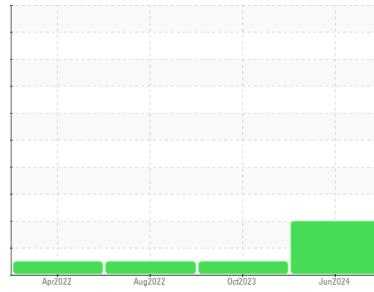




# OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Area

**Hull 2**

Machine Id

**HYDAC EH-G3-HPU (S/N HPU201-RS-001)**

Component

**Hydraulic System**

Fluid

**MOBIL DTE EXCEL ISO 68 (500 LTR)**

## DIAGNOSIS

### Recommendation

We recommend you service the filters on this component. Resample at the next service interval to monitor.

### Wear

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.

### Contaminants

There is a light amount of silt (particulates < 14 microns in size) present 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			<b>WC0815855</b>	WC0815810	WC0676716
Sample Date	Client Info			<b>25 Jun 2024</b>	19 Oct 2023	12 Aug 2022
Machine Age	mths	Client Info		<b>39</b>	31	17
Oil Age	mths	Client Info		<b>39</b>	31	17
Oil Changed	Client Info			<b>N/A</b>	Not Changd	Not Changd
Sample Status				<b>ATTENTION</b>	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>0.05	<b>NEG</b>	NEG	NEG

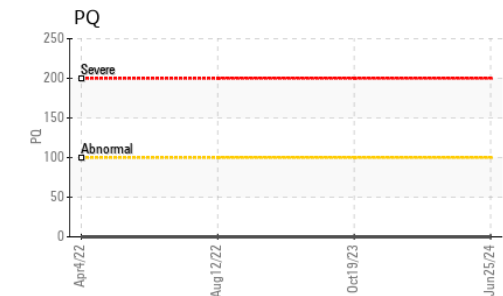
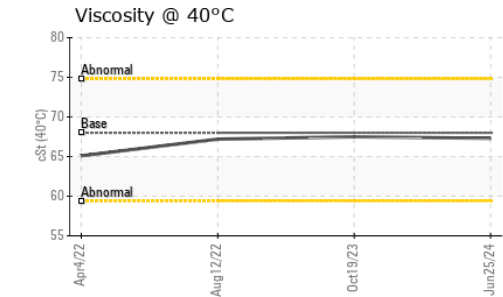
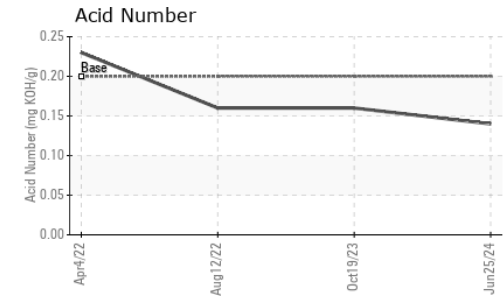
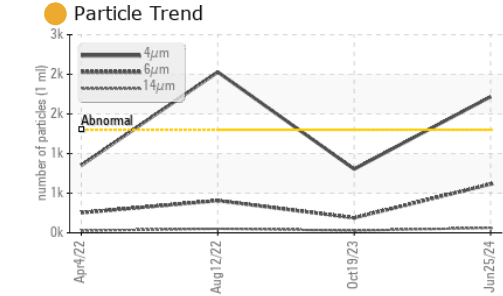
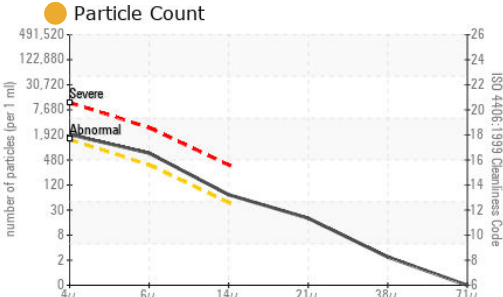
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		<b>0</b>	0	0
Iron	ppm	ASTM D5185(m)	>20	<b>&lt;1</b>	0	0
Chromium	ppm	ASTM D5185(m)	>20	<b>0</b>	0	0
Nickel	ppm	ASTM D5185(m)	>20	<b>&lt;1</b>	0	<1
Titanium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Silver	ppm	ASTM D5185(m)		<b>0</b>	<1	0
Aluminum	ppm	ASTM D5185(m)	>20	<b>0</b>	<1	0
Lead	ppm	ASTM D5185(m)	>20	<b>0</b>	<1	<1
Copper	ppm	ASTM D5185(m)	>20	<b>&lt;1</b>	<1	<1
Tin	ppm	ASTM D5185(m)	>20	<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>0</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>0</b>	<1	0
Molybdenum	ppm	ASTM D5185(m)		<b>0</b>	0	0
Manganese	ppm	ASTM D5185(m)		<b>0</b>	0	0
Magnesium	ppm	ASTM D5185(m)		<b>&lt;1</b>	0	<1
Calcium	ppm	ASTM D5185(m)		<b>2</b>	2	2
Phosphorus	ppm	ASTM D5185(m)		<b>114</b>	134	135
Zinc	ppm	ASTM D5185(m)		<b>82</b>	93	95
Sulfur	ppm	ASTM D5185(m)		<b>496</b>	532	590
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>&lt;1</b>	<1	<1
Sodium	ppm	ASTM D5185(m)		<b>&lt;1</b>	<1	<1
Potassium	ppm	ASTM D5185(m)	>20	<b>0</b>	0	<1



# OIL ANALYSIS REPORT



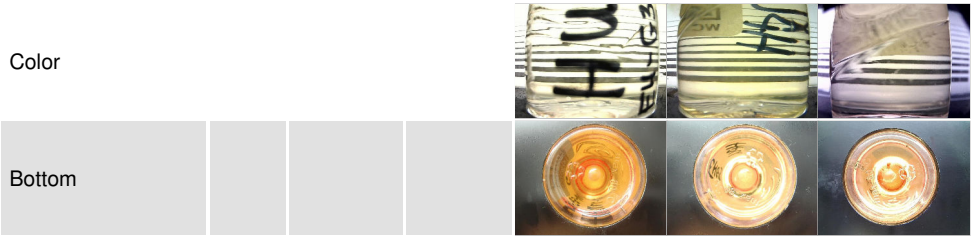
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>1300	● <b>1718</b>	804	2029
Particles >6µm	ASTM D7647	>320	● <b>614</b>	188	406
Particles >14µm	ASTM D7647	>40	● <b>62</b>	28	51
Particles >21µm	ASTM D7647	>10	● <b>17</b>	9	18
Particles >38µm	ASTM D7647	>3	<b>2</b>	1	2
Particles >71µm	ASTM D7647	>3	<b>0</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>17/15/12	● <b>18/16/13</b>	17/15/12	18/16/13

FLUID DEGRADATION	method	limit/base	current	history1	history2	
Acid Number (AN)	mg KOH/g	ASTM D974*	.2	<b>0.14</b>	0.16	0.16

VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	Visual*	NONE	<b>NONE</b>	VLITE	NONE
Sand/Dirt	scalar	Visual*	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	Visual*	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	Visual*	>0.05	<b>NEG</b>	NEG	NEG
Free Water	scalar	Visual*		<b>NEG</b>	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 40°C	cSt	ASTM D7279(m)	68	<b>67.3</b>	67.5	67.2

SAMPLE IMAGES	method	limit/base	current	history1	history2
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**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0815855      **Received** : 09 Jul 2024  
**Lab Number** : **02646710**      **Tested** : 18 Jul 2024  
**Unique Number** : 5812262      **Diagnosed** : 18 Jul 2024 - Kevin Marson  
**Test Package** : IND 3 ( Additional Tests: TAN Man )

**Portage Power - Energy Ottawa**  
 4 Booth Street  
 Ottawa, ON  
 CA K1R 6K8  
 Contact: Oluseyi Smith  
 oluseyismith@portagepower.com

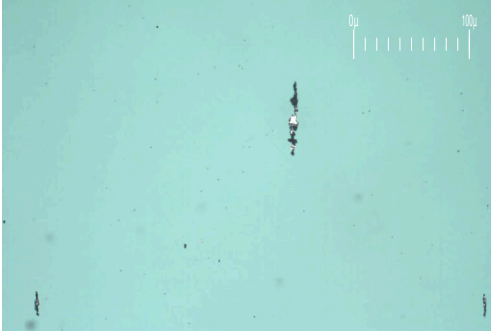
To discuss this sample report, contact Customer Service at 1-800-268-2131.  
 Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.  
 Validity of results and interpretation are based on the sample and information as supplied.



# FERROGRAPHY REPORT

Area  
**Hull 2**  
 Machine Id  
**HYDAC EH-G3-HPU (S/N HPU201-RS-001)**  
 Component  
**Hydraulic System**  
 Fluid  
**MOBIL DTE EXCEL ISO 68 (500 LTR)**

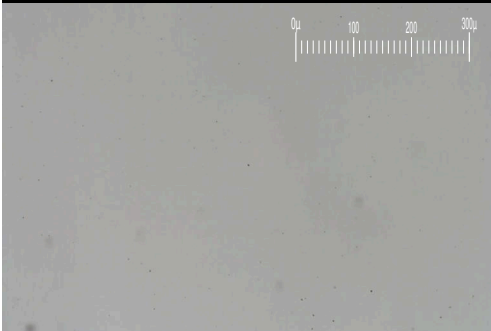
Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW

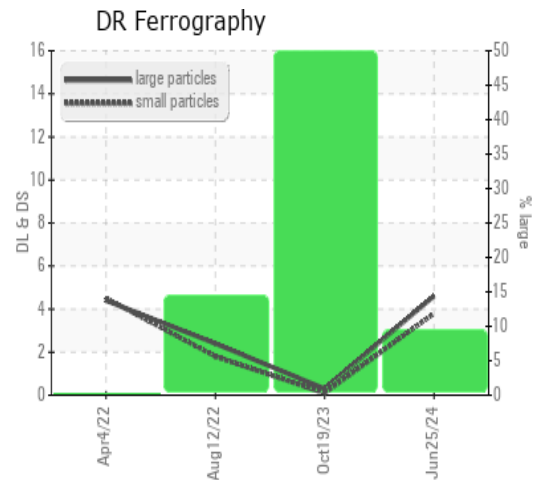


DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		<b>4.6</b>	0.3	2.4
Small Particles		DR-Ferr*		<b>3.8</b>	0.1	1.8
Total Particles		DR-Ferr*	>---	<b>8.4</b>	0.4	4.2
Large Particles Percentage	%	DR-Ferr*		<b>9.5</b>	50	14.3
Severity Index		DR-Ferr*		<b>4</b>	0	1

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		<b>2</b>	2	2
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		<b>1</b>	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*				
Carbonaceous Material	Scale 0-10	ASTM D7684*				
Lubricant Degradation	Scale 0-10	ASTM D7684*				
Sand/Dirt	Scale 0-10	ASTM D7684*			1	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		<b>1</b>	1	1

### WEAR

All component wear rates are normal. The ferrography results are normal indicating no abnormal wear in the system.



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