



OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area

(C-FAQR)

Machine Id

[C-FAQR] PIPER PA31-350 L-6997-61A

Component

Left Piston Aircraft Engine

Fluid

PHILLIPS 66 AVIATION X/C OIL SAE20W50 (11 LTR)

RECOMMENDATION

We advise that you check the engine tuning and timing. We advise that you check for excessive valve and valve guide clearance. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0896314	WC0838448	WC0830825
Sample Date		Client Info		05 Jun 2024	11 Feb 2024	22 Oct 2023
TSN	hrs	Client Info		0	0	0
TSO	hrs	Client Info		3996	3806	3616
Oil Age	hrs	Client Info		55	46	62
Filter Age	hrs	Client Info		55	46	62
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

Nickel ppm levels are abnormal. Exhaust valve wear is indicated.

Iron	ppm	ASTM D5185(m)	>90	53	34	45
Chromium	ppm	ASTM D5185(m)	>20	13	7	9
Nickel	ppm	ASTM D5185(m)	>15	▲ 19	9	11
Titanium	ppm	ASTM D5185(m)		<1	0	0
Silver	ppm	ASTM D5185(m)	>5	0	<1	<1
Aluminum	ppm	ASTM D5185(m)	>25	10	5	7
Lead	ppm	ASTM D5185(m)	>20000	10513	8081	8495
Copper	ppm	ASTM D5185(m)	>25	7	5	7
Tin	ppm	ASTM D5185(m)	>30	0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE

CONTAMINATION

The water content is negligible. There is no indication of any contamination in the oil.

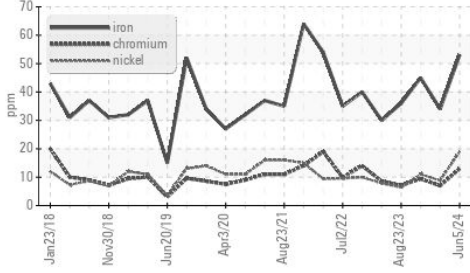
Silicon	ppm	ASTM D5185(m)	>15	7	7	5
Potassium	ppm	ASTM D5185(m)	>20	0	<1	0
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water	%	ASTM D6304*	>0.1	0.014	---	0.013
ppm Water	ppm	ASTM D6304*	>1000	148	---	133.2
Glycol		WC Method		NEG	NEG	NEG
Silt	scalar	Visual*	NONE	VLITE	VLITE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	.5%	NEG	.2%

FLUID CONDITION

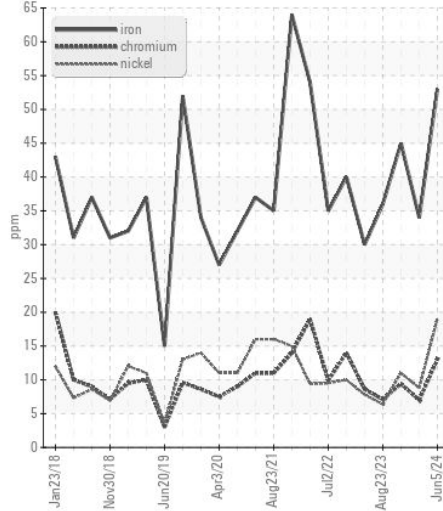
The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185(m)		<1	0	<1
Boron	ppm	ASTM D5185(m)	0.0	<1	0	<1
Barium	ppm	ASTM D5185(m)	0.0	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0.0	0	0	0
Manganese	ppm	ASTM D5185(m)	0.0	0	0	0
Magnesium	ppm	ASTM D5185(m)	0.0	3	3	2
Calcium	ppm	ASTM D5185(m)	4.7	<1	1	1
Phosphorus	ppm	ASTM D5185(m)	0.0	0	0	0
Zinc	ppm	ASTM D5185(m)	0.1	3	3	4
Sulfur	ppm	ASTM D5185(m)	848	1016	1047	955
Visc @ 100°C	cSt	ASTM D7279(m)	20.2	21.4	21.0	21.7

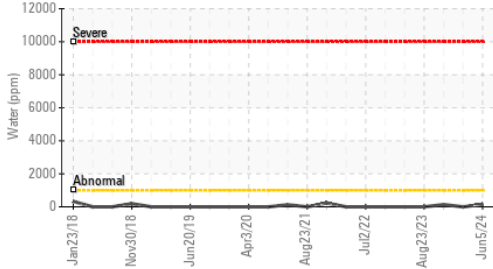
▲ Ferrous Alloys



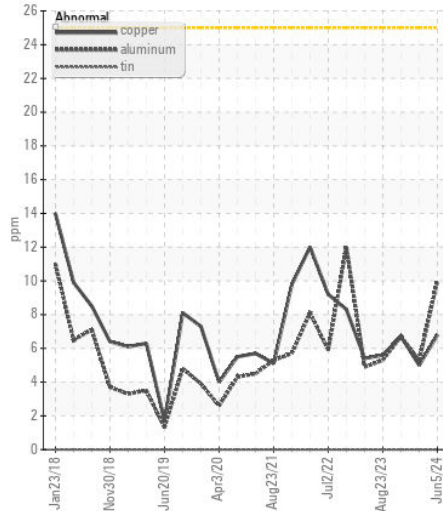
▲ Ferrous Alloys



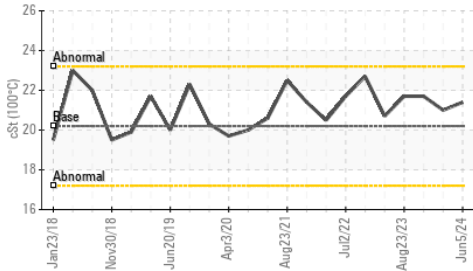
Water (KF)



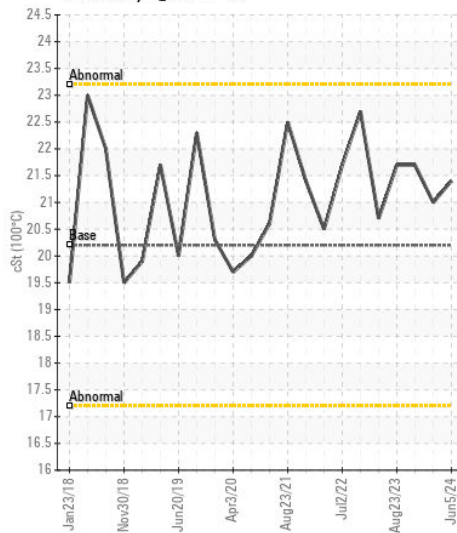
Copper/Aluminum/Tin



Viscosity @ 100°C



Viscosity @ 100°C



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0896314
Lab Number : 02641681
Unique Number : 5799220
Test Package : AVI 1 (Additional Tests: KF)

Received : 13 Jun 2024
Tested : 18 Jun 2024
Diagnosed : 18 Jun 2024 - Kevin Marson

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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