



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINANTS	ABNORMAL
OIL CONDITION	NORMAL

Machine Id  
**EGR-2211 (S/N 6919558)**

Component  
**1 Main Engine**

Fluid  
**SHELL ROTELLA T4 15W40 (900 LTR)**

**RECOMMENDATION**

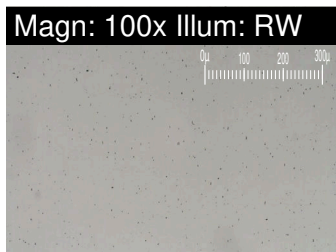
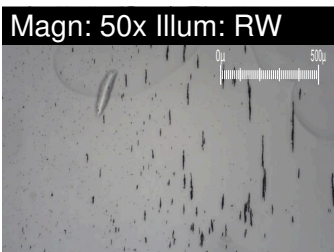
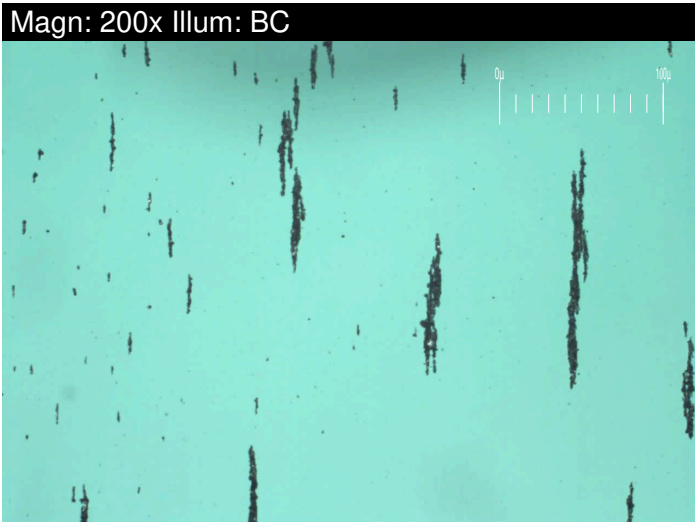
We advise that you check the efficiency of the lube oil purifier. We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

**WEAR**

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

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0910231</b>	WC0494648	WC0494652
Sample Date		Client Info		<b>14 Jan 2024</b>	12 Jul 2023	17 Feb 2023
Machine Age	hrs	Client Info		<b>67000</b>	66500	66000
Oil Age	hrs	Client Info		<b>228</b>	750	0
Filter Age	hrs	Client Info		<b>228</b>	0	250
Oil Changed		Client Info		<b>Not Changed</b>	Not Changed	Not Changed
Filter Changed		Client Info		<b>Not Changed</b>	Not Changed	Changed
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

PQ		ASTM D8184*		<b>0</b>	11	0
Iron	ppm	ASTM D5185(m)	>75	<b>3</b>	3	3
Chromium	ppm	ASTM D5185(m)	>8	<b>0</b>	0	0
Nickel	ppm	ASTM D5185(m)	>2	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185(m)	>3	<b>0</b>	<1	<1
Silver	ppm	ASTM D5185(m)	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185(m)	>15	<b>&lt;1</b>	<1	<1
Lead	ppm	ASTM D5185(m)	>18	<b>0</b>	0	<1
Copper	ppm	ASTM D5185(m)	>80	<b>2</b>	1	1
Tin	ppm	ASTM D5185(m)	>14	<b>0</b>	0	<1
Vanadium	ppm	ASTM D5185(m)		<b>0</b>	0	0
Large Particles		DR-Ferr*		<b>6.8</b>	1.9	2.6
Small Particles		DR-Ferr*		<b>4.7</b>	1.3	1.6
Total Particles		DR-Ferr*	>---	<b>11.5</b>	3.2	4.2
Large Particles Percentage	%	DR-Ferr*		<b>18.3</b>	18.7	23.8
Severity Index		DR-Ferr*		<b>14</b>	1	3
Ferrous Rubbing	Scale 0-10	ASTM D7684*		<b>3</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*		<b>1</b>		
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*				



## CONTAMINANTS

There is a moderate concentration of dirt present in the oil.

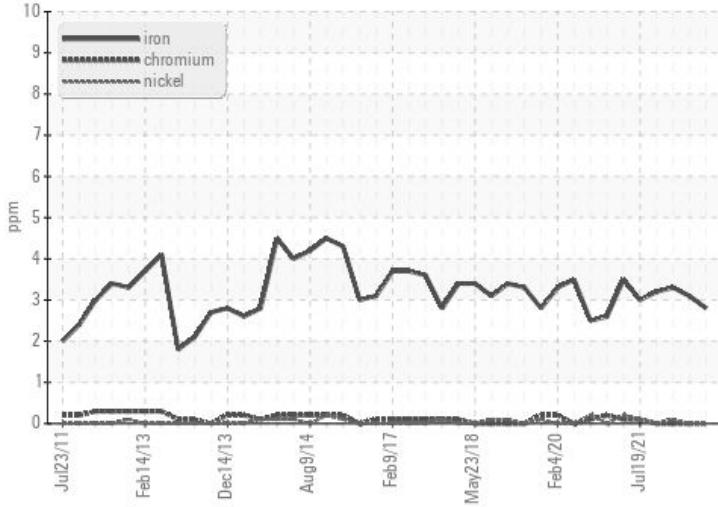
Silicon	ppm	ASTM D5185(m)	>20	▲ 24	3	3
Potassium	ppm	ASTM D5185(m)	>20	7	6	6
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	ASTM D7844*		0	0	0
Nitration	Abs/cm	ASTM D7624*	>20	5.8	8.7	8.9
Sulfation	Abs/.1mm	ASTM D7415*	>30	20.2	21.9	23.0
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	NEG
Carbonaceous Material	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

## OIL CONDITION

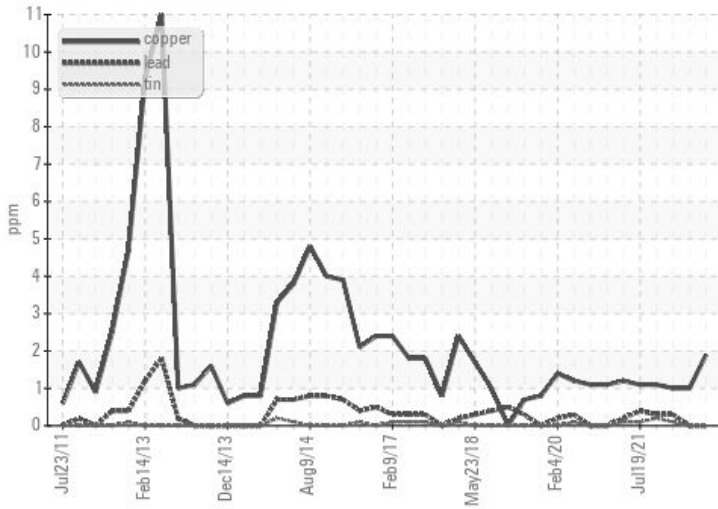
Additive levels indicate the addition of a different brand, or type of oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185(m)	>75	3	3	3
Boron	ppm	ASTM D5185(m)		170	116	96
Barium	ppm	ASTM D5185(m)		0	0	0
Molybdenum	ppm	ASTM D5185(m)		1	3	3
Manganese	ppm	ASTM D5185(m)		0	0	<1
Magnesium	ppm	ASTM D5185(m)		16	20	21
Calcium	ppm	ASTM D5185(m)		2165	2234	2447
Phosphorus	ppm	ASTM D5185(m)		981	1046	1036
Zinc	ppm	ASTM D5185(m)		1092	1144	1131
Sulfur	ppm	ASTM D5185(m)		3111	3022	3086
Oxidation	Abs/.1mm	ASTM D7414*	>25	15.9	17.5	17.0
Base Number (BN)	mg KOH/g	ASTM D2896*	10.1	9.54	7.26	6.45
Visc @ 100°C	cSt	ASTM D7279(m)	15	13.4	14.0	13.9
Lubricant Degradation	Scale 0-10	ASTM D7684*				

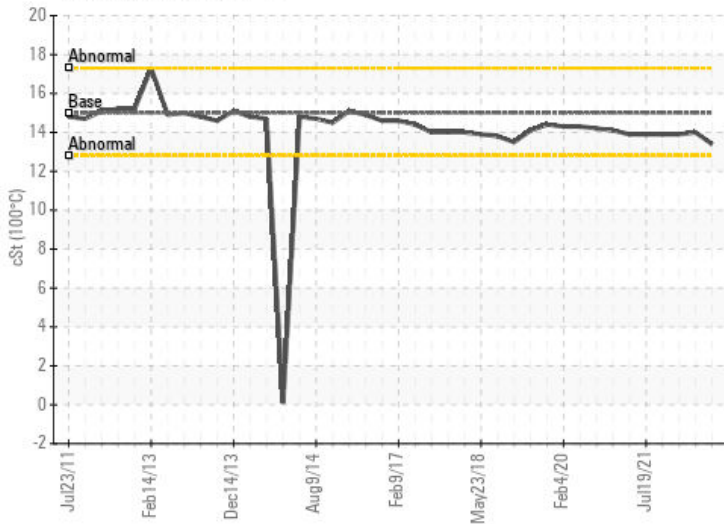
### Ferrous Alloys



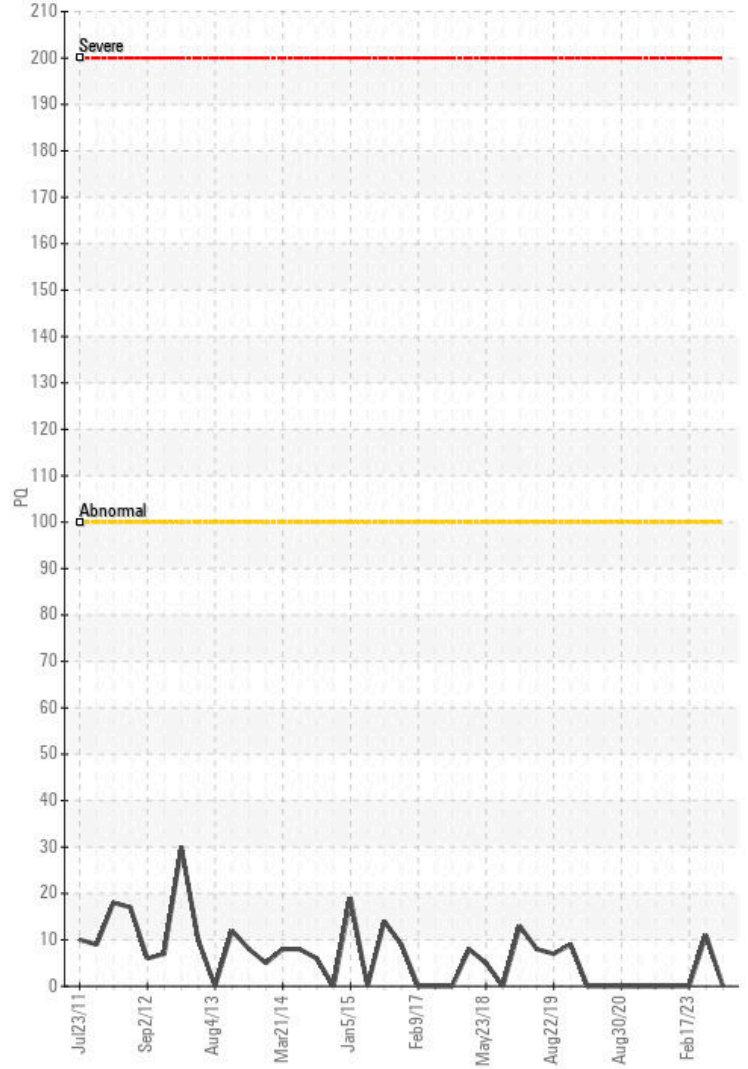
### Non-ferrous Metals



### Viscosity @ 100°C



### PQ



### Base Number



**Laboratory** : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9  
**Sample No.** : WC0910231  
**Lab Number** : 02620395  
**Unique Number** : 5737505  
**Test Package** : MAR 3

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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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