

OIL ANALYSIS REPORT

Sample Rating Trend

GLYCOL

(JZ7997) 11140 Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (4 GAL)

DIAGNOSIS

Recommendation

We advise that you check for the source of the 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

Area

All 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.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0124230	PCA0113461	PCA0101756
Sample Date		Client Info		12 Jul 2024	15 Mar 2024	28 Feb 2024
Machine Age	mls	Client Info		410381	405364	405364
Oil Age	mls	Client Info		5017	7501	4694
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
	c	mothod	limit/baco	ourront	history1	history2
	3	method	inniv Dase	Current	Thistory I	Thistory2
Iron	ppm	ASTM D5185m	>100	18	16	16
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Litanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	3	3	3
Lead	ppm	ASTM D5185m	>40	2	1	2
Copper	ppm	ASTM D5185m	>330	2	<1	2
Tin	ppm	ASTM D5185m	>15	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
			11 1. 1			
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	ASTM D5185m	limit/base	current 16	18	history2 14
ADDITIVES Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	limit/base 0 0	current 16 <1	18 0	14 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60	current 16 <1 71	18 0 71	14 0 69
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0	current 16 <1 71 0	history1 18 0 71 0	14 0 69 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 16 <1 71 0 669	history1 18 0 71 0 860	14 0 69 <1 837
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010 1070	current 16 <1 71 0 669 1462	history1 18 0 71 0 860 1339	history2 14 0 69 <1 837 1218
ADDITIVES 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 ASTM D5185m	0 0 60 0 1010 1070 1150	16 <1 71 0 669 1462 881	history1 18 0 71 0 860 1339 1166	14 0 69 <1 837 1218 1016
ADDITIVES 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	0 0 60 0 1010 1070 1150 1270	current 16 <1 71 0 669 1462 881 1153	history1 18 0 71 0 860 1339 1166 1276	14 0 69 <1 837 1218 1016 1271
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	limit/base 0 60 0 1010 1070 1150 1270 2060	current 16 <1 71 0 669 1462 881 1153 2901	history1 18 0 71 0 860 1339 1166 1276 3594	nistory2 14 0 69 <1 837 1218 1016 1271 3362
ADDITIVES 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 ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060 limit/base	current 16 <1 71 0 669 1462 881 1153 2901 current	history1 18 0 71 0 860 1339 1166 1276 3594 history1	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm 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 ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 16 <1 71 0 669 1462 881 1153 2901 current 11	history1 18 0 71 0 860 1339 1166 1276 3594 history1 7	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2 7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	Imit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 16 <1 71 0 669 1462 881 1153 2901 current 11 ▲ 228	history1 18 0 71 0 860 1339 1166 1276 3594 history1 7 1	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2 7 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm	ASTM D5185m ASTM D5185m	Imit/base 0 60 0 1010 1070 1150 1270 2060 Imit/base >25 	current 16 <1 71 0 669 1462 881 1153 2901 current 11 ▲ 228 ▲ 28	history1 18 0 71 0 860 1339 1166 1276 3594 history1 7 1 2	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2 7 2 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D5185m *ASTM D2982	Imit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 16 <1 71 0 669 1462 881 1153 2901 current 11 ▲ 228 NEG	history1 18 0 71 0 860 1339 1166 1276 3594 history1 7 1 2 NEG	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2 7 2 1 NEG
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm %	method ASTM D5185m ASTM D2982 method	Imit/base 0 60 0 1010 1070 1150 1270 2060 Imit/base >25 	current 16 <1 71 0 669 1462 881 1153 2901 current 11 ▲ 228 ▶ 28 NEG	history1 18 0 71 0 860 1339 1166 1276 3594 history1 7 1 2 NEG history1	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2 7 2 1 NEG history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D5185m *ASTM D2982 method *ASTM D7844	Imit/base 0 60 0 1010 1070 1150 1270 2060 Imit/base >20 Imit/base >3	current 16 <1 71 0 669 1462 881 1153 2901 current 11 ▲ 228 ▲ 28 NEG current 0.3	history1 18 0 71 0 860 1339 1166 1276 3594 history1 7 1 2 NEG history1 0.4	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2 7 2 1 NEG history2 0.6
ADDITIVES Boron 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	Method ASTM D5185m ASTM D5185m *ASTM D2982 method *ASTM D7844	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	current 16 <1 71 0 669 1462 881 1153 2901 current 11 ▲ 228 NEG current 0.3 7.6	history1 18 0 71 0 860 1339 1166 1276 3594 history1 7 1 2 NEG history1 0.4 7.1	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2 7 2 1 NEG history2 0.6 8.6
ADDITIVES Boron 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 TS ppm ppm ppm ppm %	method ASTM D5185m ASTM D5185m *ASTM D2982 method *ASTM D7844 *ASTM D7844	limit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >25 	current 16 <1 71 0 669 1462 881 1153 2901 current 11 ▲ 228 ▲ 28 NEG current 0.3 7.6 18.2	history1 18 0 71 0 860 1339 1166 1276 3594 history1 7 1 2 NEG history1 0.4 7.1 17.9	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2 7 2 1 NEG history2 0.6 8.6 19.0
ADDITIVES Boron 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	method ASTM D5185m *ASTM D7844 *ASTM D7415 method	limit/base 0 0 60 0 1010 1070 1150 1270 2060 limit/base >20 limit/base >3 >20 >30 limit/base	current 16 <1 71 0 669 1462 881 1153 2901 current 11 ▲ 228 NEG current 0.3 7.6 18.2	history1 18 0 71 0 860 1339 1166 1276 3594 history1 7 1 2 NEG history1 0.4 7.1 17.9	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2 7 2 1 NEG history2 0.6 8.6 19.0 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D5185m *ASTM D2982 method *ASTM D7844 *ASTM D7844 *ASTM D7844	limit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >20 limit/base >3 >20 >30 limit/base >25	current 16 <1 71 0 669 1462 881 1153 2901 current 11 ▲ 228 ▶ 28 NEG current 0.3 7.6 18.2 current 13.4	history1 18 0 71 0 860 1339 1166 1276 3594 history1 7 1 2 NEG history1 0.4 7.1 17.9 history1 13.9	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2 7 2 1 NEG history2 0.6 8.6 19.0 history2 15.6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation Base Number (BN)	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm % Abs/cm Abs/.tmm Abs/.tmm mg KOH/0	method ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D5185m *ASTM D7844 *ASTM D7415 method *ASTM D7414 *ASTM D2896	limit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >20 limit/base >3 >20 30 limit/base >3 20 9.8	current 16 <1 71 0 669 1462 881 1153 2901 current 11 ▲ 228 ▲ 28 NEG current 0.3 7.6 18.2 current 13.4 8.8	history1 18 0 71 0 860 1339 1166 1276 3594 history1 7 1 2 NEG history1 0.4 7.1 17.9 history1 13.9 8.5	nistory2 14 0 69 <1 837 1218 1016 1271 3362 history2 7 2 1 NEG history2 0.6 8.6 19.0 history2 15.6 8.2



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
	RTIES	method	limit/base	current	history1	history2
		method	in the base	Guilent	Thistory	matoryz
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	12.7	12.8

GRAPHS





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 002 - Vance-Granville Sample No. : PCA0124230 Received : 15 Jul 2024 241 Vanco Mill Rd Lab Number : 06235563 Tested : 17 Jul 2024 Henderson, NC Unique Number : 11124397 Diagnosed : 17 Jul 2024 - Jonathan Hester US 27537 Contact: Cameron King Test Package : FLEET (Additional Tests: Glycol) Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. cameron.king@gflenv.com T: (252)438-5333 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. F: (252)431-1635

Feb 12/20 -h74/71

eh28/1

Dec1/21

Var13/23

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

17

16

10

Sep26/1

an5/

cSt (100°C)

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Submitted By: Cameron King