



Machine Id  
**647M**  
Component  
**Diesel Engine**  
Fluid  
**PETRO CANADA DURON SHP 15W40 (--- GAL)**

**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.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>GFL0107740</b>	GFL0107065	GFL0082731
Sample Date		Client Info		<b>31 Jan 2024</b>	20 Dec 2023	27 Jul 2023
Machine Age	hrs	Client Info		<b>10056</b>	9956	9011
Oil Age	hrs	Client Info		<b>600</b>	600	600
Filter Age	hrs	Client Info		<b>600</b>	600	600
Oil Changed		Client Info		<b>Changed</b>	Not Changd	Changed
Filter Changed		Client Info		<b>Changed</b>	N/A	Changed
Sample Status				<b>SEVERE</b>	NORMAL	ABNORMAL

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	<b>21</b>	17	20
Chromium	ppm	ASTM D5185m	>20	<b>1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>5	<b>3</b>	<1	2
Titanium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>3</b>	2	4
Lead	ppm	ASTM D5185m	>40	<b>2</b>	0	2
Copper	ppm	ASTM D5185m	>330	<b>3</b>	2	2
Tin	ppm	ASTM D5185m	>15	<b>1</b>	<1	<1
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**

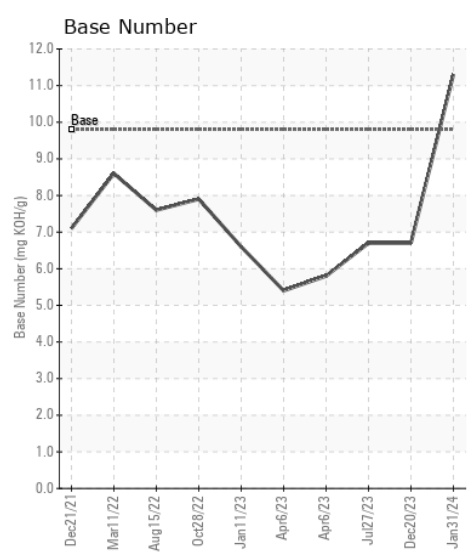
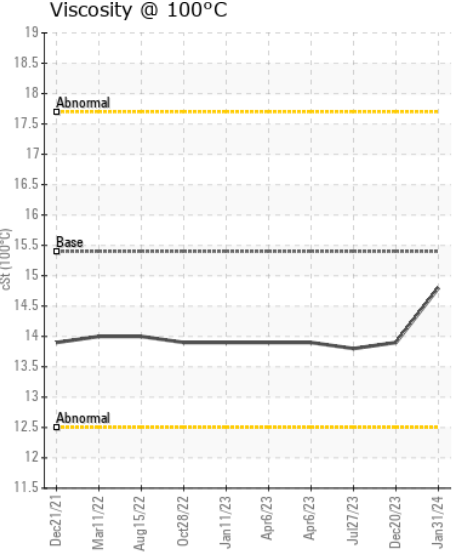
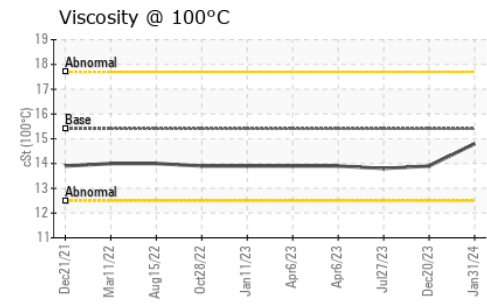
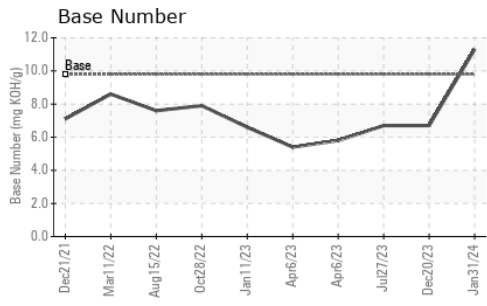
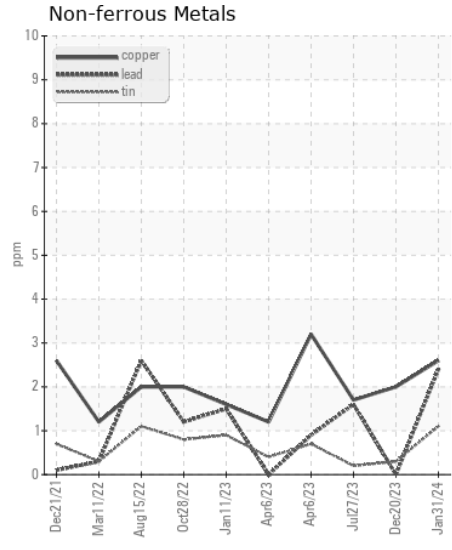
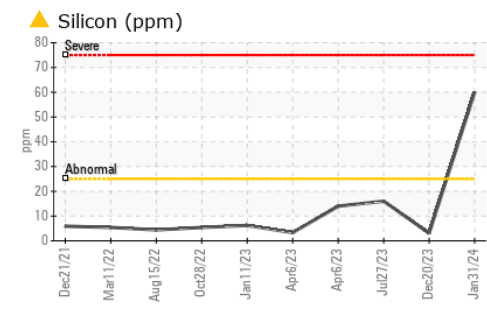
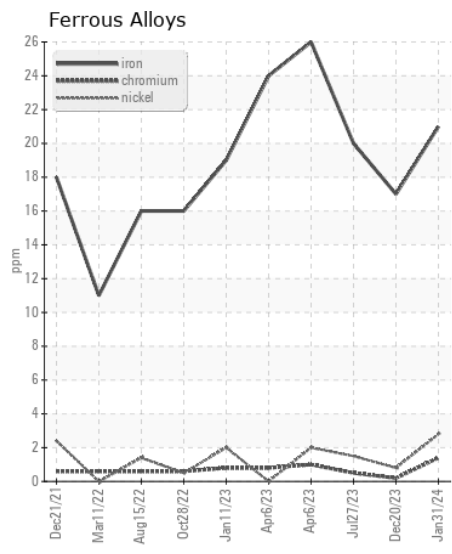
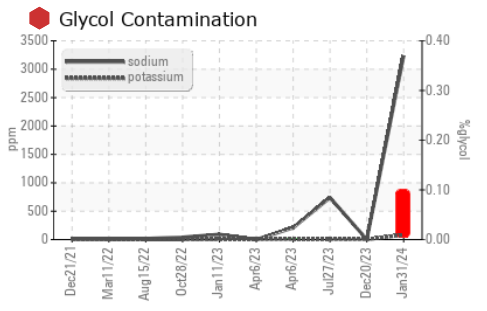
Sodium and/or potassium levels are high. Test for glycol is positive. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Silicon	ppm	ASTM D5185m	>25	<b>▲ 60</b>	3	16
Potassium	ppm	ASTM D5185m	>20	<b>▲ 83</b>	2	3
Fuel		WC Method	>3.0	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	%	*ASTM D2982		<b>● 0.10</b>	NEG	NEG
Soot %	%	*ASTM D7844	>4	<b>0.8</b>	0.9	0.8
Nitration	Abs/cm	*ASTM D7624	>20	<b>15.6</b>	9.2	10.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>25.9</b>	20.6	22.3
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. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		<b>▲ 3235</b>	2	▲ 739
Boron	ppm	ASTM D5185m	0	<b>29</b>	1	5
Barium	ppm	ASTM D5185m	0	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	60	<b>187</b>	62	84
Manganese	ppm	ASTM D5185m	0	<b>1</b>	0	<1
Magnesium	ppm	ASTM D5185m	1010	<b>908</b>	916	962
Calcium	ppm	ASTM D5185m	1070	<b>1117</b>	1081	1058
Phosphorus	ppm	ASTM D5185m	1150	<b>813</b>	903	910
Zinc	ppm	ASTM D5185m	1270	<b>1272</b>	1203	1201
Sulfur	ppm	ASTM D5185m	2060	<b>3016</b>	2735	2944
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.5</b>	16.4	17.5
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	<b>11.3</b>	6.7	6.7
Visc @ 100°C	cSt	ASTM D445	15.4	<b>14.8</b>	13.9	13.8



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : GFL0107740 **Received** : 09 Feb 2024  
**Lab Number** : 06085271 **Tested** : 13 Feb 2024  
**Unique Number** : 10872716 **Diagnosed** : 13 Feb 2024 - Jonathan Hester  
**Test Package** : FLEET ( Additional Tests: Glycol )

**GFL Environmental - 465 - Pontiac**  
 888 Baldwin  
 Pontiac, MI  
 US 48340  
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 T: (586)825-9514  
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Certificate L2367  
 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)