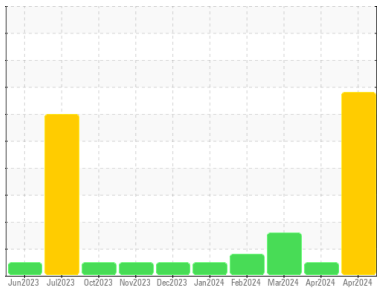
PROBLEM SUMMARY

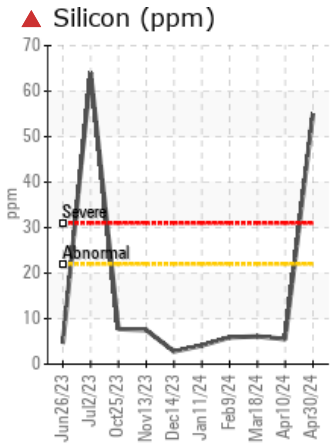
Sample Rating Trend

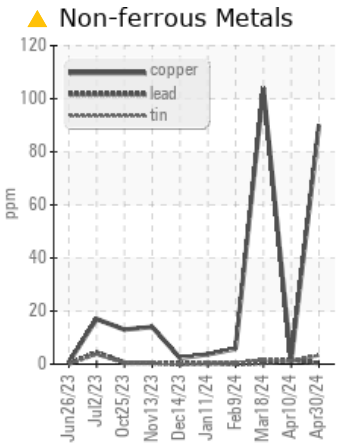


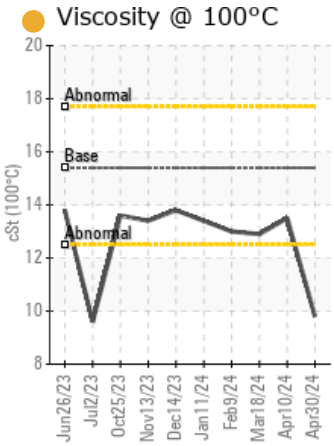
DIRT

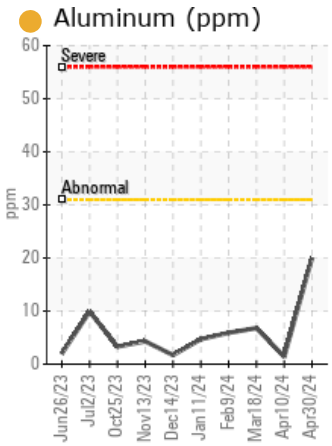
Machine Id
414045
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY









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.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	NORMAL	ABNORMAL
Copper	ppm	ASTM D5185m	>26	▲ 90	1	▲ 104
Silicon	ppm	ASTM D5185m	>22	▲ 55	6	6

Customer Id: GFL084
Sample No.: GFL0098888
Lab Number: 06174953
Test Package: FLEET

To manage this report scan the QR code

To discuss the diagnosis or test data:
Sean Felton +1 919-379-4092
sfelton@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	We recommend that you drain the oil and perform a filter service on this component if not already done.
Change Filter	---	---	?	We recommend that you drain the oil and perform a filter service on this component if not already done.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Dirt Access	---	---	?	We advise that you check the air filter, air induction system, and any areas where dirt may enter the component.

HISTORICAL DIAGNOSIS

NORMAL

10 Apr 2024 Diag: Wes Davis
Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

WEAR

18 Mar 2024 Diag: Don Baldridge
No corrective action is recommended at this time. Resample at the next service interval to monitor.The copper level is abnormal. Valve wear is indicated. Elemental level of copper (Cu) probably due to leaching of copper from copper components (i.e. cooling core) by the oil additives. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

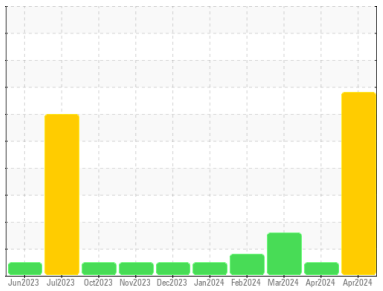
WEAR

09 Feb 2024 Diag: Sean Felton
No corrective action is recommended at this time. Resample at the next service interval to monitor.Exhaust valve wear is indicated. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

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

DIAGNOSIS

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.

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.

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.

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

SAMPLE INFORMATION		method	limit/base	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
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**SEVERE**	NORMAL	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.21	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
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
Cadmium	ppm	ASTM D5185m		**0**	1	<1

ADDITIVES		method	limit/base	current	history1	history2
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

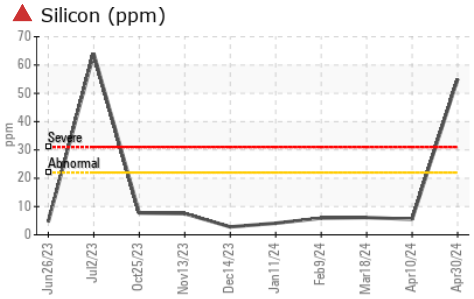
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>22	▲ **55**	6	6
Sodium	ppm	ASTM D5185m	>31	**4**	2	<1
Potassium	ppm	ASTM D5185m	>20	**52**	2	20
Fuel	%	ASTM D3524	>2.1	**0.3**	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
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

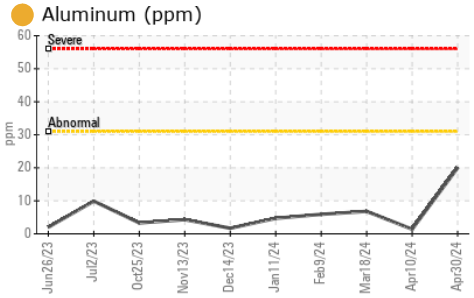
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**24.9**	13.9	15.3
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**8.6**	7.9	6.9

OIL ANALYSIS REPORT

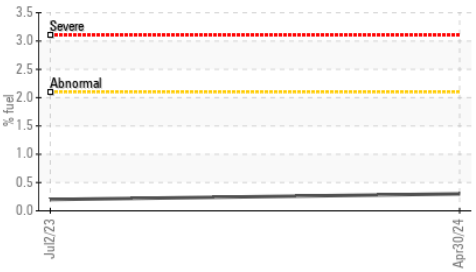
Silicon (ppm)



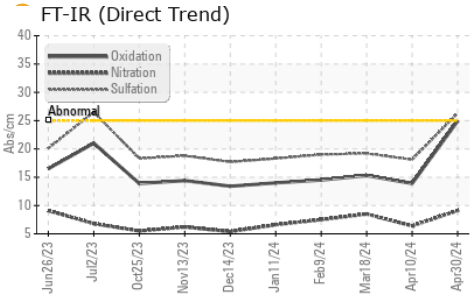
Aluminum (ppm)



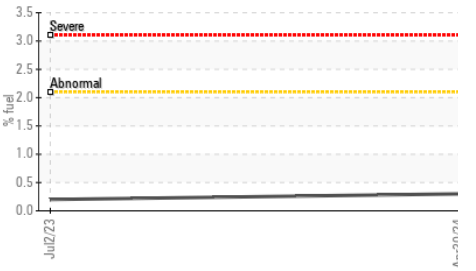
Fuel Dilution



FT-IR (Direct Trend)



Fuel Dilution

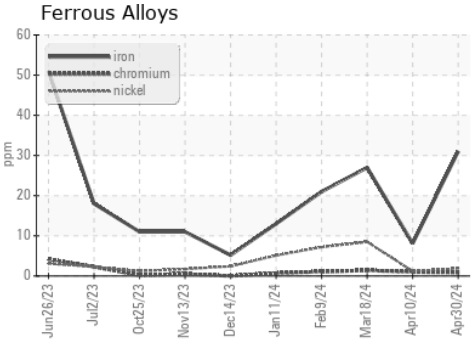


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.21	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

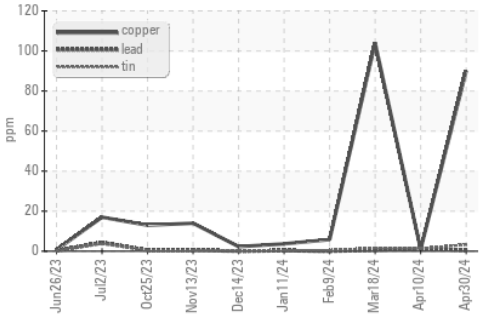
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**9.8**	13.5	12.9

GRAPHS

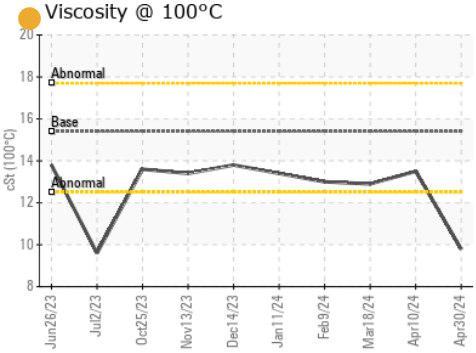
Ferrous Alloys



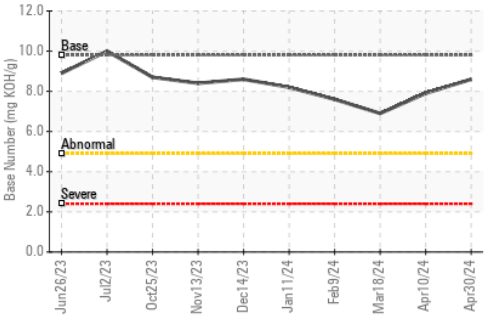
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0098888
Lab Number : 06174953
Unique Number : 11021006
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

Received : 09 May 2024
Tested : 15 May 2024
Diagnosed : 15 May 2024 - Sean Felton

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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