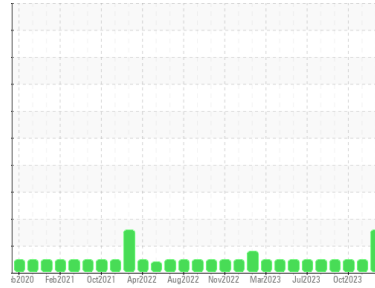




# OIL ANALYSIS REPORT

Sample Rating Trend



**WEAR**



Area  
**(C-GLFC)**  
Machine Id  
**[C-GLFC] DIAMOND DA-20 650249**  
Component  
**Center Piston Aircraft Engine**  
Fluid  
**SHELL AEROSHELL W 80 (6 LTR)**

## DIAGNOSIS

### Recommendation

We advise that you check the engine magneto timing. We advise that you perform a compression test, and a borescope exam. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition. Provided compression test checks O.K., resample in 20 to 25 hours to monitor.

### Wear

Chromium and iron ppm levels are abnormal. A sharp increase in the iron level is noted. A sharp increase in the chromium level is noted. Cylinder wear is indicated. Ring 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		<b>WC0882499</b>	WC0869664	WC0869656
Sample Date	Client Info		<b>22 Dec 2023</b>	20 Nov 2023	20 Oct 2023
TSN	hrs	Client Info	<b>2344</b>	2285	2233
TSO	hrs	Client Info	<b>0</b>	0	0
Oil Age	hrs	Client Info	<b>59</b>	52	45
Oil Changed		Client Info	<b>Changed</b>	Changed	Changed
Sample Status			<b>ABNORMAL</b>	NORMAL	NORMAL

## CONTAMINATION

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

## WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*		<b>48</b>	---	---
Iron	ppm	ASTM D5185(m) >90	<b>▲ 113</b>	14	21
Chromium	ppm	ASTM D5185(m) >20	<b>▲ 22</b>	2	5
Nickel	ppm	ASTM D5185(m) >15	<b>5</b>	1	2
Titanium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Silver	ppm	ASTM D5185(m) >5	<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185(m) >25	<b>8</b>	4	4
Lead	ppm	ASTM D5185(m) >20000	<b>7352</b>	5589	5574
Copper	ppm	ASTM D5185(m) >25	<b>7</b>	3	3
Tin	ppm	ASTM D5185(m) >30	<b>0</b>	0	0
Antimony	ppm	ASTM D5185(m)	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Beryllium	ppm	ASTM D5185(m)	<b>0</b>	0	0
Cadmium	ppm	ASTM D5185(m)	<b>&lt;1</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	<b>&lt;1</b>	<1	<1
Barium	ppm	ASTM D5185(m)	<b>&lt;1</b>	<1	0
Molybdenum	ppm	ASTM D5185(m)	<b>10</b>	<1	1
Manganese	ppm	ASTM D5185(m)	<b>0</b>	0	0
Magnesium	ppm	ASTM D5185(m)	<b>&lt;1</b>	0	0
Calcium	ppm	ASTM D5185(m)	<b>2</b>	2	2
Phosphorus	ppm	ASTM D5185(m)	<b>1103</b>	1063	1320
Zinc	ppm	ASTM D5185(m)	<b>10</b>	8	7
Sulfur	ppm	ASTM D5185(m) 3000	<b>2287</b>	1869	2924
Lithium	ppm	ASTM D5185(m)	<b>&lt;1</b>	<1	<1

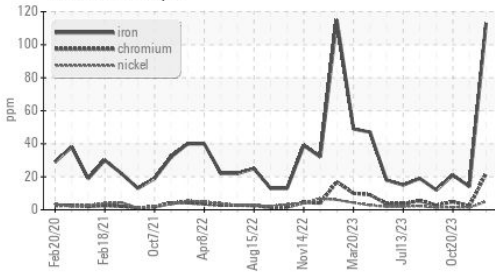
## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >15	<b>11</b>	7	6
Sodium	ppm	ASTM D5185(m)	<b>&lt;1</b>	1	1
Potassium	ppm	ASTM D5185(m) >20	<b>16</b>	0	0

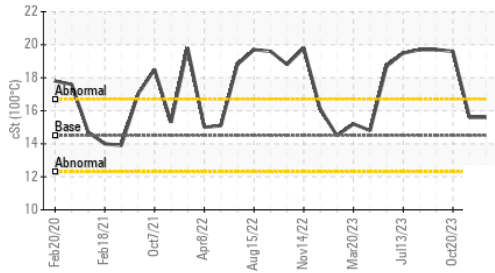


# OIL ANALYSIS REPORT

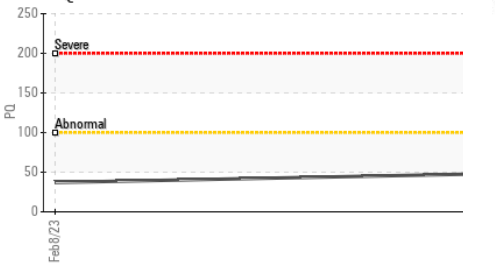
### ▲ Ferrous Alloys



### Viscosity @ 100°C



### PQ

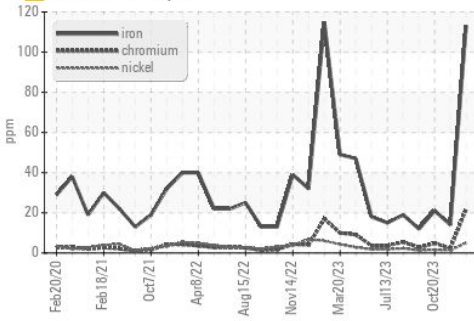


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance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

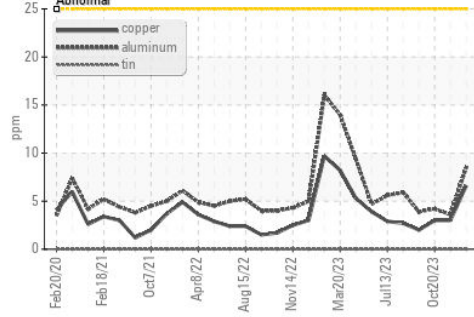
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	15.6	15.6

### GRAPHS

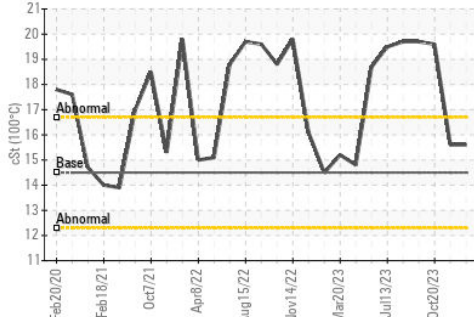
#### ▲ Ferrous Alloys



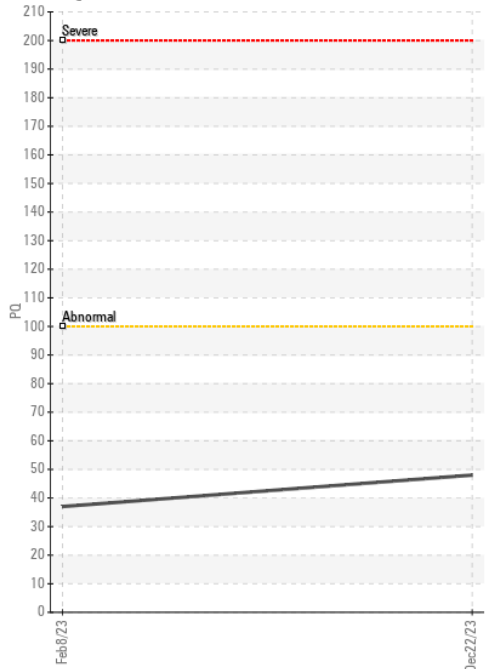
#### Copper/Aluminum/Tin



#### Viscosity @ 100°C



#### PQ



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0882499 **Received** : 02 Jan 2024  
**Lab Number** : 02605881 **Diagnosed** : 03 Jan 2024  
**Unique Number** : 5706967 **Diagnostician** : Kevin Marson  
**Test Package** : AVI 1 ( Additional Tests: FT-IR, PQ )

**W.C.S. AVIATION LTD.**  
 2600 AIRPORT ROAD UNIT 108  
 WINDSOR, ON  
 CA N8V 1A1  
 Contact: James V  
 james@wcsaviation.com  
 T: (519)972-7271  
 F: (519)972-8355

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.