

OIL ANALYSIS REPORT

Sample Rating Trend

SAMPLE INFORMATION method limit/base

NORMAL



Area MONTGOMERY MACK 913008

Diesel Engine

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

																	1		
																	1		
1.0																	1		
																	1		
																	1		
1.1																	11		
																	1		
																	. 1	1	
1.4	÷.,			10	•		1.0	1.0				•	•					1	



Recommendation Resample at the next service interval to monitor. Wear

All component wear rates are normal.

Contamination

DIAGNOSIS

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 INFURI		method	iimi/base	current	nistory i	nistory2
Sample Number		Client Info		GFL0127240	GFL0118416	GFL0088001
Sample Date		Client Info		27 Jun 2024	05 Jun 2024	15 May 2024
Machine Age	hrs	Client Info		54753	5239	5106
Oil Age	hrs	Client Info		49647	133	506
Oil Changed		Client Info		Not Changd	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
-				-		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	9	7	11
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m		3	3	1
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m		1	<1	2
Tin	ppm		>15	۔ <1	<1	_ <1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES	1- 1-		11			history2
		mothod	limit/naca	current	nietory i	
	0.000		limit/base	current	history1	
Boron	ppm	ASTM D5185m	0	<1	2	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	<1 <1	2 0	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	<1 <1 65	2 0 64	2 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	<1 <1 65 <1	2 0 64 0	2 0 63 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	<1 <1 65 <1 921	2 0 64 0 889	2 0 63 <1 948
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	<1 <1 65 <1 921 1062	2 0 64 0 889 1061	2 0 63 <1 948 1063
Boron 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 0 60 0 1010 1070 1150	<1 <1 65 <1 921 1062 983	2 0 64 0 889 1061 1074	2 0 63 <1 948 1063 1064
Boron 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 0 60 0 1010 1070 1150 1270	<1 <1 65 <1 921 1062 983 1183	2 0 64 0 889 1061 1074 1185	2 0 63 <1 948 1063 1064 1244
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	0 0 60 0 1010 1070 1150	<1 <1 65 <1 921 1062 983	2 0 64 0 889 1061 1074 1185 3079	2 0 63 <1 948 1063 1064
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	<1 <1 65 <1 921 1062 983 1183	2 0 64 0 889 1061 1074 1185	2 0 63 <1 948 1063 1064 1244
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 1010 1070 1150 1270 2060	<1 <1 65 <1 921 1062 983 1183 2577	2 0 64 0 889 1061 1074 1185 3079	2 0 63 <1 948 1063 1064 1244 3074
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	0 0 60 1010 1070 1150 1270 2060	<1 <1 65 <1 921 1062 983 1183 2577 current	2 0 64 0 889 1061 1074 1185 3079 history1	2 0 63 <1 948 1063 1064 1244 3074 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	<1 <1 65 <1 921 1062 983 1183 2577 current 5	2 0 64 0 889 1061 1074 1185 3079 history1 7	2 0 63 <1 948 1063 1064 1244 3074 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base	<1 <1 <1 65 <1 921 1062 983 1183 2577 current 5 3	2 0 64 0 889 1061 1074 1185 3079 history1 7 <1	2 0 63 <1 948 1063 1064 1244 3074 history2 4 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25 -20 Imit/base	<1 <1 65 <1 921 1062 983 1183 2577 current 5 3 3 3 Current	2 0 64 0 889 1061 1074 1185 3079 history1 7 <1 3 history1	2 0 63 <1 948 1063 1064 1244 3074 history2 4 5 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Imit/base >25 >20 Imit/base	<1 <1 65 <1 921 1062 983 1183 2577 current 5 3 3 3 Current 0.5	2 0 64 0 889 1061 1074 1185 3079 history1 7 <1 3 history1 0.3	2 0 63 <1 948 1063 1064 1244 3074 history2 4 5 <1 history2 0.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >20	<1 <1 <1 65 <1 921 1062 983 1183 2577 current 5 3 3 current 0.5 7.9	2 0 64 0 889 1061 1074 1185 3079 history1 7 <1 3 <i>history1</i> 0.3 6.3	2 0 63 <1 948 1063 1064 1244 3074 history2 4 5 <1 5 <1 history2 0.6 8.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >4 >20 >30	<1 <1 65 <1 921 1062 983 1183 2577 <i>current</i> 5 3 3 3 <i>current</i> 0.5 7.9 20.2	2 0 64 0 889 1061 1074 1185 3079 history1 7 <1 3 history1 0.3 6.3 18.7	2 0 63 <1 948 1063 1064 1244 3074 history2 4 5 <1 kistory2 0.6 8.9 21.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >20 20 30 imit/base	<1 <1 65 <1 921 1062 983 1183 2577 current 5 3 3 current 0.5 7.9 20.2 current	2 0 64 0 889 1061 1074 1185 3079 history1 7 <1 3 <i>history1</i> 0.3 6.3 18.7 history1	2 0 63 <1 948 1063 1064 1244 3074 history2 4 5 <1 history2 0.6 8.9 21.1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm ppm ppm ppm pp	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	0 0 0 1010 1070 1150 1270 2060 imit/base >25 >20 imit/base >4 >20 >30 imit/base	<1 <1 <1 65 <1 921 1062 983 1183 2577 current 5 3 3 Current 0.5 7.9 20.2 current 15.7	2 0 64 0 889 1061 1074 1185 3079 history1 7 <1 3 <i>history1</i> 0.3 6.3 18.7 history1 14.1	2 0 63 <1 948 1063 1064 1244 3074 history2 4 5 <1 history2 0.6 8.9 21.1 history2 17.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >20 20 30 imit/base	<1 <1 65 <1 921 1062 983 1183 2577 current 5 3 3 current 0.5 7.9 20.2 current	2 0 64 0 889 1061 1074 1185 3079 history1 7 <1 3 <i>history1</i> 0.3 6.3 18.7 history1	2 0 63 <1 948 1063 1064 1244 3074 history2 4 5 <1 history2 0.6 8.9 21.1 history2

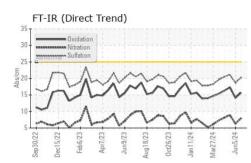


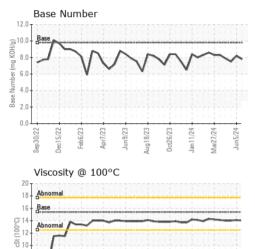
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4. Sep30/22

Dec15/22 eb6/23

OIL ANALYSIS REPORT





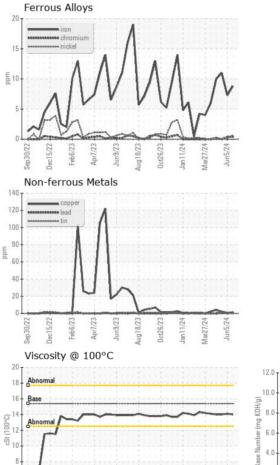
Aug18/23

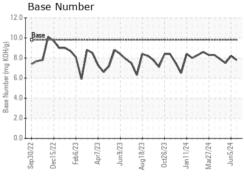
Jun5/24

Jan 11/24 Mar27/24

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	NONE	LIGHT	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	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.0	14.1	14.0

GRAPHS





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 955 - Montgomery Sample No. : GFL0127240 Received : 02 Jul 2024 1121 Wilbanks St Lab Number : 06226018 Tested : 03 Jul 2024 Montgomery, AL US 36108 Unique Number : 11109511 Diagnosed : 03 Jul 2024 - Wes Davis Test Package : FLEET Contact: LISA REEVES Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. T: * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. F:

Apr7/23

Sep30/22 Dec15/22 eb6/23 Mar27/24 Jun5/24

0ct26/23 Jan 11/24

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