

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



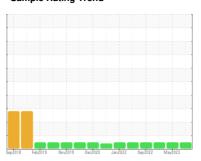
G.LOPES CONSTRUCTION INC./Off-Road

E60

Component

Diesel Engine

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





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

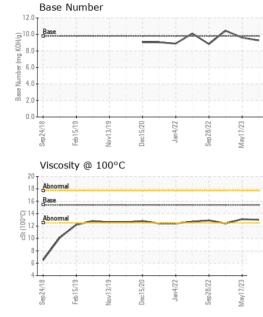
Fluid Condition

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		PCA0104748	PCA0098554	PCA0083072
Sample Date		Client Info		20 Sep 2023	17 May 2023	29 Mar 2023
Machine Age	hrs	Client Info		12200	11861	11589
Oil Age	hrs	Client Info		10298	10231	10298
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method	75	NEG	NEG	NEG
-						
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	28	37	18
Chromium	ppm	ASTM D5185m	>20	<1	2	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m	>25	1	2	0
Lead	ppm	ASTM D5185m	>40	<1	1	2
Copper	ppm	ASTM D5185m	>330	3	4	5
Tin	ppm	ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	54	62	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	54 0	62 0	5 0
	• • •			-		
Barium	ppm	ASTM D5185m	0	0	0	0
Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m	0	0 67	0 71	0 63
Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 67 0	0 71 <1	0 63 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010	0 67 0 952	0 71 <1 909	0 63 <1 1095
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 67 0 952 1299	0 71 <1 909 1283	0 63 <1 1095 1214
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	0 67 0 952 1299 1036	0 71 <1 909 1283 1001	0 63 <1 1095 1214 1069
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 60 0 1010 1070 1150 1270	0 67 0 952 1299 1036 1364	0 71 <1 909 1283 1001 1251	0 63 <1 1095 1214 1069 1418
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 ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 67 0 952 1299 1036 1364 3538	0 71 <1 909 1283 1001 1251 3136	0 63 <1 1095 1214 1069 1418 3591
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	0 67 0 952 1299 1036 1364 3538	0 71 <1 909 1283 1001 1251 3136 history1	0 63 <1 1095 1214 1069 1418 3591 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 67 0 952 1299 1036 1364 3538 current	0 71 <1 909 1283 1001 1251 3136 history1	0 63 <1 1095 1214 1069 1418 3591 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 67 0 952 1299 1036 1364 3538 current 9	0 71 <1 909 1283 1001 1251 3136 history1 12	0 63 <1 1095 1214 1069 1418 3591 history2 8 2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 67 0 952 1299 1036 1364 3538 current 9 3	0 71 <1 909 1283 1001 1251 3136 history1 12 13 4	0 63 <1 1095 1214 1069 1418 3591 history2 8 2 2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 67 0 952 1299 1036 1364 3538 current 9 3 2	0 71 <1 909 1283 1001 1251 3136 history1 12 13 4 history1 1.3	0 63 <1 1095 1214 1069 1418 3591 history2 8 2 2 history2 0.4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 67 0 952 1299 1036 1364 3538 current 9 3	0 71 <1 909 1283 1001 1251 3136 history1 12 13 4	0 63 <1 1095 1214 1069 1418 3591 history2 8 2 2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm	ASTM D5185m method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	0 67 0 952 1299 1036 1364 3538 current 9 3 2 current	0 71 <1 909 1283 1001 1251 3136 history1 12 13 4 history1 1.3 8.9	0 63 <1 1095 1214 1069 1418 3591 history2 8 2 2 history2 0.4 8.7
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30 limit/base	0 67 0 952 1299 1036 1364 3538 current 9 3 2 current 0.9 9.1 22.2	0 71 <1 909 1283 1001 1251 3136 history1 12 13 4 history1 1.3 8.9 22.9 history1	0 63 <1 1095 1214 1069 1418 3591 history2 8 2 2 history2 0.4 8.7 20.8 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D76145	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30 limit/base >25	0 67 0 952 1299 1036 1364 3538 current 9 3 2 current 0.9 9.1	0 71 <1 909 1283 1001 1251 3136 history1 12 13 4 history1 1.3 8.9 22.9	0 63 <1 1095 1214 1069 1418 3591 history2 8 2 2 history2 0.4 8.7 20.8



OIL ANALYSIS REPORT



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	NONE	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	13.0	13.1	12.4

	cSt	- / (0	STM D44	5 15.4	13.0		13.1		12.4	
GRAPHS										
Iron (ppm)					Lead (ppm)				
Severe					80 Severe					
J. J. J. J. J. J. J.					00					
Abnormal	1 1				Abnormal					
					20					
8 6 6	+++	2	- 2		0	5 6	-	2	2	
Sep24/18 Feb15/19 Nov13/19	Dec15/20	Jan4/22	Sep28/22	May17/23	Sep24/18	Feb15/19 Nov13/19	Dec15/20	Jan4/22	Sep28/22	17/2 May 17/23
Aluminum (ppm			Š	Š		≖			Š	N
Taratana (ppin)][[50 T 7	тапт (ррп	') -			
Severe					40 - Severe					-
Abnormal					Abnormal					
tirrirrirrirrirrirri					20					
					0					
Sep24/18 - Feb15/19 - Nov13/19 -	Dec15/20	Jan4/22	Sep28/22	May17/23		Feb15/19 -	Dec15/20	Jan4/22	Sep28/22 -	M=v17/22
Sep2	Dec	Ja	Sep2	May	Sep2	Nov1	Dec	Jar	Sep2	May
Copper (ppm)					Silicon	(ppm)				
Copper (ppm)					80 - Severe	(ppm)				
					80 Severe	(ppm)				
					80 Severe	(ppm)				
					80 Severe	(ppm)			^	
ASSEMA	020	22	22	23	Severe 60 Abnormal		20	22	22	23
ASSEMA	Dec15/20	Jan4/22	Sep28/22	lay17/23	Severe 60 Abnormal		Deci 5/20	Jan4/22	Sep28/72	Jac 1703
Sep24/18 Feb15/19 Nov13/19	Dec15/20	Jan 4/22	Sep28/22	May17/23	80 Severe 600 Abnormal 20 Abnormal	heb15/19 + 1 Nov13/19	Dec15/20	Jan 4/22	Sep28/72	May 1773
Sep24/18 Red 15/19 Viscosity @ 1000		Jan4/22	Sep28/22	May17/23	80 Severe 600 abnormal 20 80/H72das		Dec15/20	Jan4/22	Sep28/22	May 703
Viscosity @ 1000		Jan4/22	Sep28/22 -	May1723	80 Severe 600 abnormal 20 80/H72das	heb15/19 + 1 Nov13/19	Dec15/20	Jan4/22	Sep.28/72	Max17723
Viscosity @ 1000		Jan4;22	Sep.26/72	May17/23	80 Severe 600 abnormal 20 80/H72das	heb15/19 + 1 Nov13/19	Dec15/20	Jan4/22	Sep.2072	Max17/23
Wiscosity @ 1000		Jan4/22	Sep28/22 -	May17/23	80 Severe 600 abnormal 20 80/H72das	heb15/19 + 1 Nov13/19	Dec15/20	Jan4/22	Sep28/22	Max 1722
Wiscosity @ 100°	PC.				Base N 12.0 Base N 12.0 14.0 Base N 10,000 10,0	Jumber			~	
Viscosity @ 1000		Jan4/22Jan4/22	Sep28/22Sep28/22	May17/23	Base N 12.0 Base N 12.0 14.0 Base N 10,000 10,0	heb15/19 + 1 Nov13/19	Dec15/20 Dec15/20	Jan4/22Jan4/22	Sep.28.72 Sep.28,72 ->	May 1772





Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10659951

: PCA0104748 : 05958738

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 22 Sep 2023

Diagnosed : 25 Sep 2023 Diagnostician : Wes Davis

Test Package : MOB 2

* - 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)

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Contact: BUTCH MCGRATH

Submitted By: MATT MANOLI

bmcgrath@glopes.com

565 WINTHROP ST

TAUNTON, MA

US 02780

T:

F: