due in 100 flight hours. Visual inspection of crankshaft gear and starter adapter shaft-gear due per Part 3 in 400 flight hours. Category 1 thru 3 CMI Service Bulletin Compliance Listing in RAM Manual. Relocated turbo oil supply line per RAM Dwg. No. 1224, Rev H, dated 11-18-03 per STC SE8338SW-D. Engine serviced with AeroShell 100 mineral oil. See RAM Recommended Oil Grade Maintenance Tip MT-1 for recommended oils. Engine ground run on test stand per CMI M-16, Ch.18 specifications for 1.5 hours. Engine pump pressure, idle, mixture, fuel flow, max RPM, manifold pressure, and oil pressure adjusted per Continental M-0, Standard Practice Maintenance Manual. Engine ground run power test good. All engine systems checked for leaks. Engine approved for return to service for the work performed. Pertinent details on file under Project No. 10229.


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

BROADIE'S AIRCRAFT				WORK
Meacham International Airport 4701 N. Main St., Loc 44N, Fort Worth, Texas 76106 817-626-1532 www.BroadiesAircraft.com				
Aircraft Registration #	N23DT	S/N:	42180852	
Manufacturer:	Continental	Model:	GTSIO-520-H	
Description of work performed:		S/N:	267475-P	
1 Collected oil sample and sent to Blackstone Laboratories for analysis.		Eng #1		
BROADIE'S AIRCRAFT CERTIFIES THAT THE WORK SPECIFIED IN THIS REPAIR ORDER WAS COMPLETED IN ACCORDANCE WITH FAA REGULATIONS AND IS APPROVED FOR RETURN TO SERVICE.				
CRS#WF1R582K				
Signature:	<i>Clinton Couer</i>		(146)	
Date:	28/Jul/2023		Repair Order # 7271	

LEFT ENGINE LOG ENTRY

Mesquite Aircraft Sales & Services 1350 Airport Blvd Mesquite, Texas 75181

REGISTRATION: N23DT AFSN: 421B-0852 DATE: 12-30-2023 Hobbs: 4193.6

ENG MANUF: CONTINENTAL ENG MODEL: GTSIO-520-H ENG S/N: 267475-R TTSN: 2504.3 TSO: 28.1

- Complied with 100 hr. Inspection on T.C.M. model GTSIO-520-H, S/N 267475-R, in accordance with FAR Part 43, appendix D.
- Complied with A.D. research on Engine thru 2022-20.
- Performed Left engine compression check and results are as follows: #1 74/80, #2 76/80, #3 75/80, #4 76/80, #5 72/80, #6 74/80. M.O. 46/80. Results will be shared with owner.
- Drained Left engine oil and removed oil filter. Cut open filter and inspected, no abnormal conditions present. Installed new filter P/N AA48111-2, torqued, secured and safetied. Serviced engine with 11 quarts of AeroShell W100 Plus. Performed engine oil priming procedure in accordance with Ram engines instructions. Leak check preformed, no discrepancies at this time.
- Removed, cleaned, gapped and test Left engine spark plugs. S. Adams 12-15-2023 Install spark plugs with anti-seize and torqued on Left engine, reinstalled and secured spark plug leads.
- Complied with A.D. 72-14-08 R1 visual inspection of flex hoses on Left and Right engines. No discrepancies noted at this time.
- AD 2007-05-15 Starter Adapter assembly & Crankshaft gear on Left engine Part 2 is due in 71.9 hours and Part 3 is Due in 300 hours. No action required at this time.
- Complied with A.D. 2000-01-16 by visual inspection of Left engine exhaust system. No discrepancies noted at this time. Next Due HM 4243.6 or 30 days, whichever occurs first.
- AD 2023-09-09 is not applicable for airplanes that are in compliance with an AD listed in paragraphs (d)(1) through (10) of this AD. This aircraft is in compliance with AD 2000-01-16 as listed in paragraphs (d)(1) through (10) of AD 2023-09-09.
- A.D. 23-05-16 regarding Improper installations of crankshaft counter weights rings NOT Applicable by Left engine serial number 267475-R and crankshaft P/N 635104
- Sprayed liberal amounts of LPS # 1 onto and into lower spark plug-lead cigarette area of Left engine cylinders # 4, 5 and 6 and allowed to soak for 2 days. After 2 days, was able to extract the leads from the spark plus noted above.
- Removed the right engine Induction air filter and installed a new P/N P10-8421 air filter.
- Martin Sisk A&P 2820585 and A&P Apprentice Shelby Pennock and Jonathan Garza also performed maintenance.

I certify this aircraft, engine, propeller and/or component identified above was repaired and/or inspected in accordance with current F.A.A. regulations and was determined to be in airworthy condition and approved for Return to Service with respect to work performed.

Dated; December 30, 2023 Signed *Steven P. Adams* Steven P. Adams A&P 2713403

SUB-TOTALS this page

TOTALS—Carry forward to next page



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.]



RAM RECOMMENDS

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.

