



OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
(C-FAJR)
Machine Id
[C-FAJR] PIPER PA 31-350 RL-11219-61A
Component
Left Piston Aircraft Engine
Fluid
PHILLIPS 66 AVIATION X/C OIL SAE20W50 (12 QTS)

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		WC0838453	WC0826693	WC0830817
Sample Date		Client Info		26 Feb 2024	31 Oct 2023	11 Aug 2023
TSN	hrs	Client Info		0	0	0
TSO	hrs	Client Info		5075	4881	4677
Oil Age	hrs	Client Info		42	38	42
Filter Age	hrs	Client Info		42	38	42
Oil Changed		Client Info		Changed	Not Changed	N/A
Filter Changed		Client Info		Changed	Not Changed	N/A
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

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

Iron	ppm	ASTM D5185(m)	>90	46	39	39
Chromium	ppm	ASTM D5185(m)	>20	10	7	10
Nickel	ppm	ASTM D5185(m)	>15	▲ 15	9	10
Titanium	ppm	ASTM D5185(m)		0	0	<1
Silver	ppm	ASTM D5185(m)	>5	0	<1	0
Aluminum	ppm	ASTM D5185(m)	>25	6	4	5
Lead	ppm	ASTM D5185(m)	>20000	6825	6002	5041
Copper	ppm	ASTM D5185(m)	>25	6	5	5
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.

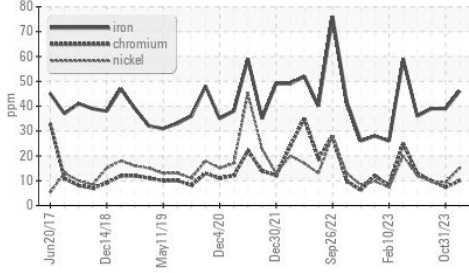
Silicon	ppm	ASTM D5185(m)	>15	6	3	4
Potassium	ppm	ASTM D5185(m)	>20	<1	0	0
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water	%	ASTM D6304*	>0.1	0.081	0.013	---
ppm Water	ppm	ASTM D6304*	>1000	817	137.1	---
Glycol		WC Method		NEG	NEG	NEG
Silt	scalar	Visual*	NONE	VLITE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE	VLITE
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	.2%	.2%	NEG

FLUID CONDITION

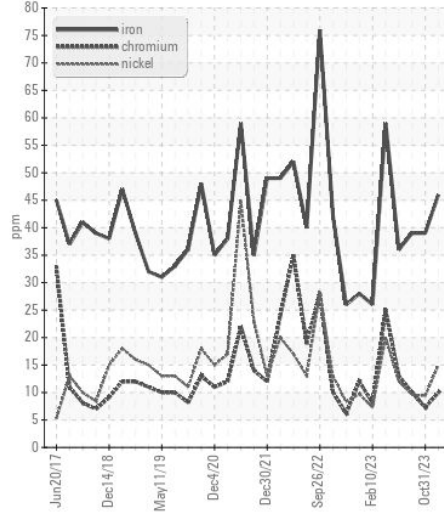
The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185(m)		<1	<1	<1
Boron	ppm	ASTM D5185(m)	0.0	0	<1	0
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	1	1
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	2	2	3
Sulfur	ppm	ASTM D5185(m)	848	1072	1055	934
Visc @ 100°C	cSt	ASTM D7279(m)	20.2	22.9	20.9	22.4

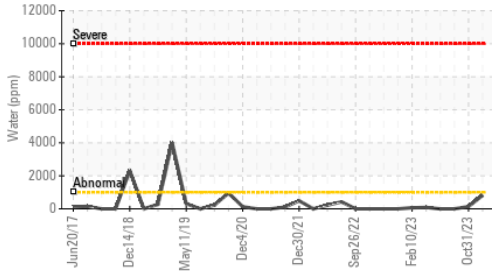
▲ Ferrous Alloys



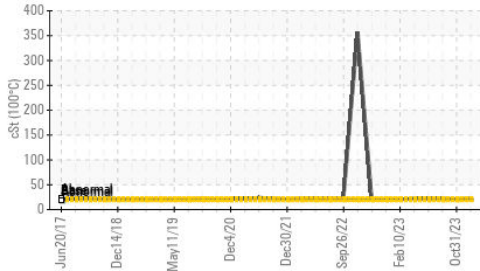
▲ Ferrous Alloys



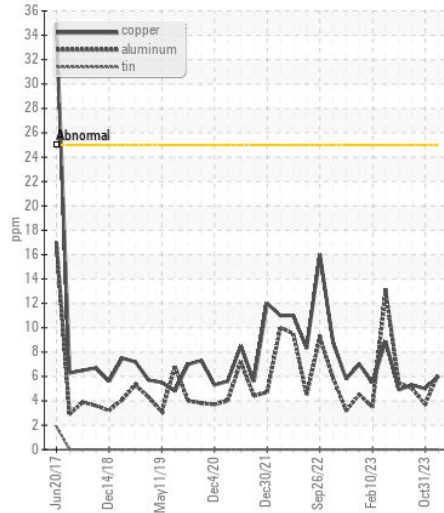
Water (KF)



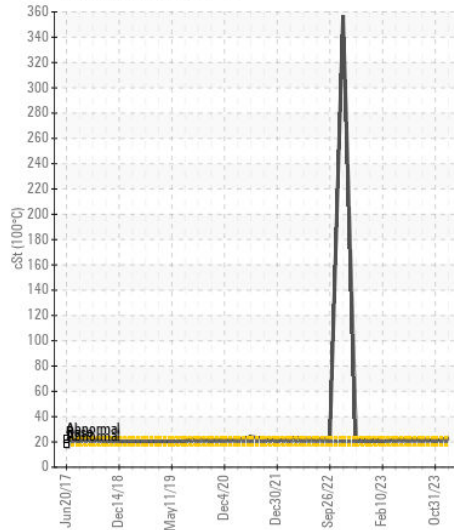
Viscosity @ 100°C



Copper/Aluminum/Tin



Viscosity @ 100°C



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0838453
Lab Number : 02619259
Unique Number : 5736369
Test Package : AVI 1 (Additional Tests: KF)

Received : 01 Mar 2024
Tested : 02 Mar 2024
Diagnosed : 04 Mar 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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