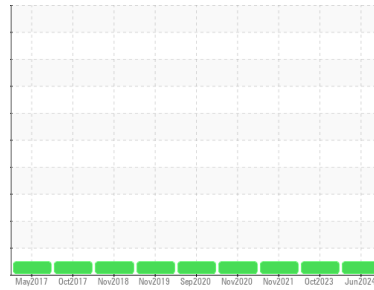




# OIL ANALYSIS REPORT

## Sample Rating Trend



**NORMAL**



Area

**PIERRE DE SAUREL**

Machine Id

**ZF 10 (S/N 93699)**

Component

**Wind Turbine Gearbox**

Fluid

**MOBIL MOBILGEAR SHC XMP 320 (475 LTR)**

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The water content is negligible. The system and fluid cleanliness is acceptable.

#### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

### SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>WC0855623</b>	WC0855630	WC0318535
Sample Date	Client Info		<b>06 Jun 2024</b>	24 Oct 2023	16 Nov 2021
Machine Age	hrs	Client Info	<b>64000</b>	48000	34412
Oil Age	hrs	Client Info	<b>20000</b>	15000	7000
Oil Changed	Client Info		<b>N/A</b>	Not Changd	Changed
Sample Status			<b>NORMAL</b>	NORMAL	NORMAL

### WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*	>80	<b>0</b>	0	0
Iron	ppm	ASTM D5185(m)	>90	<b>4</b>	4
Chromium	ppm	ASTM D5185(m)	>4	<b>0</b>	0
Nickel	ppm	ASTM D5185(m)	>3	<b>&lt;1</b>	0
Titanium	ppm	ASTM D5185(m)		<b>0</b>	0
Silver	ppm	ASTM D5185(m)		<b>0</b>	<1
Aluminum	ppm	ASTM D5185(m)	>10	<b>0</b>	0
Lead	ppm	ASTM D5185(m)	>11	<b>&lt;1</b>	<1
Copper	ppm	ASTM D5185(m)	>55	<b>&lt;1</b>	<1
Tin	ppm	ASTM D5185(m)	>10	<b>0</b>	0
Antimony	ppm	ASTM D5185(m)	>5	<b>&lt;1</b>	0
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0
Beryllium	ppm	ASTM D5185(m)		<b>0</b>	0
Cadmium	ppm	ASTM D5185(m)		<b>0</b>	0

### ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	<b>&lt;1</b>	<1
Barium	ppm	ASTM D5185(m)		<b>0</b>	<1
Molybdenum	ppm	ASTM D5185(m)	0	<b>0</b>	0
Manganese	ppm	ASTM D5185(m)		<b>0</b>	0
Magnesium	ppm	ASTM D5185(m)		<b>&lt;1</b>	0
Calcium	ppm	ASTM D5185(m)	0	<b>0</b>	<1
Phosphorus	ppm	ASTM D5185(m)	485	<b>476</b>	454
Zinc	ppm	ASTM D5185(m)	0	<b>10</b>	9
Sulfur	ppm	ASTM D5185(m)		<b>650</b>	547
Lithium	ppm	ASTM D5185(m)		<b>&lt;1</b>	<1

### CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>45	<b>4</b>	5
Sodium	ppm	ASTM D5185(m)	>11	<b>&lt;1</b>	<1
Potassium	ppm	ASTM D5185(m)	>20	<b>&lt;1</b>	0
Water	%	ASTM D6304*	>0.0301	<b>0.005</b>	0.003
ppm Water	ppm	ASTM D6304*	>301	<b>51</b>	27.2

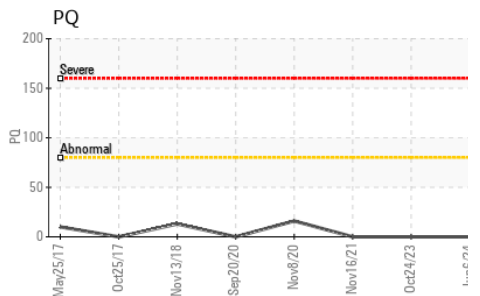
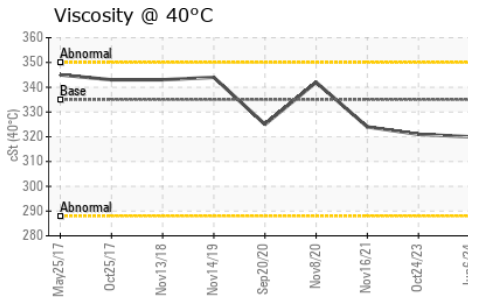
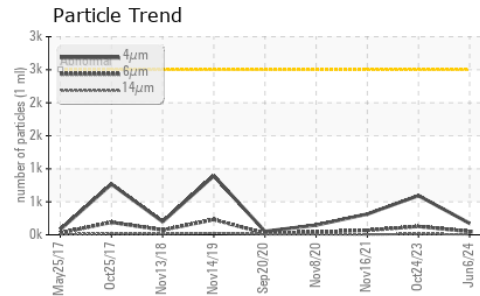
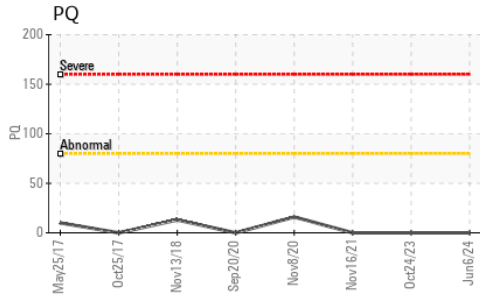
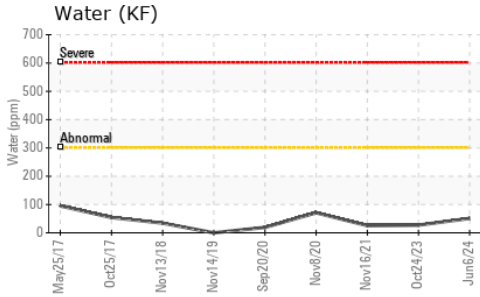
### FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	<b>174</b>	593	314
Particles >6µm	ASTM D7647	>640	<b>50</b>	127	67
Particles >14µm	ASTM D7647	>80	<b>7</b>	11	6
Particles >21µm	ASTM D7647	>20	<b>3</b>	4	1
Particles >38µm	ASTM D7647	>4	<b>1</b>	0	0
Particles >71µm	ASTM D7647	>3	<b>0</b>	0	0

Oil Cleanliness	ISO 4406 (c)	>18/16/13	<b>15/13/10</b>	16/14/11	15/13/10
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# OIL ANALYSIS REPORT



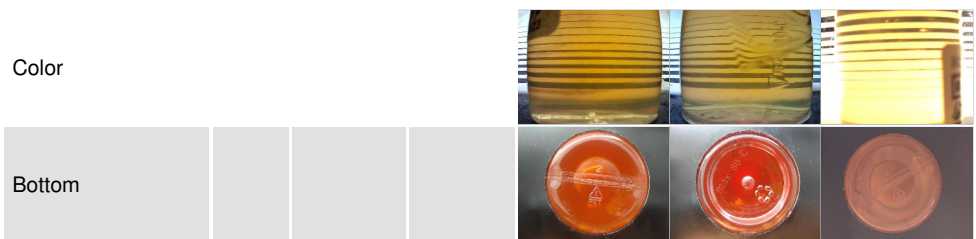
## FLUID DEGRADATION

method	limit/base	current	history1	history2	
Acid Number (AN) mg KOH/g	ASTM D974*	0.85	<b>0.68</b>	0.66	0.51
VISUAL					
method	limit/base	current	history1	history2	
White Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE
Precipitate	scalar	Visual*	NONE	<b>NONE</b>	NONE
Silt	scalar	Visual*	NONE	<b>NONE</b>	NONE
Debris	scalar	Visual*	NONE	<b>NONE</b>	NONE
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	NONE
Appearance	scalar	Visual*	NORML	<b>NORML</b>	NORML
Odor	scalar	Visual*	NORML	<b>NORML</b>	NORML
Emulsified Water	scalar	Visual*	>0.0301	<b>NEG</b>	NEG
Free Water	scalar	Visual*		<b>NEG</b>	NEG

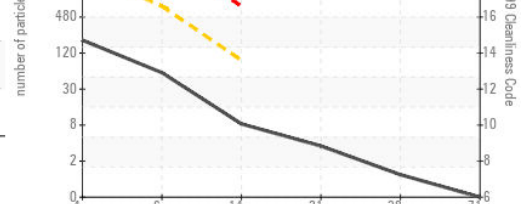
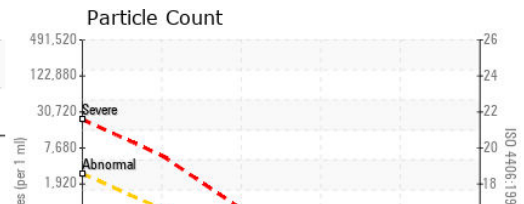
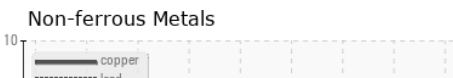
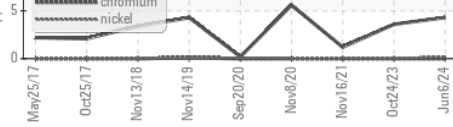
## FLUID PROPERTIES

method	limit/base	current	history1	history2	
Visc @ 40°C cSt	ASTM D7279(m)	335	<b>320</b>	321	324

## SAMPLE IMAGES



## GRAPHS



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0855623 **Received** : 18 Jul 2024  
**Lab Number** : **02648797** **Tested** : 22 Jul 2024  
**Unique Number** : 5814349 **Diagnosed** : 22 Jul 2024 - Wes Davis  
**Test Package** : IND 2 ( Additional Tests: KF, PQ )

**Opsis Solutions**  
 380, rue Bonsecours  
 Massueville, QC  
 CA J0G 1K0

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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 T: (514)718-4707  
 F: x: