



Machine Id
414045
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		GFL0098888	GFL0098886	GFL0098878
Sample Date		Client Info		30 Apr 2024	10 Apr 2024	18 Mar 2024
Machine Age	hrs	Client Info		1771	1616	1153
Oil Age	hrs	Client Info		1616	1153	1153
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		None	None	N/A
Sample Status				SEVERE	NORMAL	ABNORMAL

WEAR

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>51	31	8	27
Chromium	ppm	ASTM D5185m	>11	<1	1	1
Nickel	ppm	ASTM D5185m	>5	2	1	▲ 8
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	<1	<1	<1
Aluminum	ppm	ASTM D5185m	>31	● 20	1	7
Lead	ppm	ASTM D5185m	>26	<1	2	<1
Copper	ppm	ASTM D5185m	>26	▲ 90	1	▲ 104
Tin	ppm	ASTM D5185m	>4	3	1	2
Vanadium	ppm	ASTM D5185m		<1	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

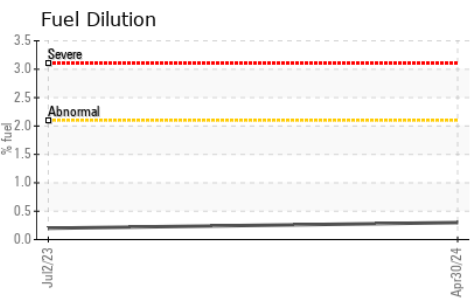
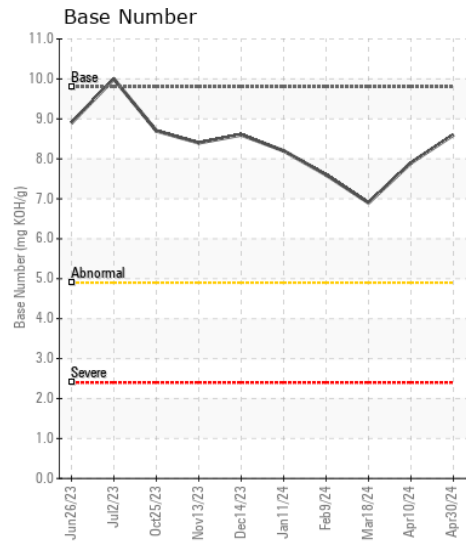
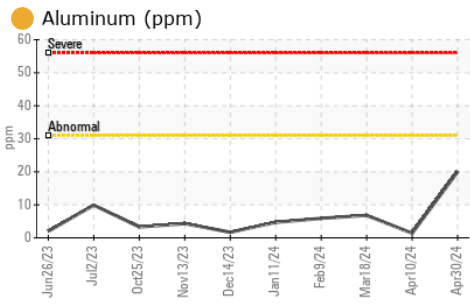
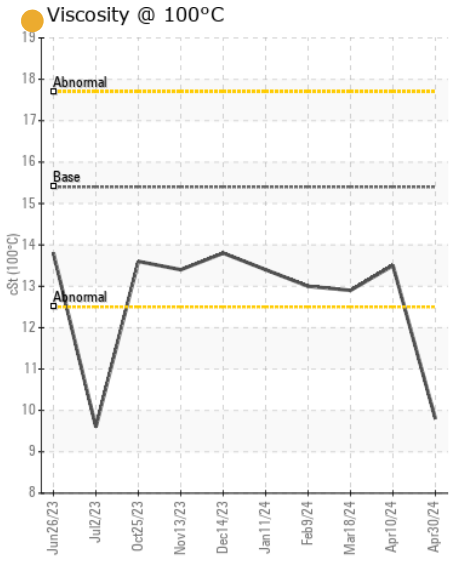
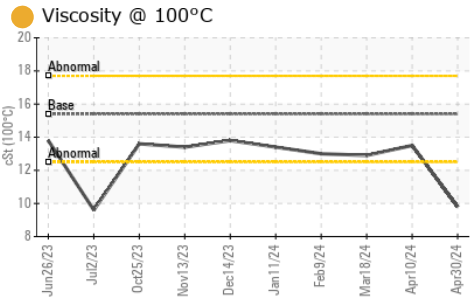
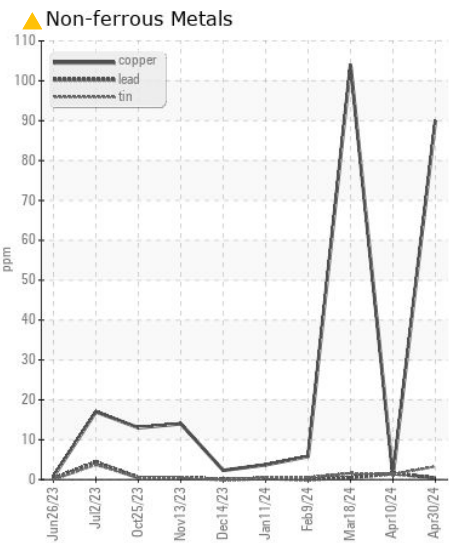
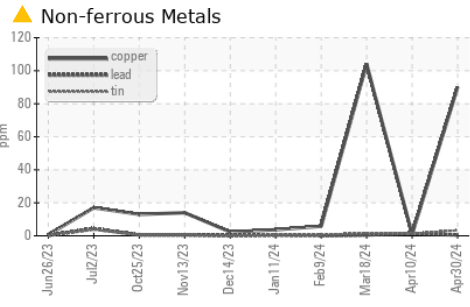
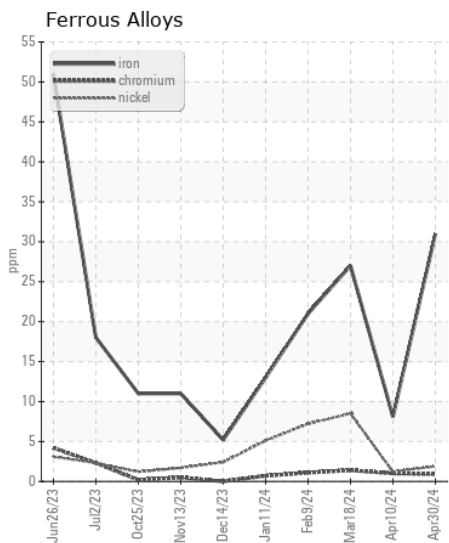
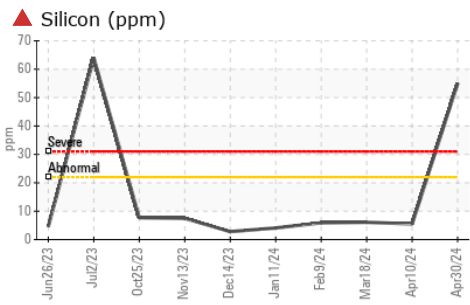
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. Tests indicate that there is no fuel present in the oil.

Silicon	ppm	ASTM D5185m	>22	▲ 55	6	6
Potassium	ppm	ASTM D5185m	>20	52	2	20
Fuel	%	ASTM D3524	>2.1	0.3	<1.0	<1.0
Water		WC Method	>0.21	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.3	0.1	0.4
Nitration	Abs/cm	*ASTM D7624	>20	9.1	6.4	8.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	26.3	18.1	19.2
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	>0.21	NEG	NEG	NEG

FLUID CONDITION

The oil viscosity is lower than normal. Confirm oil type. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m	>31	4	2	<1
Boron	ppm	ASTM D5185m	0	248	0	8
Barium	ppm	ASTM D5185m	0	<1	0	0
Molybdenum	ppm	ASTM D5185m	60	118	57	67
Manganese	ppm	ASTM D5185m	0	4	1	2
Magnesium	ppm	ASTM D5185m	1010	719	837	846
Calcium	ppm	ASTM D5185m	1070	1449	1057	1194
Phosphorus	ppm	ASTM D5185m	1150	751	995	984
Zinc	ppm	ASTM D5185m	1270	893	1102	1197
Sulfur	ppm	ASTM D5185m	2060	2610	3084	2945
Oxidation	Abs/.1mm	*ASTM D7414	>25	24.9	13.9	15.3
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.6	7.9	6.9
Visc @ 100°C	cSt	ASTM D445	15.4	● 9.8	13.5	12.9



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0098888 **Received** : 09 May 2024
Lab Number : 06174953 **Tested** : 15 May 2024
Unique Number : 11021006 **Diagnosed** : 15 May 2024 - Sean Felton
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)
 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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