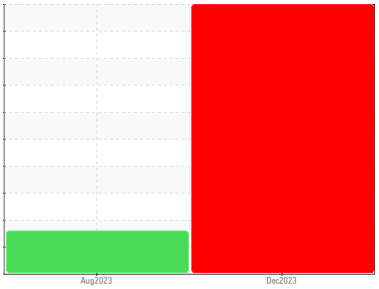
PROBLEM SUMMARY

Sample Rating Trend

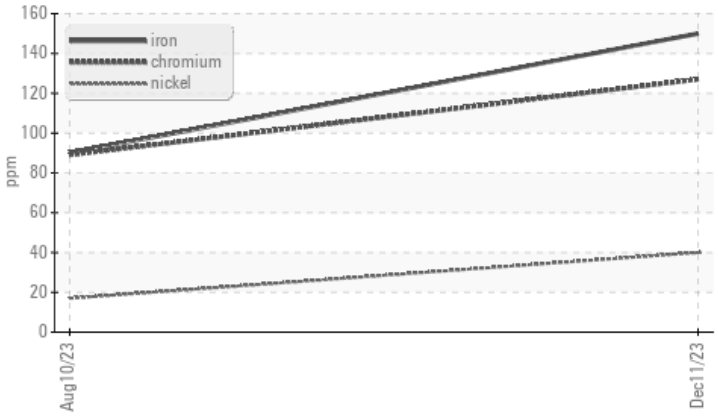


WEAR

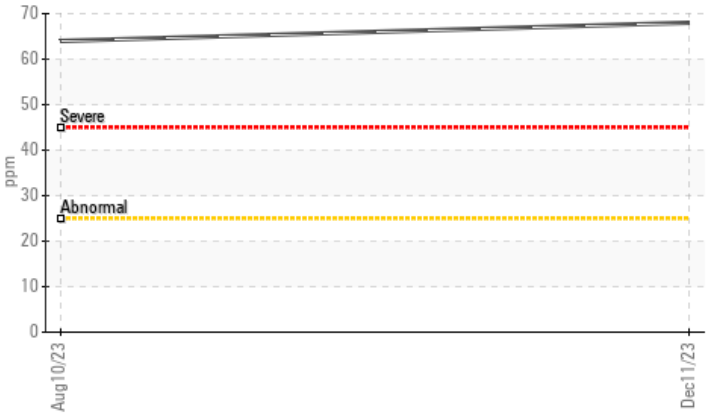
Area
(C-FIYQ)
Machine Id
[C-FIYQ] CESSNA 414 218881-R
Component
Right Piston Aircraft Engine
Fluid
SHELL AEROSHELL W 100 (12 GAL)

COMPONENT CONDITION SUMMARY

Ferrous Alloys



Aluminum (ppm)



RECOMMENDATION

We advise that you check the engine magneto timing. We advise that you check the engine tuning and timing. We advise that you check for excessive valve and valve guide clearance. We advise that you check for a possible too-lean mixture, or an over-advanced ignition timing. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	---
Chromium	ppm	ASTM D5185(m)	>20	**127**	89	---
Nickel	ppm	ASTM D5185(m)	>15	**40**	17	---
Aluminum	ppm	ASTM D5185(m)	>25	**68**	64	---

Customer Id: ITPLON
Sample No.: WC0844054
Lab Number: 02603184
Test Package: AVI 1

To manage this report scan the QR code

To discuss the diagnosis or test data:
Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@wearcheck.com

To change component or sample information:
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Combustion	---	---	?	We advise that you check the engine tuning and timing.
Check	---	---	?	We advise that you check for excessive valve and valve guide clearance.
Check Timing	---	---	?	We advise that you check the engine magneto timing.

HISTORICAL DIAGNOSIS

10 Aug 2023 Diag: Kevin Marson

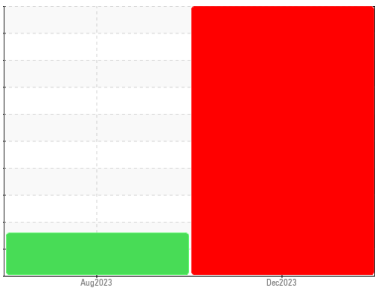
WEAR

We advise that you check the engine magneto timing. We advise that you check for a possible too-lean mixture, or an over-advanced ignition timing. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) AVIATION ENGINE OIL SAE 15W50. Please confirm.Aluminum and chromium ppm levels are abnormal. Ring wear is indicated. High Aluminum (Al) level indicates abnormal bearing wear. There is no indication of any contamination in the oil. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
(C-FIYQ)
Machine Id
[C-FIYQ] CESSNA 414 218881-R
Component
Right Piston Aircraft Engine
Fluid
SHELL AEROSHELL W 100 (12 GAL)

DIAGNOSIS

Recommendation

We advise that you check the engine magneto timing. We advise that you check the engine tuning and timing. We advise that you check for excessive valve and valve guide clearance. We advise that you check for a possible too-lean mixture, or an over-advanced ignition timing. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

Chromium and nickel ppm levels are severe. Aluminum ppm levels are abnormal. Ring wear is indicated. Exhaust valve wear is indicated. High Aluminum (Al) level indicates abnormal bearing wear. A cylinder ring may be cracked or broken.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0844054**	WC0844063	---
Sample Date		Client Info		**11 Dec 2023**	10 Aug 2023	---
TSN	hrs	Client Info		**5907**	0	---
TSO	hrs	Client Info		**312**	269	---
Oil Age	hrs	Client Info		**0**	0	---
Oil Changed		Client Info		**Changed**	Changed	---
Sample Status				**SEVERE**	ABNORMAL	---

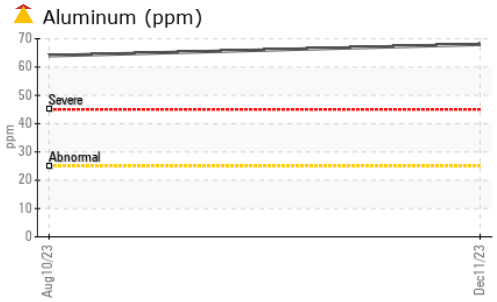
CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	**<1.0**	<1.0	---
Water		WC Method	>0.1	**NEG**	NEG	---
Glycol		WC Method		**NEG**	NEG	---

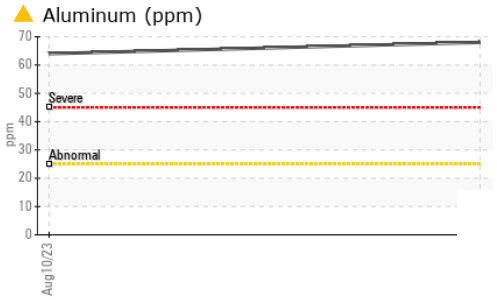
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**41**	11	---
Iron	ppm	ASTM D5185(m)	>90	**150**	90	---
Chromium	ppm	ASTM D5185(m)	>20	**127**	89	---
Nickel	ppm	ASTM D5185(m)	>15	**40**	17	---
Titanium	ppm	ASTM D5185(m)		**<1**	<1	---
Silver	ppm	ASTM D5185(m)	>5	**<1**	0	---
Aluminum	ppm	ASTM D5185(m)	>25	**68**	64	---
Lead	ppm	ASTM D5185(m)	>20000	**7530**	5652	---
Copper	ppm	ASTM D5185(m)	>25	**12**	12	---
Tin	ppm	ASTM D5185(m)	>30	**0**	2	---
Antimony	ppm	ASTM D5185(m)		**<1**	<1	---
Vanadium	ppm	ASTM D5185(m)		**0**	0	---
Beryllium	ppm	ASTM D5185(m)		**0**	0	---
Cadmium	ppm	ASTM D5185(m)		**<1**	2	---

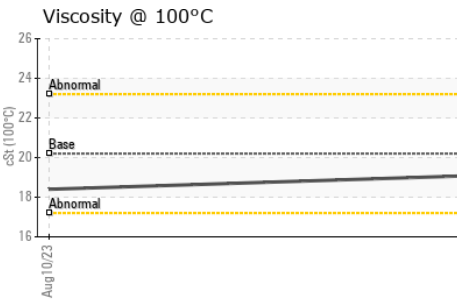
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**<1**	<1	---
Barium	ppm	ASTM D5185(m)	0	**0**	0	---
Molybdenum	ppm	ASTM D5185(m)		**0**	<1	---
Manganese	ppm	ASTM D5185(m)		**0**	0	---
Magnesium	ppm	ASTM D5185(m)	0	**1**	3	---
Calcium	ppm	ASTM D5185(m)	0	**4**	6	---
Phosphorus	ppm	ASTM D5185(m)	0	**240**	1187	---
Zinc	ppm	ASTM D5185(m)	0	**5**	9	---
Sulfur	ppm	ASTM D5185(m)	3800	**2828**	1813	---
Lithium	ppm	ASTM D5185(m)		**<1**	<1	---

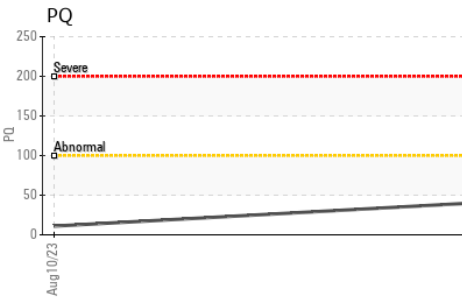
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	**11**	8	---
Sodium	ppm	ASTM D5185(m)		**<1**	<1	---
Potassium	ppm	ASTM D5185(m)	>20	**0**	<1	---

OIL ANALYSIS REPORT





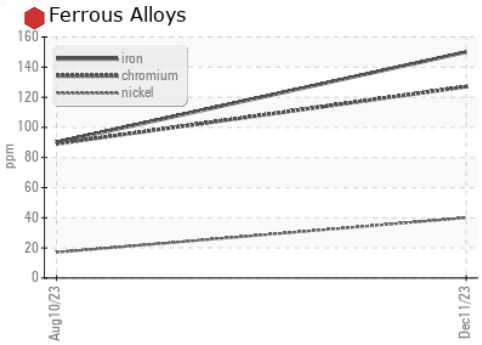


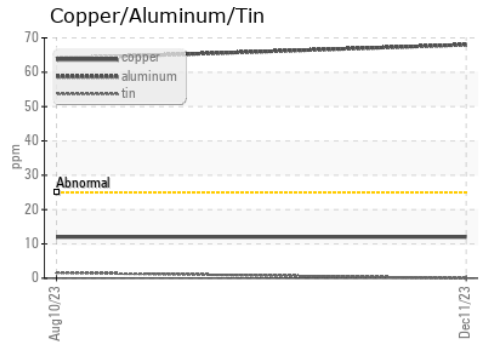


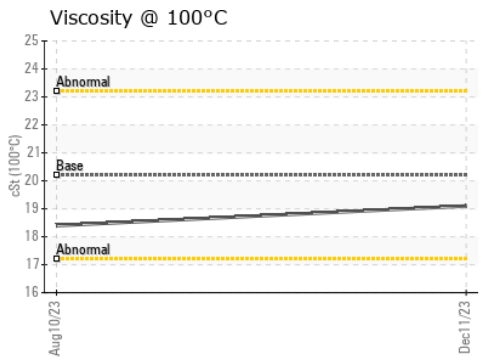
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	---
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	---
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	---
Silt	scalar	Visual*	NONE	**NONE**	LIGHT	---
Debris	scalar	Visual*	NONE	**NONE**	NONE	---
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	---
Appearance	scalar	Visual*	NORML	**NORML**	NORML	---
Odor	scalar	Visual*	NORML	**NORML**	NORML	---
Emulsified Water	scalar	Visual*	>0.1	**NEG**	NEG	---
Free Water	scalar	Visual*		**NEG**	NEG	---

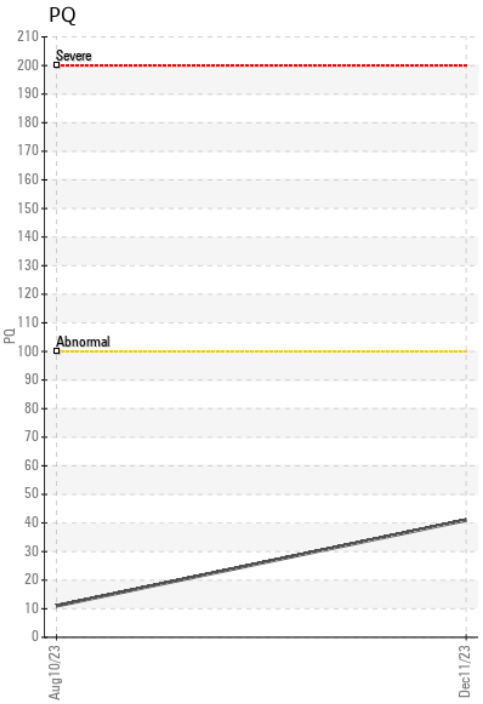
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	20.2	**19.1**	18.4	---

GRAPHS









ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0844054 **Recieved** : 14 Dec 2023
Lab Number : 02603184 **Diagnosed** : 15 Dec 2023
Unique Number : 5696269 **Diagnostician** : Kevin Marson
Test Package : AVI 1 (Additional Tests: PQ)

To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

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