

OIL ANALYSIS REPORT

Sample Rating Trend

GLYCOL

Machine Id 7807M

Component Diesel Engine

Fluid

PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check for possible coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

🔺 Wear

The aluminum level is abnormal. All other component wear rates are normal.

Contamination

Sodium and/or potassium levels are high.

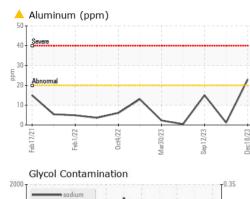
Fluid Condition

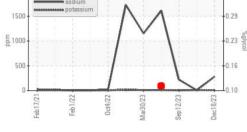
The BN result indicates that there is suitable alkalinity remaining in the oil.

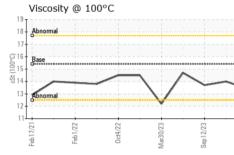
		Feb2021	Feb2022 Oct2022	Mar2023 Sep2023	Dec2023	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0107085	GFL0046370	GFL0091506
Sample Date		Client Info		18 Dec 2023	19 Sep 2023	12 Sep 2023
Machine Age	hrs	Client Info		15320	14681	14634
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				ABNORMAL	NORMAL	ATTENTION
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	57	15	14
Chromium	ppm	ASTM D5185m	>20	1	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m		<u> </u>	1	15
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m		15	7	6
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m	210	0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES	le le	method	limit/base	current	history1	history2
ADDITIVES		memou	IIIIII/Dase	Current	TIISLUTYT	TIISLUT YZ
Doron			0			
Boron	ppm	ASTM D5185m	0	11	40	17
Barium	ppm	ASTM D5185m ASTM D5185m	0	<1	40	17 0
Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60	<1 68	40 0 78	17 0 66
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	<1 68 2	40 0 78 2	17 0 66 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	<1 68 2 877	40 0 78 2 825	17 0 66 <1 931
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	<1 68 2 877 1044	40 0 78 2 825 1230	17 0 66 <1 931 1124
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	<1 68 2 877 1044 957	40 0 78 2 825 1230 876	17 0 66 <1 931 1124 1063
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270	<1 68 2 877 1044 957 1216	40 0 78 2 825 1230 876 1071	17 0 66 <1 931 1124 1063 1281
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 60 0 1010 1070 1150 1270 2060	<1 68 2 877 1044 957	40 0 78 2 825 1230 876 1071 3589	17 0 66 <1 931 1124 1063 1281 3243
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 60 0 1010 1070 1150 1270 2060 limit/base	<1 68 2 877 1044 957 1216 2301 current	40 0 78 2 825 1230 876 1071 3589 history1	17 0 66 <1 931 1124 1063 1281 3243 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	<1 68 2 877 1044 957 1216 2301 current 12	40 0 78 2 825 1230 876 1071 3589 history1 9	17 0 66 <1 931 1124 1063 1281 3243 history2 7
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	<1 68 2 877 1044 957 1216 2301 current 12 283	40 0 78 2 825 1230 876 1071 3589 history1 9 5	17 0 66 <1 931 1124 1063 1281 3243 history2 7 7 ▲ 218
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 60 0 1010 1070 1150 1270 2060 limit/base	<1 68 2 877 1044 957 1216 2301 current 12 ▲ 283 7	40 0 78 2 825 1230 876 1071 3589 history1 9 5 5 10	17 0 66 <1 931 1124 1063 1281 3243 history2 7 ▲ 218 4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	<1 68 2 877 1044 957 1216 2301 current 12 283	40 0 78 2 825 1230 876 1071 3589 history1 9 5	17 0 66 <1 931 1124 1063 1281 3243 history2 7 ▲ 218 4 NEG
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 60 0 1010 1070 1150 1270 2060 limit/base >25	<1 68 2 877 1044 957 1216 2301 current 12 ▲ 283 7	40 0 78 2 825 1230 876 1071 3589 history1 9 5 5 10	17 0 66 <1 931 1124 1063 1281 3243 history2 7 2 218 4 NEG history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	<1 68 2 877 1044 957 1216 2301 current 12 ▲ 283 7 NEG	40 0 78 2 825 1230 876 1071 3589 history1 9 5 10 NEG history1 0.2	17 0 66 <1 931 1124 1063 1281 3243 history2 7 7 ▲ 218 4 NEG history2 0.2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m *ASTM D2982	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3	<1 68 2 877 1044 957 1216 2301 current 12 ▲ 283 7 NEG current	40 0 78 2 825 1230 876 1071 3589 history1 9 5 10 NEG history1	17 0 66 <1 931 1124 1063 1281 3243 history2 7 2 218 4 NEG history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m *ASTM D2982 method	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	<1 68 2 877 1044 957 1216 2301 current 12 ▲ 283 7 NEG current 1.6	40 0 78 2 825 1230 876 1071 3589 history1 9 5 10 NEG history1 0.2	17 0 66 <1 931 1124 1063 1281 3243 history2 7 7 ▲ 218 4 NEG history2 0.2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m *ASTM D2982 method *ASTM D7844 *ASTM D7844	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	<1 68 2 877 1044 957 1216 2301 current 12 ▲ 283 7 NEG current 1.6 10.9	40 0 78 2 825 1230 876 1071 3589 history1 9 5 10 NEG NEG history1 0.2 7.4	17 0 66 <1 931 1124 1063 1281 3243 history2 7 ▲ 218 4 NEG history2 0.2 6.2 17.8
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m *ASTM D2982 method *ASTM D7844 *ASTM D7844	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30	<1 68 2 877 1044 957 1216 2301 current 12 ▲ 283 7 NEG current 1.6 10.9 23.2	40 0 78 2 825 1230 876 1071 3589 history1 9 5 10 NEG history1 0.2 7.4 18.8	17 0 66 <1 931 1124 1063 1281 3243 history2 7 ▲ 218 4 NEG history2 0.2 6.2

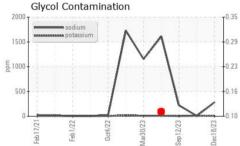


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))	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
$\wedge \wedge /$	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
0ct4/22 Mar30/23 Sep 12/23 Dec 18/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Mr Nr	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
ation	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
0.35	Free Water	scalar	*Visual		NEG	NEG	NEG
0.29	FLUID PROPE		method	limit/base	current	history1	history2
0.23 K	Visc @ 100°C	cSt	ASTM D445	15.4	13.4	14.0	13.7
0.16	GRAPHS						
	Ferrous Alloys						
	50 - iron	Λ		1			
0ct4/22 Mar30/23 Sep 12/23 Dec18/23	nickel						
00	40	/		1			
°C	§ 30	()	1	1			
	20-		1	land a			
	10-						
\frown	22 22 22	/23	/23	/23			
	Feb17/21 Feb1/22 Oct4/22	Mar30/23	Sep 12/23	Dec18/23			
	Non-ferrous Metal						
0ct4/22 Mar30/23 Sep 12/23	²⁵						
0c Mar3	20 - copper						
nation	2.0		Λ				
	15-			1			
	10		/				
0.29							
-0.23	5						
	0	AND DESCRIPTION OF THE OWNER	anota a la	_			
0.16	Feb 17/21 Feb 1/22	Mar30/23	Sep 12/23	Dec18/23			
0.10	E.	≥	Sep	Dec			
0ct4/23 Mar30/23 Sep12/23 Dec18/23	Viscosity @ 100°C				Base Number		
De Se Mi	19 18 - Abnormal			14.0		Λ	^
	18 Abnormal			12.0		$/ \setminus /$	$\mathbf{\lambda}$
-				Hoy 10.0	Base		<u> </u>
	Base			B 8.0	$\sim \sim$	/	
100	Base 15 3 14		N-	0.0 HQH 8.0 0.0 Base Number (mg KOH/d) 4.0			
	12		1 -	2 2 4.0			
	12 Abnormal	V		2.0			
	11						
	-eb 17/21 Feb 1/22 Oct4/22	Mar30/23	Sep 12/23	Dec18/23	Feb 17/21 Feb 1/22	0ct4/22 Mar30/23	Sep12/23 Dec18/23
	o La Lei	Mar	Sep	Dec	E E	Mar	Sep
Laboratory	: WearCheck USA - 5				GFL E	nvironmental ·	- 465 - Pontiac
ANAB Sample No.		Recieved		Dec 2023			888 Baldwin
Lab Number Unique Number		Diagnos Diagnost		Dec 2023 athan Hester			Pontiac, MI US 48340
Certificate L2367 Test Package	: FLEET (Additional	Diagnost Tests: Gl		aman nester		Contact: F	Ricky Matthews
To discuss this sample report, c	contact Customer Serv	ice at 1-8	00-237-1369			rickymathev	vs@gflenv.com
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* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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