



Machine Id  
**4567M**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

**RECOMMENDATION**

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>GFL0108878</b>	GFL0101461	GFL0101452
Sample Date		Client Info		<b>19 Mar 2024</b>	05 Dec 2023	28 Nov 2023
Machine Age	hrs	Client Info		<b>21838</b>	21130	21073
Oil Age	hrs	Client Info		<b>21073</b>	21073	18604
Filter Age	hrs	Client Info		<b>0</b>	21073	0
Oil Changed		Client Info		<b>Not Chngd</b>	N/A	Changed
Filter Changed		Client Info		<b>Not Chngd</b>	N/A	Changed
Sample Status				<b>SEVERE</b>	MARGINAL	SEVERE

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>90	<b>14</b>	6	27
Chromium	ppm	ASTM D5185m	>20	<b>0</b>	<1	1
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>&lt;1</b>	4	2
Lead	ppm	ASTM D5185m	>40	<b>0</b>	0	0
Copper	ppm	ASTM D5185m	>330	<b>0</b>	<1	1
Tin	ppm	ASTM D5185m	>15	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	<1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

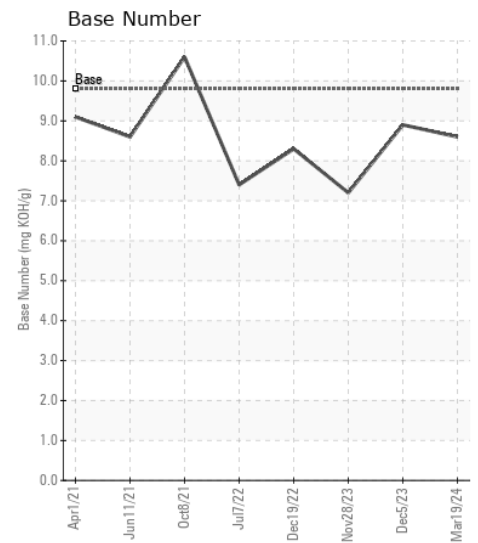
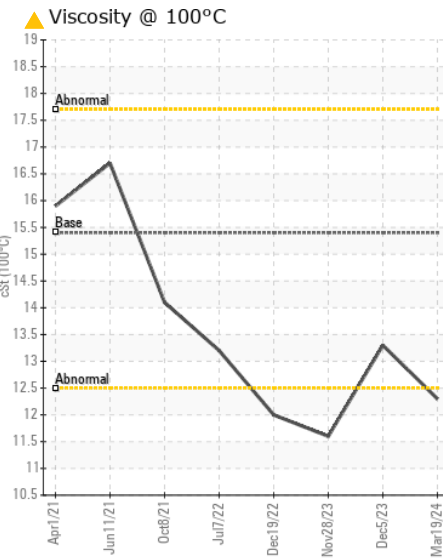
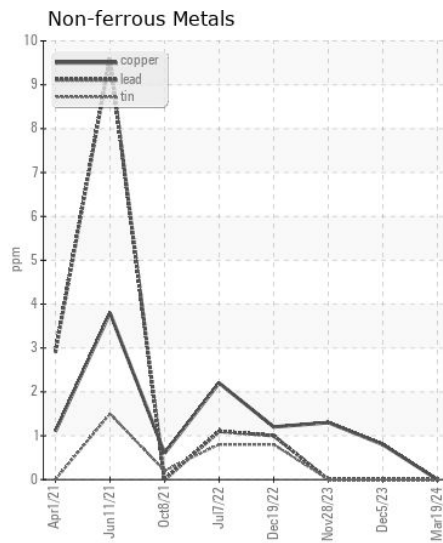
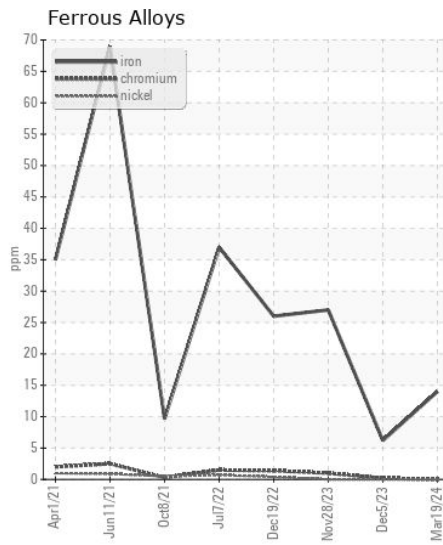
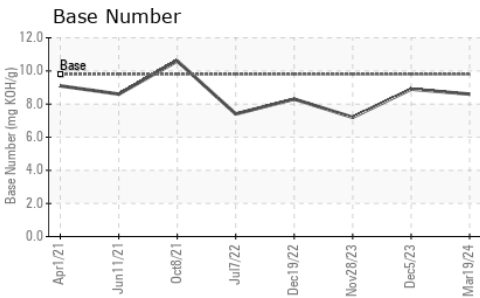
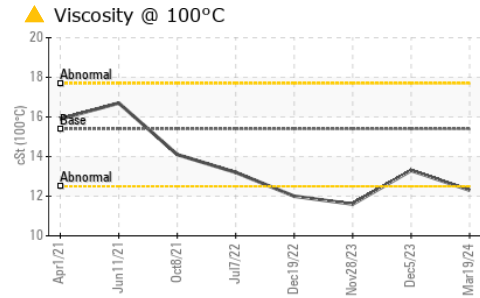
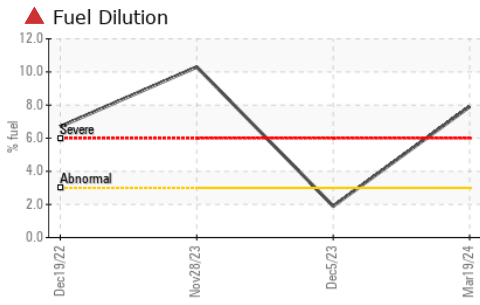
There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>2</b>	4	4
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	9	0
Fuel	%	ASTM D3524	>3.0	<b>▲ 7.9</b>	▲ 1.9	▲ 10.3
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>6	<b>0.4</b>	0.2	0.8
Nitration	Abs/cm	*ASTM D7624	>20	<b>7.4</b>	5.9	10.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>18.8</b>	18.0	20.9
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

**FLUID CONDITION**

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		<b>2</b>	3	4
Boron	ppm	ASTM D5185m	0	<b>1</b>	10	<1
Barium	ppm	ASTM D5185m	0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	60	<b>51</b>	57	49
Manganese	ppm	ASTM D5185m	0	<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m	1010	<b>867</b>	893	848
Calcium	ppm	ASTM D5185m	1070	<b>976</b>	1113	996
Phosphorus	ppm	ASTM D5185m	1150	<b>972</b>	980	948
Zinc	ppm	ASTM D5185m	1270	<b>1163</b>	1207	1122
Sulfur	ppm	ASTM D5185m	2060	<b>3303</b>	2952	2482
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.0</b>	13.9	19.1
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	<b>8.6</b>	8.9	7.2
Visc @ 100°C	cSt	ASTM D445	15.4	<b>▲ 12.3</b>	13.3	▲ 11.6



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

**Sample No.** : GFL0108878

**Lab Number** : 06124593

**Unique Number** : 10938744

**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

**Received** : 21 Mar 2024

**Tested** : 25 Mar 2024

**Diagnosed** : 25 Mar 2024 - Wes Davis

**GFL Environmental - 415 - Michigan East**

6200 Elmridge

Sterling Heights, MI

US 48313

Contact: Frank Wolak

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F:

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)