



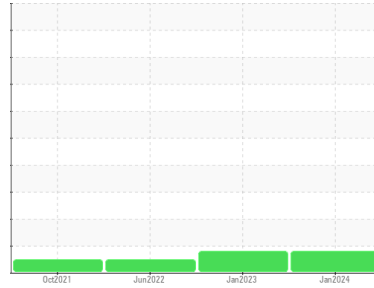
OIL ANALYSIS REPORT

Sample Rating Trend

WEAR

Area
(C-GKRP)
Machine Id
MOONEY 317004

Component
Piston Aircraft Engine
Fluid
SHELL AEROSHELL W 15W50 MGR (--- LTR)



DIAGNOSIS

▲ 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.

▲ Wear

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

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		WC0813417	WC0633980	WC0633978
Sample Date	Client Info		09 Jan 2024	18 Jan 2023	09 Jun 2022
TSN	hrs	Client Info	2760	2710	2664
TSO	hrs	Client Info	927	877	831
Oil Age	hrs	Client Info	51	46	30
Oil Changed		Client Info	Changed	Changed	N/A
Sample Status			ABNORMAL	ABNORMAL	NORMAL

CONTAMINATION

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

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		1	---	---
Iron	ppm	ASTM D5185(m) >90	114	78	69
Chromium	ppm	ASTM D5185(m) >20	13	9	7
Nickel	ppm	ASTM D5185(m) >15	▲ 30	▲ 26	17
Titanium	ppm	ASTM D5185(m)	<1	<1	<1
Silver	ppm	ASTM D5185(m) >5	0	0	<1
Aluminum	ppm	ASTM D5185(m) >25	21	18	10
Lead	ppm	ASTM D5185(m) >20000	6994	4374	4471
Copper	ppm	ASTM D5185(m) >25	10	6	5
Tin	ppm	ASTM D5185(m) >30	0	0	0
Antimony	ppm	ASTM D5185(m)	0	<1	0
Vanadium	ppm	ASTM D5185(m)	0	0	0
Beryllium	ppm	ASTM D5185(m)	0	0	0
Cadmium	ppm	ASTM D5185(m)	13	9	7

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	<1	<1	<1
Barium	ppm	ASTM D5185(m)	0	0	0
Molybdenum	ppm	ASTM D5185(m) 5	5	3	3
Manganese	ppm	ASTM D5185(m)	0	<1	0
Magnesium	ppm	ASTM D5185(m) 10	2	1	<1
Calcium	ppm	ASTM D5185(m) 10	87	95	109
Phosphorus	ppm	ASTM D5185(m) 1280	1062	1212	1176
Zinc	ppm	ASTM D5185(m) 10	15	11	13
Sulfur	ppm	ASTM D5185(m) 1800	2230	1530	1863
Lithium	ppm	ASTM D5185(m)	<1	<1	<1

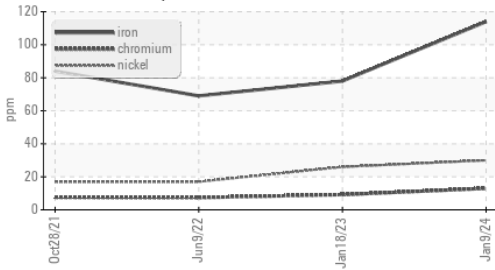
CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >15	9	9	10
Sodium	ppm	ASTM D5185(m)	<1	2	1
Potassium	ppm	ASTM D5185(m) >20	1	<1	<1

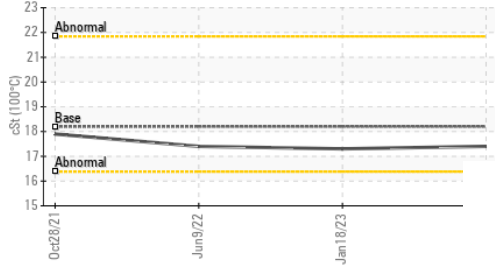


OIL ANALYSIS REPORT

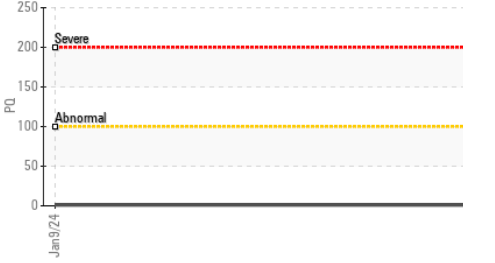
▲ Ferrous Alloys



Viscosity @ 100°C



PQ

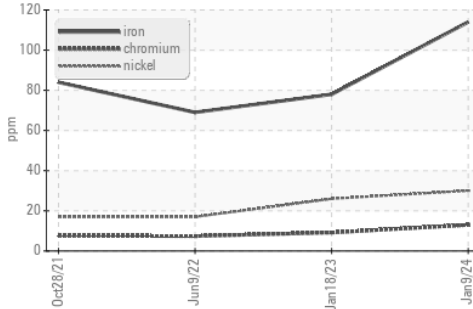


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	VLITE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance	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

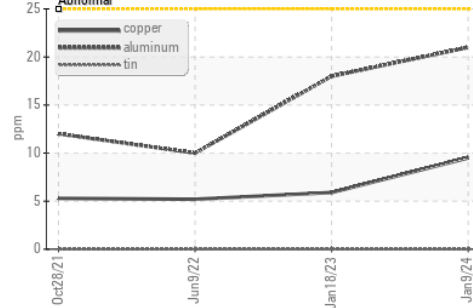
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	18.2	17.4	17.3

GRAPHS

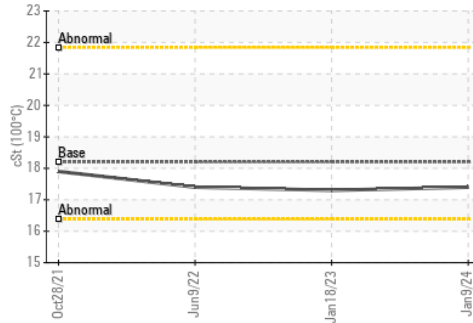
▲ Ferrous Alloys



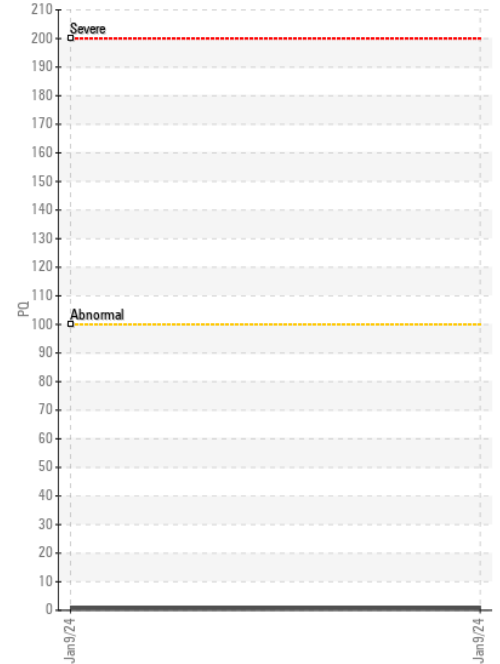
Copper/Aluminum/Tin



Viscosity @ 100°C



PQ



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0813417 **Received** : 17 Jan 2024
Lab Number : 02609294 **Diagnosed** : 18 Jan 2024
Unique Number : 5710380 **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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