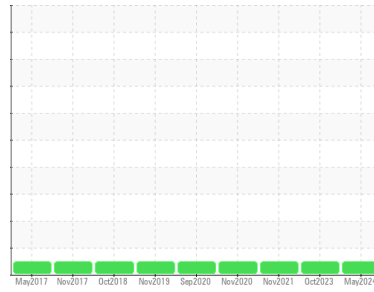




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area

PIERRE DE SAUREL

Machine Id

ZF 09 (S/N 93707)

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		WC0855622	WC0855627	WC0318538
Sample Date	Client Info		22 May 2024	18 Oct 2023	18 Nov 2021
Machine Age	hrs	Client Info	64000	5000	34137
Oil Age	hrs	Client Info	20000	15000	7000
Oil Changed	Client Info		Not Changed	Not Changd	Changed
Sample Status			NORMAL	NORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2
PQ	ASTM D8184*	>80	0	0	0
Iron	ppm	ASTM D5185(m)	>90	2	5
Chromium	ppm	ASTM D5185(m)	>4	0	0
Nickel	ppm	ASTM D5185(m)	>3	<1	0
Titanium	ppm	ASTM D5185(m)		0	0
Silver	ppm	ASTM D5185(m)		0	<1
Aluminum	ppm	ASTM D5185(m)	>10	0	0
Lead	ppm	ASTM D5185(m)	>11	0	1
Copper	ppm	ASTM D5185(m)	>55	<1	<1
Tin	ppm	ASTM D5185(m)	>10	0	0
Antimony	ppm	ASTM D5185(m)	>5	0	0
Vanadium	ppm	ASTM D5185(m)		0	0
Beryllium	ppm	ASTM D5185(m)		0	0
Cadmium	ppm	ASTM D5185(m)		0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	0	<1	<1
Barium	ppm	ASTM D5185(m)		0	<1
Molybdenum	ppm	ASTM D5185(m)	0	0	0
Manganese	ppm	ASTM D5185(m)		0	0
Magnesium	ppm	ASTM D5185(m)		0	0
Calcium	ppm	ASTM D5185(m)	0	0	<1
Phosphorus	ppm	ASTM D5185(m)	485	471	451
Zinc	ppm	ASTM D5185(m)	0	9	12
Sulfur	ppm	ASTM D5185(m)		644	530
Lithium	ppm	ASTM D5185(m)		<1	<1

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>45	4	5
Sodium	ppm	ASTM D5185(m)	>11	0	<1
Potassium	ppm	ASTM D5185(m)	>20	0	<1
Water	%	ASTM D6304*	>0.0301	0.008	0.003
ppm Water	ppm	ASTM D6304*	>301	81	26.2

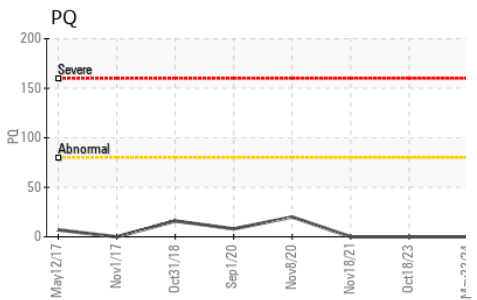
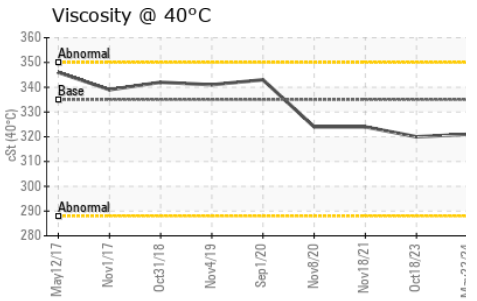
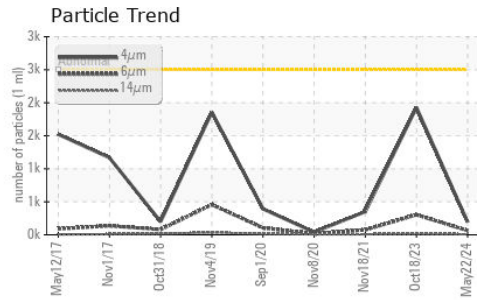
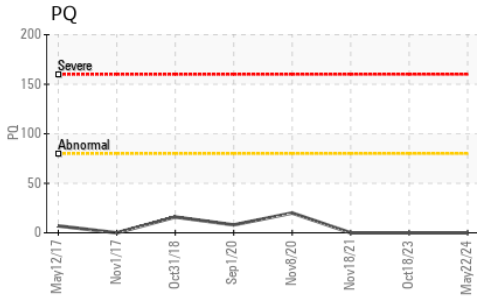
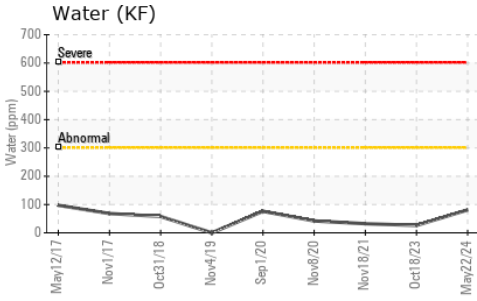
FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	194	1928	351
Particles >6µm	ASTM D7647	>640	65	304	75
Particles >14µm	ASTM D7647	>80	8	14	8
Particles >21µm	ASTM D7647	>20	4	4	4
Particles >38µm	ASTM D7647	>4	2	0	0
Particles >71µm	ASTM D7647	>3	0	0	0

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

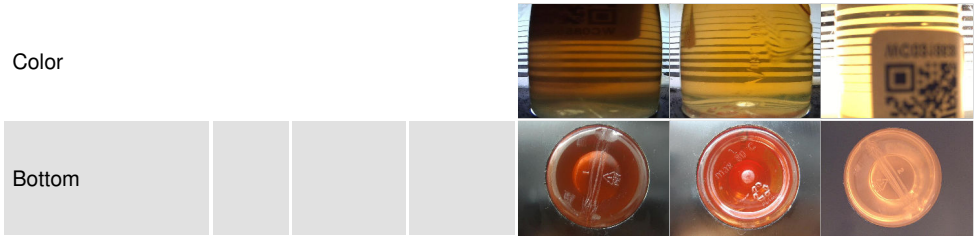


FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	0.85	0.67	0.65	0.73

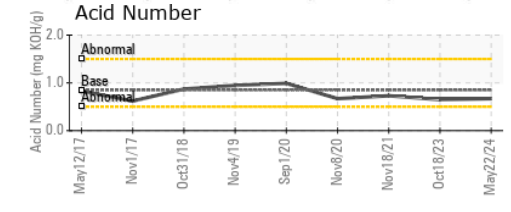
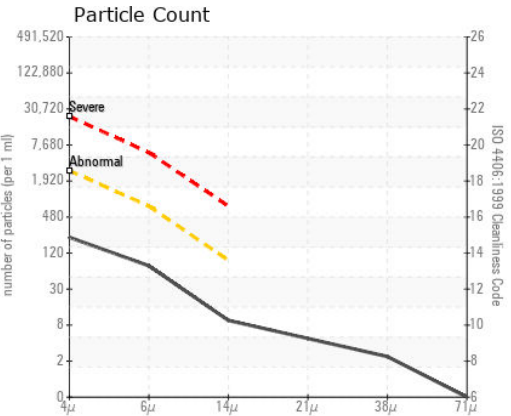
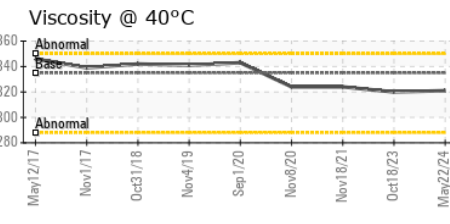
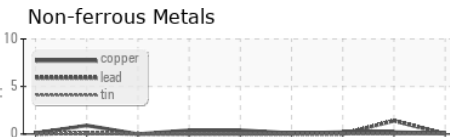
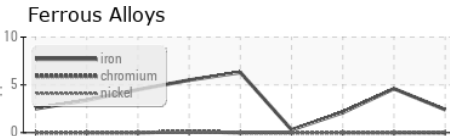
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.0301	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

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

SAMPLE IMAGES		method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0855622 **Received** : 18 Jul 2024
Lab Number : **02648798** **Tested** : 22 Jul 2024
Unique Number : 5814350 **Diagnosed** : 22 Jul 2024 - Wes Davis
Test Package : IND 2 (Additional Tests: KF, PQ)

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

Contact: Benjamin Lachapelle
 benjamin.lachapelle@opsis-ese.com

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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 F: x: