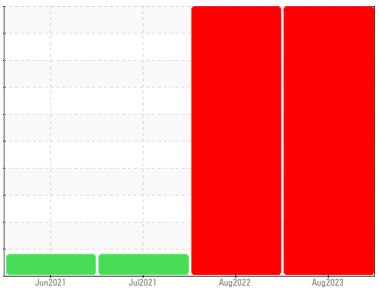
PROBLEM SUMMARY

Sample Rating Trend

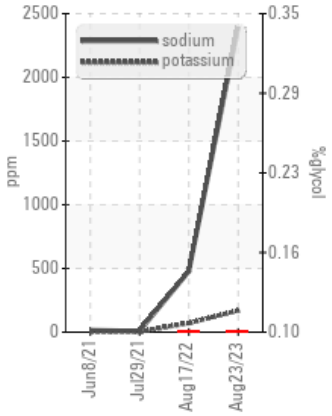


GLYCOL

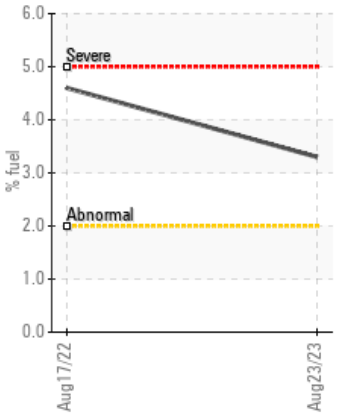
Machine Id
222054
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- LTR)

COMPONENT CONDITION SUMMARY

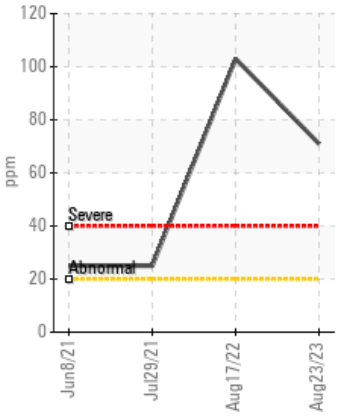
Glycol Contamination



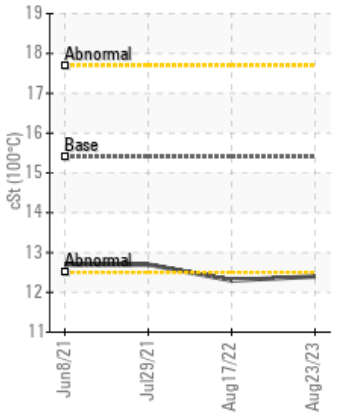
Fuel Dilution



Aluminum (ppm)



Viscosity @ 100°C



RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	ABNORMAL
Aluminum	ppm	ASTM D5185m	>20	▲ **71**	⬢ 103	▲ 25
Sodium	ppm	ASTM D5185m		▲ **2392**	▲ 477	9
Potassium	ppm	ASTM D5185m	>20	▲ **170**	▲ 71	3
Fuel	%	ASTM D3524	>2.0	▲ **3.3**	▲ 4.6	<1.0
Glycol	%	*ASTM D2982		⬢ **0.10**	⬢ 0.10	NEG
Visc @ 100°C	cSt	ASTM D445	15.4	▲ **12.4**	▲ 12.3	12.7

Customer Id: GFL882
Sample No.: GFL0089747
Lab Number: 05936932
Test Package: FLEET

To manage this report scan the QR code

To discuss the diagnosis or test data:
Doug Bogart +1 (800)237-1369 x4016
dougb@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	---	---	?	Oil and filter change at the time of sampling has been noted.
Change Filter	---	---	?	Oil and filter change at the time of sampling has been noted.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Fuel/injector System	---	---	?	We advise that you check the fuel injection system.
Check Glycol Access	---	---	?	We advise that you check for the source of the coolant leak.

HISTORICAL DIAGNOSIS

17 Aug 2022 Diag: Jonathan Hester

GLYCOL

We advise that you check for the source of the coolant leak. Check for low coolant level. We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.The aluminum level is severe. Sodium and/or potassium levels are high. Test for glycol is positive. There is a moderate amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

view report

29 Jul 2021 Diag: Jonathan Hester

WEAR

No corrective action is recommended at this time. Resample at the next service interval to monitor.The aluminum level is abnormal. All other 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

08 Jun 2021 Diag: Jonathan Hester

WEAR

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.The aluminum level is abnormal. All other 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 acceptable for the time in service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend

GLYCOL

Machine Id
222054
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- LTR)

DIAGNOSIS

Recommendation
We advise that you check for the source of the coolant leak. Check for low coolant level. We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear
The aluminum level is abnormal. All other component wear rates are normal.

Contamination
Sodium and/or potassium levels are high. Test for glycol is positive. There is a moderate amount of fuel present in the oil.

Fluid Condition
Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0089747**	GFL0057100	GFL0029751
Sample Date		Client Info		**23 Aug 2023**	17 Aug 2022	29 Jul 2021
Machine Age	hrs	Client Info		**23533**	22245	21062
Oil Age	hrs	Client Info		**0**	1513	330
Oil Changed		Client Info		**Changed**	Changed	Not Changd
Sample Status				**SEVERE**	SEVERE	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**89**	77	19
Chromium	ppm	ASTM D5185m	>20	**7**	8	1
Nickel	ppm	ASTM D5185m	>4	**<1**	1	<1
Titanium	ppm	ASTM D5185m		**1**	<1	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>20	▲ **71**	● 103	▲ 25
Lead	ppm	ASTM D5185m	>40	**15**	5	<1
Copper	ppm	ASTM D5185m	>330	**6**	7	1
Tin	ppm	ASTM D5185m	>15	**2**	2	<1
Antimony	ppm	ASTM D5185m		**---**	---	0
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**6**	5	7
Barium	ppm	ASTM D5185m	0	**0**	<1	0
Molybdenum	ppm	ASTM D5185m	60	**166**	78	53
Manganese	ppm	ASTM D5185m	0	**2**	1	<1
Magnesium	ppm	ASTM D5185m	1010	**608**	807	729
Calcium	ppm	ASTM D5185m	1070	**1058**	1024	1237
Phosphorus	ppm	ASTM D5185m	1150	**641**	839	985
Zinc	ppm	ASTM D5185m	1270	**1010**	1113	1084
Sulfur	ppm	ASTM D5185m	2060	**3181**	2736	2595

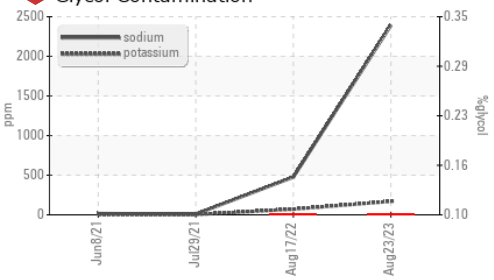
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**12**	15	5
Sodium	ppm	ASTM D5185m		▲ **2392**	▲ 477	9
Potassium	ppm	ASTM D5185m	>20	▲ **170**	▲ 71	3
Fuel	%	ASTM D3524	>2.0	▲ **3.3**	▲ 4.6	<1.0
Glycol	%	*ASTM D2982		● **0.10**	● 0.10	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**1.1**	0.9	0.2
Nitration	Abs/cm	*ASTM D7624	>20	**15.9**	12.5	7.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	**24.8**	24.7	19

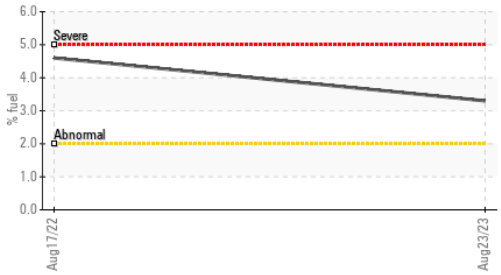
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**18.7**	21.3	15
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**12.6**	9.5	7.9

OIL ANALYSIS REPORT

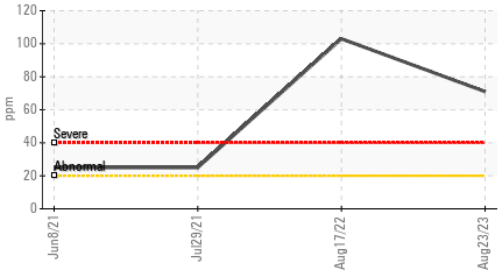
Glycol Contamination



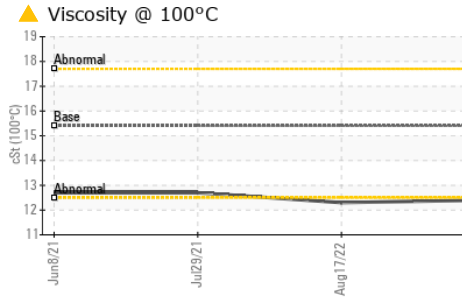
Fuel Dilution



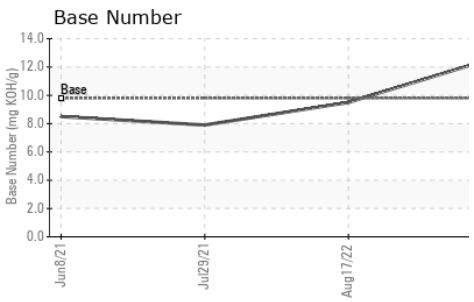
Aluminum (ppm)



Viscosity @ 100°C



Base Number

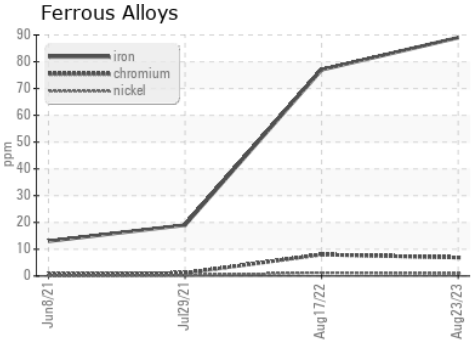


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

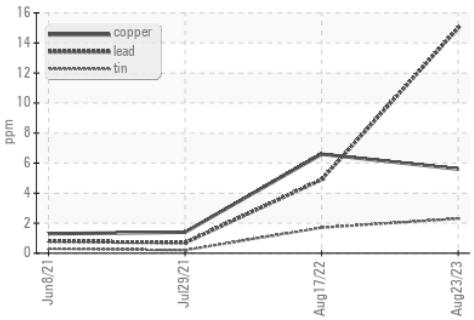
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ **12.4**	▲ 12.3	12.7

GRAPHS

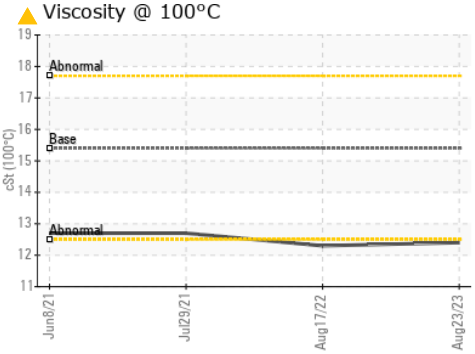
Ferrous Alloys



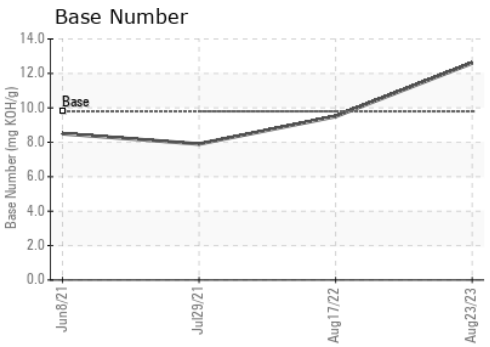
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0089747 **Received** : 29 Aug 2023
Lab Number : 05936932 **Diagnosed** : 04 Sep 2023
Unique Number : 10622203 **Diagnostician** : Doug Bogart
Test Package : FLEET (Additional Tests: 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)

GFL Environmental - 882 - Gainesville
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Gainesville, FL
US 32608
Contact: ROBERT CLARK
robert.clark@gflenv.com
T:
F:

Report Id: GFL882 [WUSCAR] 05936932 (Generated: 09/05/2023 17:30:24) Rev: 1

Submitted By: STEPHEN WEIL