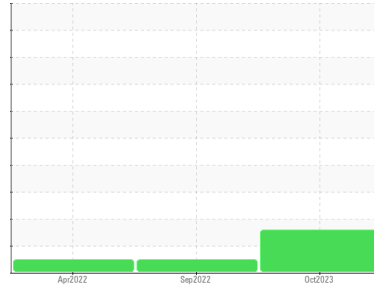




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR PARTICLES



Area
Hull 2
 Machine Id
EH-G3-DE (2)
 Component
Journal Bearing
 Fluid
MOBIL DTE EXCEL ISO 68 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check for visible metal particles in the oil. Due to this condition we recommend the following action... We advise an early resample to confirm this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

Wear

Wear particle analysis indicates that the ferrous cutting particles are marginal. All other component wear rates are normal. Cutting wear particles are caused by either hard protuberances (mis-aligned components, etc.), or abrasives entering the system and embedding themselves in softer materials (sand, etc.), and gouging out mating surfaces.

Contaminants

There is no indication of any contamination in the oil.

Oil 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			WC0815811	WC0736146	WC0676733
Sample Date	Client Info			19 Oct 2023	02 Sep 2022	04 Apr 2022
Machine Age	Client Info			31	18	13
Oil Age	Client Info			31	18	13
Oil Changed	Client Info			Not Changed	Not Changed	Not Changed
Sample Status				MARGINAL	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>2	NEG	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m)	>20	0	<1	0
Chromium	ppm	ASTM D5185(m)	>20	0	0	0
Nickel	ppm	ASTM D5185(m)	>20	0	0	0
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		<1	1	0
Aluminum	ppm	ASTM D5185(m)	>20	0	0	0
Lead	ppm	ASTM D5185(m)	>20	5	4	4
Copper	ppm	ASTM D5185(m)	>20	6	5	3
Tin	ppm	ASTM D5185(m)	>20	3	3	4
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)		0	0	0

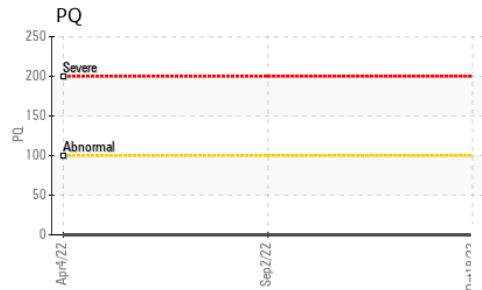
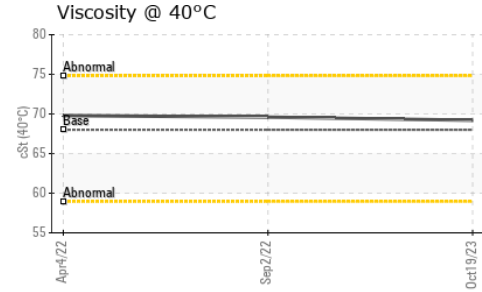
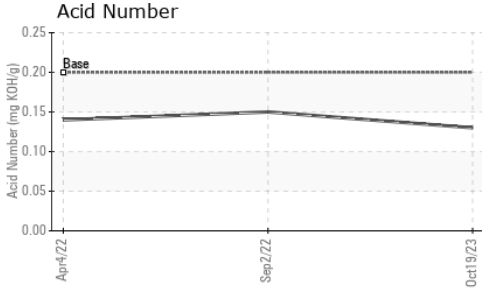
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		<1	<1	<1
Barium	ppm	ASTM D5185(m)		<1	0	0
Molybdenum	ppm	ASTM D5185(m)		0	0	0
Manganese	ppm	ASTM D5185(m)		0	0	0
Magnesium	ppm	ASTM D5185(m)		0	0	0
Calcium	ppm	ASTM D5185(m)		<1	<1	<1
Phosphorus	ppm	ASTM D5185(m)		133	137	134
Zinc	ppm	ASTM D5185(m)		80	76	81
Sulfur	ppm	ASTM D5185(m)		518	517	511
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	<1	<1	<1
Sodium	ppm	ASTM D5185(m)		<1	<1	0
Potassium	ppm	ASTM D5185(m)	>20	0	<1	0

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	.2	0.13	0.15	0.14



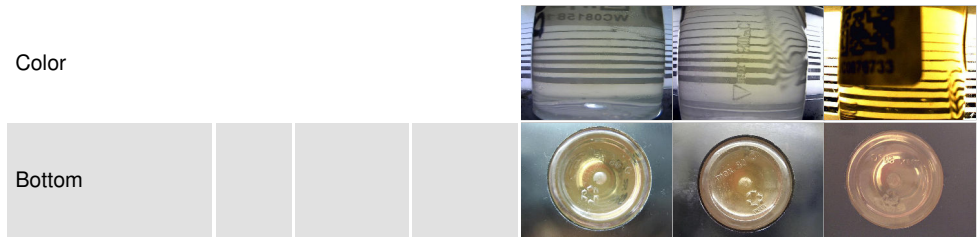
OIL ANALYSIS REPORT



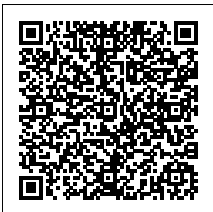
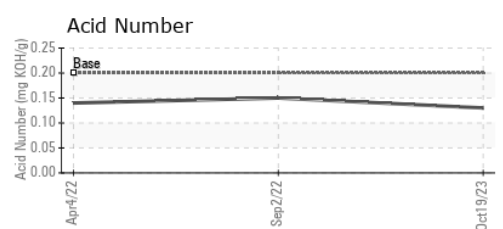
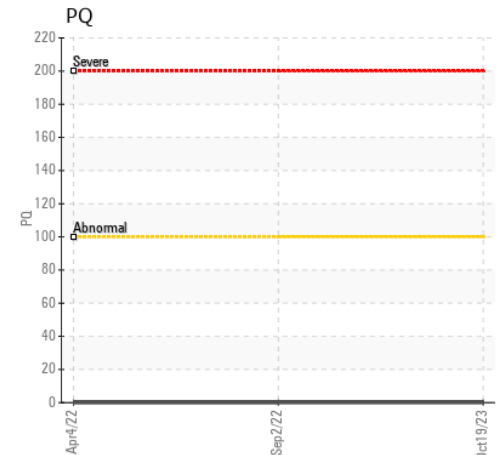
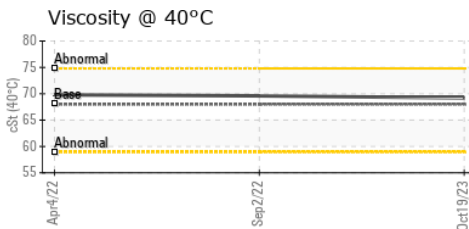
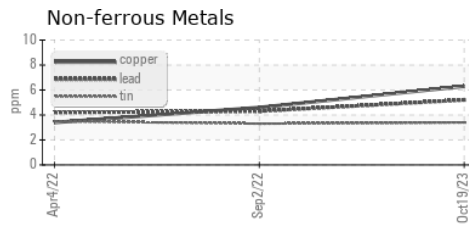
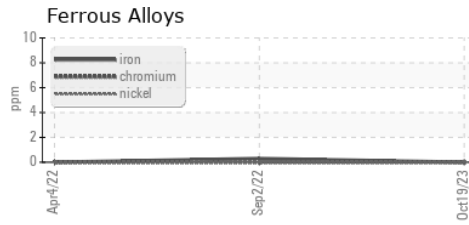
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	VLITE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>2	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	68	69.2	69.6

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. : WC0815811 **Received** : 23 Oct 2023
Lab Number : 02591030 **Tested** : 26 Oct 2023
Unique Number : 5668109 **Diagnosed** : 27 Oct 2023 - Kevin Marson
Test Package : IND 3

Portage Power - Energy Ottawa
 4 Booth Street
 Ottawa, ON
 CA K1R 6K8
 Contact: Cheryl Gharib
 info@portagepower.com

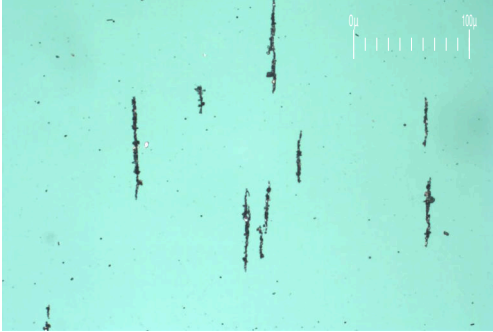
To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

T:
 F: x

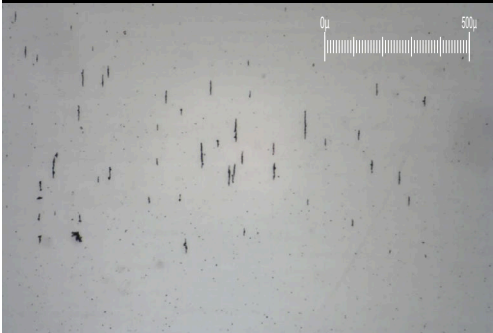
FERROGRAPHY REPORT

Area
Hull 2
 Machine Id
EH-G3-DE (2)
 Component
Journal Bearing
 Fluid
MOBIL DTE EXCEL ISO 68 (--- GAL)

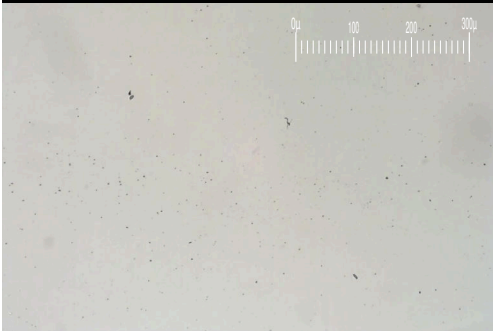
Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW

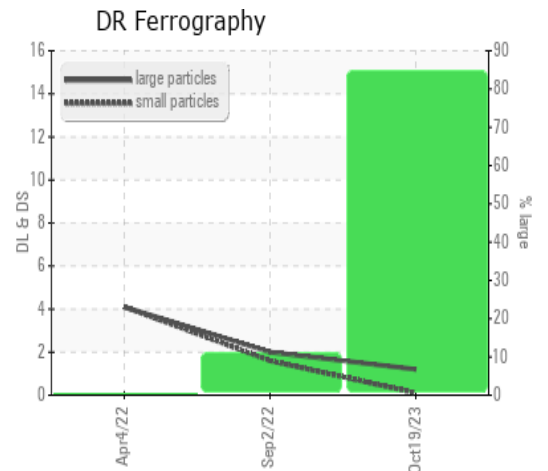


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		1.2	2.0	4.1
Small Particles		DR-Ferr*		0.1	1.6	4.1
Total Particles		DR-Ferr*	>---	1.3	3.6	8.2
Large Particles Percentage	%	DR-Ferr*		84.6	11.1	0
Severity Index		DR-Ferr*		1	1	0

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		■ 3	■ 1	■ 1
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*		▲ 1		
Ferrous Rolling	Scale 0-10	ASTM D7684*		■ 1	■ 1	
Ferrous Break-in	Scale 0-10	ASTM D7684*				
Ferrous Spheres	Scale 0-10	ASTM D7684*				
Ferrous Black Oxides	Scale 0-10	ASTM D7684*				
Ferrous Red Oxides	Scale 0-10	ASTM D7684*				
Ferrous Corrosive	Scale 0-10	ASTM D7684*				
Ferrous Other	Scale 0-10	ASTM D7684*				
Nonferrous Rubbing	Scale 0-10	ASTM D7684*				
Nonferrous Sliding	Scale 0-10	ASTM D7684*				
Nonferrous Cutting	Scale 0-10	ASTM D7684*				
Nonferrous Rolling	Scale 0-10	ASTM D7684*				
Nonferrous Other	Scale 0-10	ASTM D7684*			■ 1	
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*		■ 1	■ 1	■ 1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		■ 1	■ 1	■ 1

WEAR

Wear particle analysis indicates that the ferrous cutting particles are marginal. All other component wear rates are normal. Cutting wear particles are caused by either hard protuberances (mis-aligned components, etc.), or abrasives entering the system and embedding themselves in softer materials (sand, etc.), and gouging out mating surfaces.



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