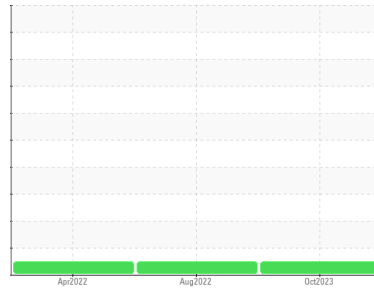




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



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

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

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

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			WC0815810	WC0676716	WC0676730
Sample Date	Client Info			19 Oct 2023	12 Aug 2022	04 Apr 2022
Machine Age	Client Info			31	17	13
Oil Age	Client Info			31	17	13
Oil Changed	Client Info			Not Changed	Not Changed	Not Changed
Sample Status				NORMAL	NORMAL	NORMAL

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

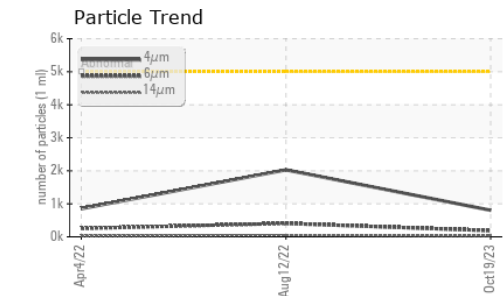
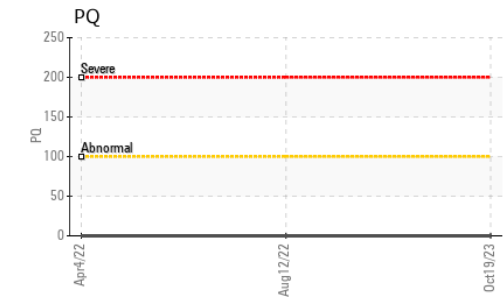
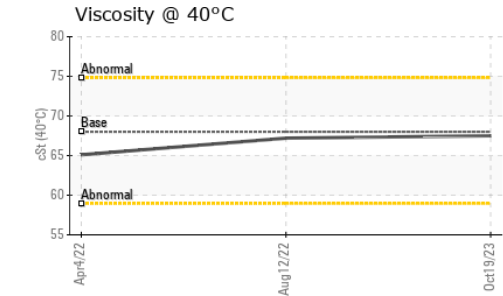
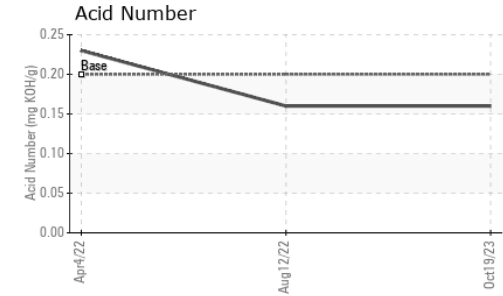
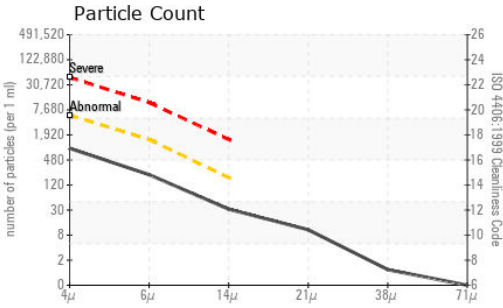
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m)	>20	0	0	0
Chromium	ppm	ASTM D5185(m)	>20	0	0	0
Nickel	ppm	ASTM D5185(m)	>20	0	<1	0
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		<1	0	0
Aluminum	ppm	ASTM D5185(m)	>20	<1	0	0
Lead	ppm	ASTM D5185(m)	>20	<1	<1	<1
Copper	ppm	ASTM D5185(m)	>20	<1	<1	<1
Tin	ppm	ASTM D5185(m)	>20	0	0	0
Antimony	ppm	ASTM D5185(m)		0	0	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	<1	<1
Calcium	ppm	ASTM D5185(m)		2	2	6
Phosphorus	ppm	ASTM D5185(m)		134	135	158
Zinc	ppm	ASTM D5185(m)		93	95	119
Sulfur	ppm	ASTM D5185(m)		532	590	536
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



OIL ANALYSIS REPORT



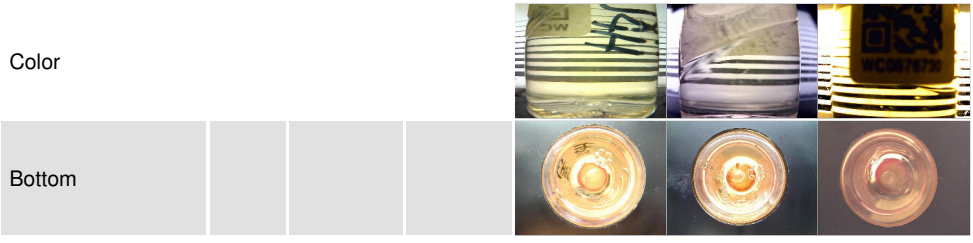
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	804	2029	852
Particles >6µm	ASTM D7647	>1300	188	406	253
Particles >14µm	ASTM D7647	>160	28	51	27
Particles >21µm	ASTM D7647	>40	9	18	6
Particles >38µm	ASTM D7647	>10	1	2	0
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>19/17/14	17/15/12	18/16/13	17/15/12

FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*	.2	0.16	0.16	0.23

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	VLITE	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*	>0.05	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)	68	67.5	67.2	65.1

SAMPLE IMAGES



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0815810
Lab Number : **02590981**
Unique Number : 5668060
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.



FERROGRAPHY REPORT

Area

Hull 2

Machine Id

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

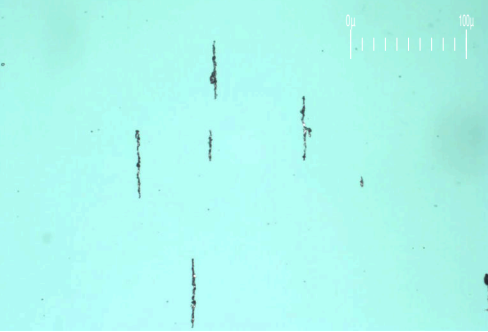
Component

Hydraulic System

Fluid

MOBIL DTE EXCEL ISO 68 (500 LTR)

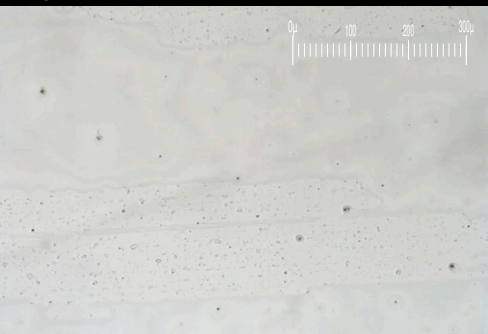
Magn: 200x Illum: BC



Magn: 50x Illum: RW



Magn: 100x Illum: RW



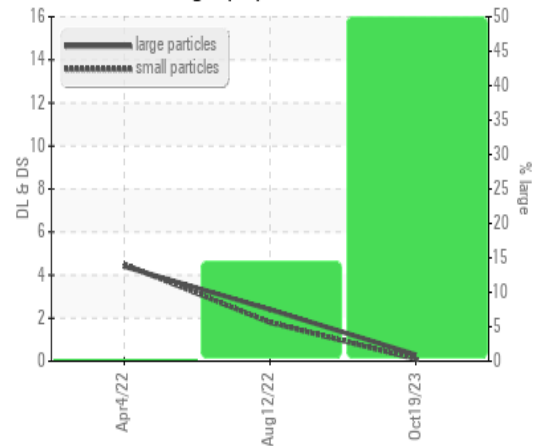
DR-FERROGRAPHY		method	limit/base	current	history1	history2
Large Particles		DR-Ferr*		0.3	2.4	4.4
Small Particles		DR-Ferr*		0.1	1.8	4.5
Total Particles		DR-Ferr*	>---	0.4	4.2	8.9
Large Particles Percentage	%	DR-Ferr*		50	14.3	0
Severity Index		DR-Ferr*		0	1	0

FERROGRAPHY		method	limit/base	current	history1	history2
Ferrous Rubbing	Scale 0-10	ASTM D7684*		2	2	1
Ferrous Sliding	Scale 0-10	ASTM D7684*				
Ferrous Cutting	Scale 0-10	ASTM D7684*				
Ferrous Rolling	Scale 0-10	ASTM D7684*		1	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	1
Fibres	Scale 0-10	ASTM D7684*				
Spheres	Scale 0-10	ASTM D7684*				
Other	Scale 0-10	ASTM D7684*		1	1	1

WEAR

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

DR Ferrography



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