

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

CUMMINS 10854

Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (7 GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

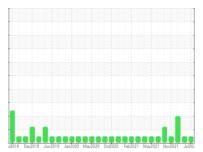
All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





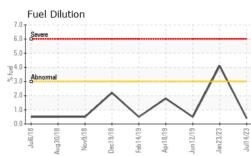
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0086233	GFL0057569	GFL0057620
Sample Date		Client Info		14 Jul 2023	30 Jun 2023	23 Jan 2023
Machine Age	hrs	Client Info		2681	2660	0
Oil Age	hrs	Client Info		2681	2660	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL		ABNORMAL
CONTAMINAT		method	limit/base	current	history1	history2
Glycol		WC Method	mmbase	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
				44		
Iron	ppm	ASTM D5185m	>75	11	13	▲ 76 3
Chromium	ppm	ASTM D5185m	>5	1	<1	
Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>15	10	2	5
Lead	ppm	ASTM D5185m	>25	0	0	<1
Copper	ppm	ASTM D5185m	>100	<1	1	18
Tin	ppm	ASTM D5185m	>4	0	<1	1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		mathad	limit/base		history1	history2
ADDITIVES		method	iiiiii/base	current	history1	Thistory Z
Boron	ppm	ASTM D5185m	0	20	11	4
	ppm ppm					
Boron		ASTM D5185m	0	20	11	4
Boron Barium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	20 0	11 0	4
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	20 0 62	11 0 55	4 0 56
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	20 0 62 <1	11 0 55 <1	4 0 56 1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	20 0 62 <1 731	11 0 55 <1 646	4 0 56 1 762
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	20 0 62 <1 731 1040	11 0 55 <1 646 917 800	4 0 56 1 762 1138 853
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	20 0 62 <1 731 1040 922	11 0 55 <1 646 917	4 0 56 1 762 1138
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	20 0 62 <1 731 1040 922 1095	11 0 55 <1 646 917 800 969	4 0 56 1 762 1138 853 1183
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	20 0 62 <1 731 1040 922 1095 2976	11 0 55 <1 646 917 800 969 2396	4 0 56 1 762 1138 853 1183 2652
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	20 0 62 <1 731 1040 922 1095 2976 current	11 0 55 <1 646 917 800 969 2396 history1	4 0 56 1 762 1138 853 1183 2652 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	0 0 60 0 1010 1070 1150 1270 2060	20 0 62 <1 731 1040 922 1095 2976 current 2	11 0 55 <1 646 917 800 969 2396 history1 4	4 0 56 1 762 1138 853 1183 2652 history2 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	20 0 62 <1 731 1040 922 1095 2976 2976 current 2 0	11 0 55 <1 646 917 800 969 2396 history1 4 0	4 0 56 1 762 1138 853 1183 2652 history2 9 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	20 0 62 <1 731 1040 922 1095 2976 <u>current</u> 2 0 2	11 0 55 <1 646 917 800 969 2396 history1 4 0 1	4 0 56 1 762 1138 853 1183 2652 history2 9 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 >20 >3.0	20 0 62 <1 731 1040 922 1095 2976 current 2 0 2 0 2 0 0.4 current	11 0 55 <1 646 917 800 969 2396 history1 4 0 1 <1.0 +istory1	4 0 56 1 762 1138 853 1183 2652 history2 9 3 2 2 ▲ 4.1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 >3.0	20 0 62 <1 731 1040 922 1095 2976 <i>current</i> 2 0 2 0 2 0.4 <i>current</i>	11 0 55 <1 646 917 800 969 2396 history1 4 0 1 <1.0 1 <1.0 history1 0.5	4 0 56 1 762 1138 853 1183 2652 history2 9 3 2 2 ▲ 4.1 history2 1.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm %	ASTM D5185m ASTM D3524 method *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 >3.0 imit/base >20 imit/base	20 0 62 <1 731 1040 922 1095 2976 <i>current</i> 2 0 2 0.4 <i>current</i> 0.4 6.6	111 0 555 <1 646 917 800 969 2396 history1 4 0 1 <1.0 1 <1.0 history1 0.5 9.3	4 0 56 1 762 1138 853 1183 2652 history2 9 3 2 2 4.1 history2 1.5 1.3.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 >3.0	20 0 62 <1 731 1040 922 1095 2976 <i>current</i> 2 0 2 0 2 0.4 <i>current</i>	11 0 55 <1 646 917 800 969 2396 history1 4 0 1 <1.0 1 <1.0 history1 0.5	4 0 56 1 762 1138 853 1183 2652 history2 9 3 2 2 ▲ 4.1 history2 1.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524 ASTM D3524 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 >3.0 imit/base >20 imit/base	20 0 62 <1 731 1040 922 1095 2976 Current 2 0 2 0.4 2 0.4 0.4 6.6 17.2 Current	111 0 555 <1 646 917 800 969 2396 history1 4 0 1 <1.0 1 <1.0 history1 0.5 9.3	4 0 56 1 762 1138 853 1183 2652 history2 9 3 2 2 4.1 history2 1.5 1.3.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 220 23.0 1000 200 200 200 200 200 200 200 200 2	20 0 62 <1 731 1040 922 1095 2976 <i>current</i> 2 0 2 0.4 2 0.4 <i>current</i> 0.4 6.6 17.2	111 0 55 <1 646 917 800 969 2396 history1 4 0 1 <1.0 history1 0.5 9.3 18.6	4 0 56 1 762 1138 853 1183 2652 history2 9 3 2 2 ▲ 4.1 history2 1.5 1.5 13.4 22.5

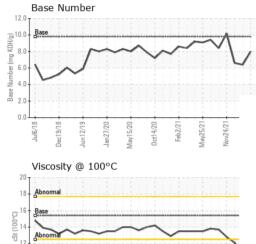


10 8. Jul6/18

Dec19/18 -Jun12/19 Jan27/20

OIL ANALYSIS REPORT





		VISUAL		method				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	NONE	NONE	NONE
	\vee	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Feb14/19 -	Jun 12/19 - Jan 23/23 -		scalar	*Visual	NORML	NORML	NORML	NORML
Feb1 Apr1	Jun1 Jan2	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
	~	FLUID PROPI	ERTIES	method	limit/base	current	history1	history2
\sim	۱ i	Visc @ 100°C	cSt	ASTM D445	15.4	12.3	10.7	1 2.1
		GRAPHS						
		Ferrous Alloys						
0ct14/20 0ct14/20 0ct14/20 0ct14/20 6ct221	2 4	60 50 10 10 10 10 10 10 10 10 10 1	02/51/eW als	Feb.221 May25521	E2/Film			
		100 udd 80 60 40 20 0 80 80 80 80 80 80 80 80 80 80	C 0ct14/20	Feb2/21	12.0			~^^
		Base 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	May15/20	Feb2/21	(0)H 0, K 0, W 1, W		Jar21/20 May15/20 Oct14/20	Feb221 May25;21 Nov24/21
CARE L2367	Laborator Sample N Lab Numb Unique Nur Test Pack	o. : GFL0086233 oer : 05902748 nber : 10564104	Received Diagnos Diagnost I Tests: Fu	d : 19 ed : 21 tician : We telDilution, P	Jul 2023 Jul 2023 s Davis ercentFuel)	GFL E	690 Co	• 009 - Fairbu 5 Roosevelt Hy Fairburn, C US 302 ntact: Eric Jon nes@gflenv.cc