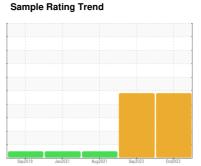


OIL ANALYSIS REPORT

Area [41819384] **R258**

Component **Diesel Engine**

DIESEL ENGINE OIL SAE 10W30 (--- GAL)





DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

Test for glycol is positive. There is a light concentration of glycol present in the oil.

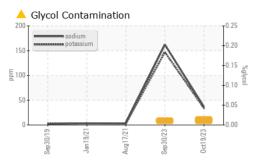
▲ Fluid Condition

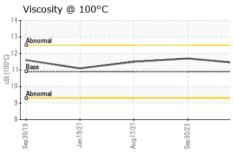
The oil is no longer serviceable due to the presence of contaminants.

Sample Date Client Info 19 Oct 2023 30 Sep 2023 17 Aug 2021			Sep2019	Jan 2021	Aug ² 021 Sep ² 023	Oct2023	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age kms	Sample Number		Client Info		WC0853513	WC0853399	WC0581040
Oil Age kms Client Info 0 0 0 0 Oil Changed Sample Status Client Info Changed ABNORMAL Not Changed Not Ch	Sample Date		Client Info		19 Oct 2023	30 Sep 2023	17 Aug 2021
Colient Info	Machine Age	kms	Client Info		193349	193471	109271
ABNORMAL ABNORMAL	Oil Age	kms	Client Info		0	0	0
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >2.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 NEG NE	Oil Changed		Client Info			Not Changd	N/A
Fuel WC Method 2.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG	Sample Status				ABNORMAL	ABNORMAL	NORMAL
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185(m) >100 8 27 37 Chromium ppm ASTM D5185(m) >20 0 <1 <1 Nickel ppm ASTM D5185(m) >4 <1 0 <1 Silver ppm ASTM D5185(m) >3 0 <1 0 Silver ppm ASTM D5185(m) >20 2 5 3 Lead ppm ASTM D5185(m) >40 <1 4 1 Copper ppm ASTM D5185(m) >330 <1 4 5 Tin ppm ASTM D5185(m) >30 <1 4 5 Tin ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0	CONTAMINATION	١	method	limit/base	current	history1	history2
Near Metals	Fuel		WC Method	>2.0	<1.0	<1.0	<1.0
Iron	Water		WC Method	>0.2	NEG	NEG	NEG
Chromium ppm ASTM D5185(m) >20 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185(m)	>100	8	27	37
Titanium	Chromium	ppm	ASTM D5185(m)	>20	0	<1	<1
Silver	Nickel	ppm	ASTM D5185(m)	>4	<1	0	<1
Aluminum ppm ASTM D5185(m) >20 2 5 3 Lead ppm ASTM D5185(m) >40 <1 4 1 Copper ppm ASTM D5185(m) >330 <1 4 5 Tin ppm ASTM D5185(m) >15 0 <1 <1 Antimony ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 250 63 12 37 Barium ppm ASTM D5185(m) 10 0 <1 0 Molybdenum ppm ASTM D5185(m) 10 0	Titanium	ppm	ASTM D5185(m)		0	0	0
Lead ppm ASTM D5185(m) >40 <1	Silver	ppm	ASTM D5185(m)	>3	0	<1	0
Copper ppm ASTM D5185(m) >330 <1	Aluminum	ppm	ASTM D5185(m)	>20	2	5	3
Tin	Lead	ppm	ASTM D5185(m)	>40	<1	4	1
Antimony ppm ASTM D5185(m) 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 <1 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) 250 63 12 37 Barium ppm ASTM D5185(m) 10 0 <1 0 Molybdenum ppm ASTM D5185(m) 100 5 16 14 Manganese ppm ASTM D5185(m) 450 719 781 745 Calcium ppm ASTM D5185(m) 450 719 781 745 Calcium ppm ASTM D5185(m) 3000 1313 1382 1361 Phosphorus ppm ASTM D5185(m) 150 759 822 850 <	Copper	ppm	ASTM D5185(m)	>330	<1	4	5
Vanadium ppm ASTM D5185(m) 0 0 <1	Tin	ppm	ASTM D5185(m)	>15	0	<1	<1
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) 250 63 12 37 Barium ppm ASTM D5185(m) 10 0 <1	Antimony	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) 250 63 12 37 Barium ppm ASTM D5185(m) 10 0 <1 0 Molybdenum ppm ASTM D5185(m) 100 5 16 14 Manganese ppm ASTM D5185(m) 0 0 <1 Magnesium ppm ASTM D5185(m) 450 719 781 745 Calcium ppm ASTM D5185(m) 3000 1313 1382 1361 Phosphorus ppm ASTM D5185(m) 1150 707 752 768 Zinc ppm ASTM D5185(m) 1350 759 822 850 Sulfur ppm ASTM D5185(m) <1 <1 <1 <1 CONTAMINANTS method limit/base current h	Vanadium	ppm	ASTM D5185(m)		0	0	<1
ADDITIVES	Beryllium	ppm	ASTM D5185(m)		0	0	0
Boron ppm ASTM D5185(m) 250 63 12 37 Barium ppm ASTM D5185(m) 10 0 <1	Cadmium	ppm	ASTM D5185(m)		0	0	0
Barium ppm ASTM D5185(m) 10 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185(m) 100 5 16 14 Manganese ppm ASTM D5185(m) 0 0 <1	Boron	ppm	ASTM D5185(m)	250	63	12	37
Manganese ppm ASTM D5185(m) 0 0 <1	Barium	ppm	ASTM D5185(m)	10	0	<1	0
Magnesium ppm ASTM D5185(m) 450 719 781 745 Calcium ppm ASTM D5185(m) 3000 1313 1382 1361 Phosphorus ppm ASTM D5185(m) 1150 707 752 768 Zinc ppm ASTM D5185(m) 1350 759 822 850 Sulfur ppm ASTM D5185(m) 4250 2671 2634 2583 Lithium ppm ASTM D5185(m) < 1	Molybdenum	ppm	ASTM D5185(m)	100	5	16	14
Calcium ppm ASTM D5185(m) 3000 1313 1382 1361 Phosphorus ppm ASTM D5185(m) 1150 707 752 768 Zinc ppm ASTM D5185(m) 1350 759 822 850 Sulfur ppm ASTM D5185(m) 4250 2671 2634 2583 Lithium ppm ASTM D5185(m) <1 <1 <1 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 4 7 6 Sodium ppm ASTM D5185(m) >25 4 7 6 Sodium ppm ASTM D5185(m) >20 34 147 3 Potassium ppm ASTM D7822* 0.0022 0.019 NEG INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3	Manganese	ppm	ASTM D5185(m)		0	0	<1
Phosphorus ppm ASTM D5185(m) 1150 707 752 768 Zinc ppm ASTM D5185(m) 1350 759 822 850 Sulfur ppm ASTM D5185(m) 4250 2671 2634 2583 Lithium ppm ASTM D5185(m) <1	Magnesium	ppm	ASTM D5185(m)	450	719	781	745
Zinc ppm ASTM D5185(m) 1350 759 822 850 Sulfur ppm ASTM D5185(m) 4250 2671 2634 2583 Lithium ppm ASTM D5185(m) <1	Calcium	ppm	ASTM D5185(m)	3000	1313	1382	1361
Sulfur ppm ASTM D5185(m) 4250 2671 2634 2583 Lithium ppm ASTM D5185(m) <1	Phosphorus	ppm	ASTM D5185(m)	1150	707	752	768
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 4 7 6 Sodium ppm ASTM D5185(m) ≥25 4 7 6 Sodium ppm ASTM D5185(m) ≥20 37 162 3 Potassium ppm ASTM D5185(m) >20 34 147 3 Glycol % ASTM D7922* 0.0022 0.019 NEG INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0.4 1.4 1.2 Nitration Abs/cm ASTM D7624* >20 8.2 12.5 11.9	Zinc	ppm	ASTM D5185(m)	1350	759	822	850
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >25 4 7 6 Sodium ppm ASTM D5185(m) ▲ 37 ▲ 162 3 Potassium ppm ASTM D5185(m) >20 ▲ 34 ▲ 147 3 Glycol % ASTM D7922* ▲ 0.022 ▲ 0.019 NEG INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0.4 1.4 1.2 Nitration Abs/cm ASTM D7624* >20 8.2 12.5 11.9	Sulfur	nnm	ACTM DE10E()	4050			0500
Silicon ppm ASTM D5185(m) >25 4 7 6 Sodium ppm ASTM D5185(m) ▲ 37 ▲ 162 3 Potassium ppm ASTM D5185(m) >20 ▲ 34 ▲ 147 3 Glycol % ASTM D7922* ▲ 0.022 ▲ 0.019 NEG INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0.4 1.4 1.2 Nitration Abs/cm ASTM D7624* >20 8.2 12.5 11.9		ppiii	ASTIVI DOTRO(III)	4250	2671	2634	2583
Sodium ppm ASTM D5185(m) ▲ 37 ▲ 162 3 Potassium ppm ASTM D5185(m) >20 ▲ 34 ▲ 147 3 Glycol % ASTM D7922* ▲ 0.022 ▲ 0.019 NEG INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0.4 1.4 1.2 Nitration Abs/cm ASTM D7624* >20 8.2 12.5 11.9	Lithium			4250			
Potassium ppm ASTM D5185(m) >20 ▲ 34 ▲ 147 3 Glycol % ASTM D7922* ▲ 0.022 ▲ 0.019 NEG INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0.4 1.4 1.2 Nitration Abs/cm ASTM D7624* >20 8.2 12.5 11.9		ppm	ASTM D5185(m)		<1	<1	<1
Glycol % ASTM D7922* ▲ 0.022 ▲ 0.019 NEG INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0.4 1.4 1.2 Nitration Abs/cm ASTM D7624* >20 8.2 12.5 11.9		ppm	ASTM D5185(m) method	limit/base	<1 current	<1 history1	<1 history2
INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844* >3 0.4 1.4 1.2 Nitration Abs/cm ASTM D7624* >20 8.2 12.5 11.9	CONTAMINANTS	ppm	ASTM D5185(m) method ASTM D5185(m)	limit/base	<1 current	<1 history1 7	<1 history2
Soot % % ASTM D7844* >3 0.4 1.4 1.2 Nitration Abs/cm ASTM D7624* >20 8.2 12.5 11.9	CONTAMINANTS Silicon	ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m)	limit/base >25	<1 current 4 37	<1 history1 7 ▲ 162	<1 history2 6 3
Nitration Abs/cm ASTM D7624* >20 8.2 12.5 11.9	CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base >25	<1 current 4 37 34	<1 history1 7 ▲ 162 ▲ 147	<1 history2 6 3 3
Nitration Abs/cm ASTM D7624* >20 8.2 12.5 11.9	CONTAMINANTS Silicon Sodium Potassium Glycol	ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7922*	limit/base >25 >20	<1 current 4	<1 history1 7 ▲ 162 ▲ 147 ▲ 0.019	<1 history2 6 3 NEG
	CONTAMINANTS Silicon Sodium Potassium Glycol	ppm ppm ppm ppm %	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7922* method	limit/base >25 >20 limit/base	<1	<1 history1 7 ▲ 162 ▲ 147 ▲ 0.019 history1	<1 history2 6 3 NEG history2
	CONTAMINANTS Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm %	ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7922* method ASTM D7844*	limit/base >25 >20 limit/base >3	<1 current 4 37 34 0.022 current 0.4	<1 history1 7 ▲ 162 ▲ 147 ▲ 0.019 history1 1.4	<1 history2 6 3 NEG history2 1.2



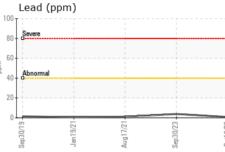
OIL ANALYSIS REPORT

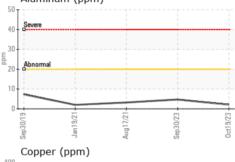


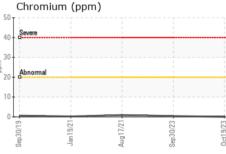


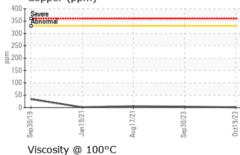
FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	13.2	17.2	17.5
VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPER	ΓIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	10.9	11.4	11.7	11.5
GRAPHS						

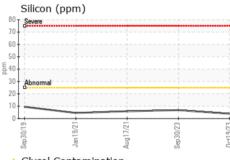
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200				
150				
Abnorm	al			į
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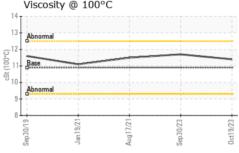


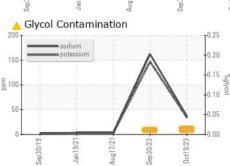














CALA ISO 17025:2017 Accredited

Laboratory Sample No. Lab Number Unique Number

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 : 02607432 : 5708518

: WC0853513

Recieved

Diagnosed

: 09 Jan 2024 Diagnostician : Wes Davis

: 09 Jan 2024

Test Package : MOB 1 (Additional Tests: Glycol) 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.

Rush Truck Centres 7450 Torbram Rd. Mississauga, ON **CA L4T 1G9** Contact: Serdar Okur sokur@rushtruckcentres.ca T: (905)671-7600