

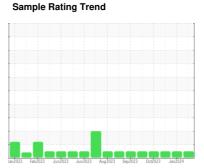
OIL ANALYSIS REPORT



(62A0X15) ALEXANDER CITY 725028-254503

Component **Diesel Engine**

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





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

Insufficient sample was received to conduct all the routine laboratory tests. There is no indication of any contamination in the oil.

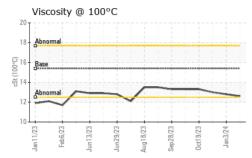
Fluid Condition

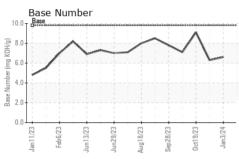
The condition of the oil is acceptable for the time in service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0080717	GFL0080725	GFL0089918
Sample Date		Client Info		12 Feb 2024	03 Jan 2024	09 Nov 2023
Machine Age	hrs	Client Info		19961	19648	19300
Oil Age	hrs	Client Info		0	1906	1558
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	>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	4	3
Chromium	ppm	ASTM D5185m	>20	0	0	0
Nickel	ppm	ASTM D5185m	>5	<1	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	2	2
Lead	ppm	ASTM D5185m	>40	1	<1	0
Copper	ppm	ASTM D5185m	>330	3	0	<1
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
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1 12	history2
	ppm					
Boron		ASTM D5185m	0	13	12	9
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	13 0	12 0	9
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	13 0 71	12 0 59	9 0 57
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	13 0 71 <1	12 0 59	9 0 57 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	13 0 71 <1 1052	12 0 59 0 913	9 0 57 <1 865
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	13 0 71 <1 1052 1194	12 0 59 0 913 1042	9 0 57 <1 865 1015
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	13 0 71 <1 1052 1194 1055	12 0 59 0 913 1042 1012	9 0 57 <1 865 1015 956
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270	13 0 71 <1 1052 1194 1055 1448	12 0 59 0 913 1042 1012 1210	9 0 57 <1 865 1015 956 1144
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	13 0 71 <1 1052 1194 1055 1448 3477	12 0 59 0 913 1042 1012 1210 3092	9 0 57 <1 865 1015 956 1144 2777
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	13 0 71 <1 1052 1194 1055 1448 3477 current	12 0 59 0 913 1042 1012 1210 3092 history1	9 0 57 <1 865 1015 956 1144 2777 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	13 0 71 <1 1052 1194 1055 1448 3477 current	12 0 59 0 913 1042 1012 1210 3092 history1	9 0 57 <1 865 1015 956 1144 2777 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	13 0 71 <1 1052 1194 1055 1448 3477 current 6 4	12 0 59 0 913 1042 1012 1210 3092 history1 4	9 0 57 <1 865 1015 956 1144 2777 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	13 0 71 <1 1052 1194 1055 1448 3477 current 6 4 <1	12 0 59 0 913 1042 1012 1210 3092 history1 4 2 2	9 0 57 <1 865 1015 956 1144 2777 history2 3 4
Boron 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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	13 0 71 <1 1052 1194 1055 1448 3477 current 6 4 <1	12 0 59 0 913 1042 1012 1210 3092 history1 4 2 2	9 0 57 <1 865 1015 956 1144 2777 history2 3 4 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method *ASTM D5185m *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	13 0 71 <1 1052 1194 1055 1448 3477 current 6 4 <1 current	12 0 59 0 913 1042 1012 1210 3092 history1 4 2 2 history1 0.1	9 0 57 <1 865 1015 956 1144 2777 history2 3 4 <1 history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	13 0 71 <1 1052 1194 1055 1448 3477 current 6 4 <1 current	12 0 59 0 913 1042 1012 1210 3092 history1 4 2 2 history1 0.1 8.3	9 0 57 <1 865 1015 956 1144 2777 history2 3 4 <1 history2 0.1 8.8
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 ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	13 0 71 <1 1052 1194 1055 1448 3477 current 6 4 <1 current	12 0 59 0 913 1042 1012 1210 3092 history1 4 2 2 history1 0.1 8.3 17.8	9 0 57 <1 865 1015 956 1144 2777 history2 3 4 <1 history2 0.1 8.8 18.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm	ASTM D5185m Method ASTM D5185m Method *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415 Method	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30 limit/base	13 0 71 <1 1052 1194 1055 1448 3477 current 6 4 <1 current current	12 0 59 0 913 1042 1012 1210 3092 history1 4 2 2 history1 0.1 8.3 17.8 history1	9 0 57 <1 865 1015 956 1144 2777 history2 3 4 <1 history2 0.1 8.8 18.7 history2



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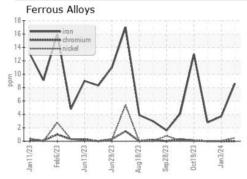


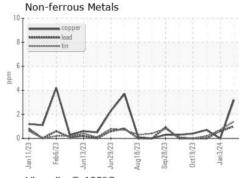


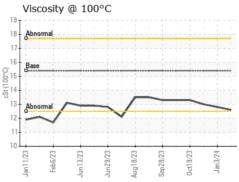
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

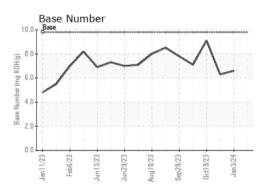
FLUID PROPE	ERTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	15.4	12.6	12.8	13.0

GRAPHS













Certificate L2367

Laboratory Sample No.

Lab Number : 06106596 Unique Number : 10910093 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0080717 Received

: 01 Mar 2024 **Tested** : 07 Mar 2024 Diagnosed : 07 Mar 2024 - Jonathan Hester

GFL Environmental - 172 - Montgomery-Alexander City-Tallahassee

Multiple Sites Montgomery, AL US 36108

Contact: BRANDON HURST brandonhurst@gflenv.com

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

* - 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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