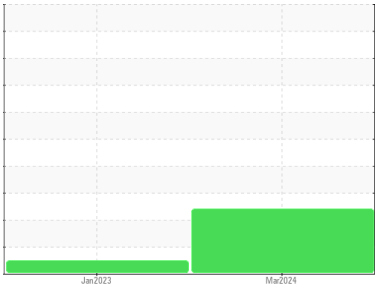
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Area
(C-FAJR)
Machine Id
[C-FAJR] PIPER PA31-350 L-5571-61A
Component
Left Piston Aircraft Engine
Fluid
PHILLIPS 66 AVIATION X/C OIL SAE20W50 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We advise that you check the engine magneto timing. We recommend that you drain the oil from the component if this has not already been done. We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

Wear

Chromium ppm levels are abnormal. Aluminum ppm levels are noted. Ring wear is indicated.

Contamination

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. High amount of ingressed dirt has caused abrasive wear to the component.

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		**WC0886710**	WC0754564	---
Sample Date		Client Info		**20 Mar 2024**	31 Jan 2023	---
TSN	hrs	Client Info		**0**	0	---
TSO	hrs	Client Info		**240**	219	---
Oil Age	hrs	Client Info		**21**	8	---
Oil Changed		Client Info		**Not Changd**	Changed	---
Sample Status				**ABNORMAL**	NORMAL	---

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
Iron	ppm	ASTM D5185(m)	>90	**31**	75	---
Chromium	ppm	ASTM D5185(m)	>20	▲ **21**	17	---
Nickel	ppm	ASTM D5185(m)	>15	**4**	5	---
Titanium	ppm	ASTM D5185(m)		**0**	<1	---
Silver	ppm	ASTM D5185(m)	>5	**0**	0	---
Aluminum	ppm	ASTM D5185(m)	>25	**7**	22	---
Lead	ppm	ASTM D5185(m)	>20000	**2481**	3460	---
Copper	ppm	ASTM D5185(m)	>25	**13**	10	---
Tin	ppm	ASTM D5185(m)	>30	**1**	0	---
Antimony	ppm	ASTM D5185(m)		**0**	0	---
Vanadium	ppm	ASTM D5185(m)		**0**	0	---
Beryllium	ppm	ASTM D5185(m)		**0**	0	---
Cadmium	ppm	ASTM D5185(m)		**<1**	3	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0.0	**0**	<1	---
Barium	ppm	ASTM D5185(m)	0.0	**0**	0	---
Molybdenum	ppm	ASTM D5185(m)	0.0	**1**	0	---
Manganese	ppm	ASTM D5185(m)	0.0	**0**	<1	---
Magnesium	ppm	ASTM D5185(m)	0.0	**3**	11	---
Calcium	ppm	ASTM D5185(m)	4.7	**5**	7	---
Phosphorus	ppm	ASTM D5185(m)	0.0	**2**	0	---
Zinc	ppm	ASTM D5185(m)	0.1	**5**	6	---
Sulfur	ppm	ASTM D5185(m)	848	**942**	898	---
Lithium	ppm	ASTM D5185(m)		**<1**	<1	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	▲ **24**	9	---
Sodium	ppm	ASTM D5185(m)		**6**	<1	---
Potassium	ppm	ASTM D5185(m)	>20	**<1**	<1	---

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		**0**	---	---
Nitration	Abs/cm	ASTM D7624*	>20	**4.1**	---	---
Sulfation	Abs/.1mm	ASTM D7415*	>30	**15.8**	---	---

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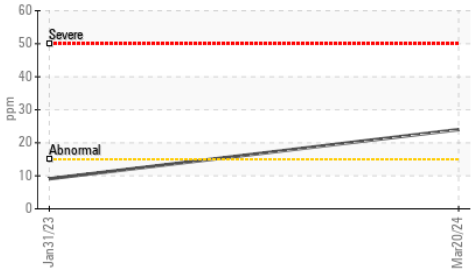
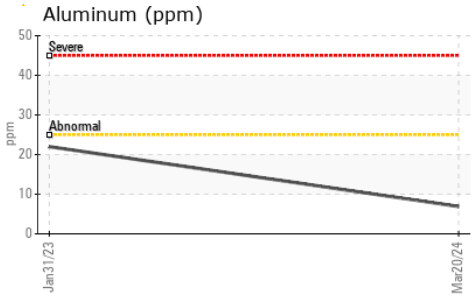
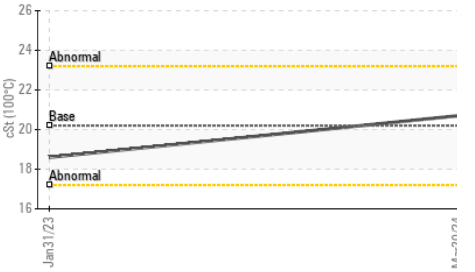
Silicon (ppm)



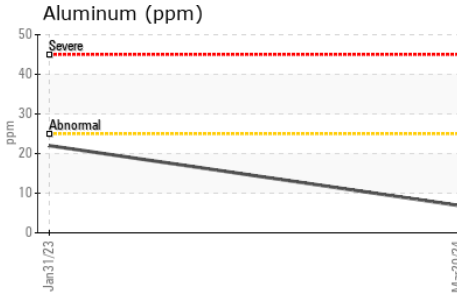
Aluminum (ppm)



Viscosity @ 100°C



Aluminum (ppm)



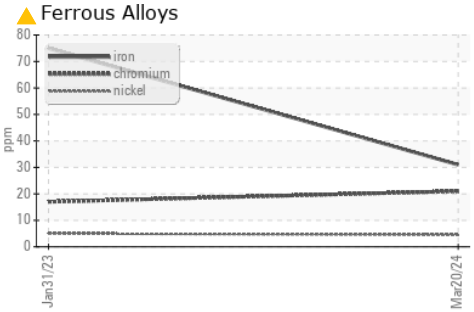
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**9.9**	---	---

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	**VLITE**	VLITE	---
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	---

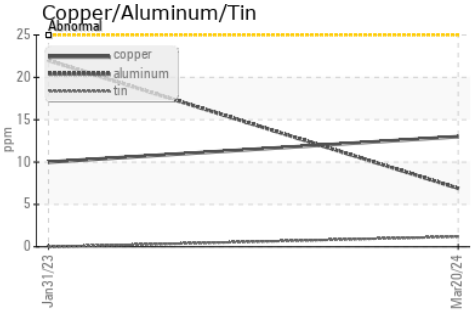
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	20.2	**20.7**	18.6	---

GRAPHS

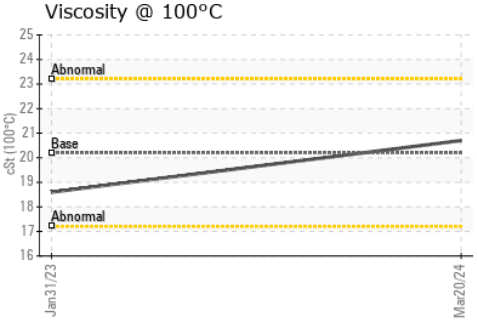
Ferrous Alloys



Copper/Aluminum/Tin



Viscosity @ 100°C



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0886710 **Received** : 28 Mar 2024
Lab Number : 02625193 **Tested** : 28 Mar 2024
Unique Number : 5750312 **Diagnosed** : 28 Mar 2024 - Kevin Marson
Test Package : AVI 1 (Additional Tests: FT-IR)

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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