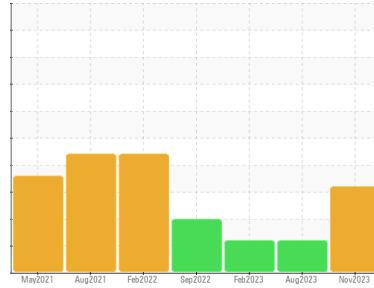




PROBLEM SUMMARY

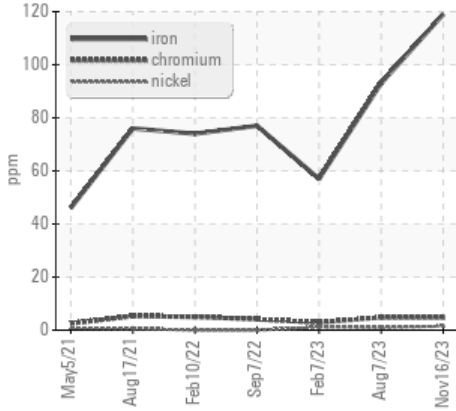
Sample Rating Trend



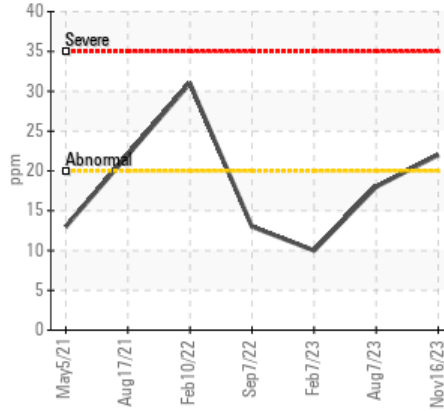
Machine Id
538M
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY

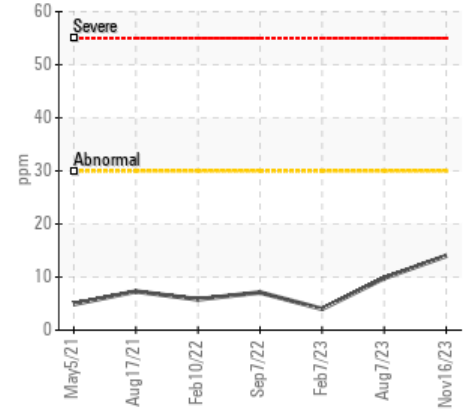
▲ Ferrous Alloys



▲ Silicon (ppm)



▲ Aluminum (ppm)



RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	ATTENTION	ATTENTION
Iron	ppm	ASTM D5185m	>80	▲ 119	93	57
Aluminum	ppm	ASTM D5185m	>30	▲ 14	10	4
Silicon	ppm	ASTM D5185m	>20	▲ 22	18	10

Customer Id: GFL415
Sample No.: GFL0101570
Lab Number: 06010517
Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data:
Jonathan Hester +1 919-379-4092 x4092
jhester@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
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

07 Aug 2023 Diag: Jonathan Hester

GLYCOL



Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. Sodium and/or potassium levels remain high. Test for glycol is negative. 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



07 Feb 2023 Diag: Jonathan Hester

GLYCOL



Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. Sodium and/or potassium levels remain high. Test for glycol is negative. 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



07 Sep 2022 Diag: Jonathan Hester

GLYCOL



Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. Sodium and/or potassium levels remain high. Light fuel dilution occurring. Test for glycol is negative. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

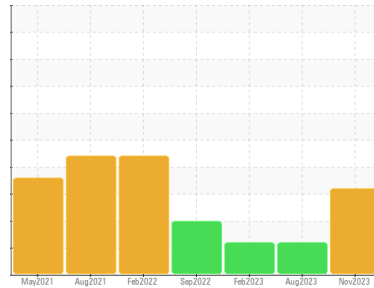
view report





OIL ANALYSIS REPORT

Sample Rating Trend



DIRT



Machine Id
538M
 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. Resample at the next service interval to monitor.

Wear

Cylinder, crank, or cam shaft wear is indicated.

Contamination

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0101570	GFL0086656	GFL0068677
Sample Date	Client Info	16 Nov 2023	07 Aug 2023	07 Feb 2023
Machine Age	hrs	22705	22427	21941
Oil Age	hrs	22427	21941	21367
Oil Changed	Client Info	N/A	Changed	Changed
Sample Status		ABNORMAL	ATTENTION	ATTENTION

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >5	<1.0	<1.0	<1.0
Water	WC Method >0.2	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >80	▲ 119	93	57
Chromium	ppm ASTM D5185m >5	5	5	3
Nickel	ppm ASTM D5185m >2	2	<1	1
Titanium	ppm ASTM D5185m	<1	<1	<1
Silver	ppm ASTM D5185m >3	0	0	0
Aluminum	ppm ASTM D5185m >30	▲ 14	10	4
Lead	ppm ASTM D5185m >30	4	2	2
Copper	ppm ASTM D5185m >150	4	4	2
Tin	ppm ASTM D5185m >5	<1	1	<1
Vanadium	ppm ASTM D5185m	<1	0	0
Cadmium	ppm ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	1	4	1
Barium	ppm ASTM D5185m 0	0	0	0
Molybdenum	ppm ASTM D5185m 60	67	62	62
Manganese	ppm ASTM D5185m 0	2	1	<1
Magnesium	ppm ASTM D5185m 1010	1040	959	947
Calcium	ppm ASTM D5185m 1070	1193	1076	1127
Phosphorus	ppm ASTM D5185m 1150	1057	1014	971
Zinc	ppm ASTM D5185m 1270	1400	1273	1233
Sulfur	ppm ASTM D5185m 2060	2591	3152	2965

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >20	▲ 22	18	10
Sodium	ppm ASTM D5185m	86	▲ 94	▲ 127
Potassium	ppm ASTM D5185m >20	6	4	3
Glycol	% *ASTM D2982	0.0	NEG	NEG

INFRA-RED

method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	2	1.5	1
Nitration	Abs/cm *ASTM D7624 >20	18.1	15.3	13.8
Sulfation	Abs/.1mm *ASTM D7415 >30	30.1	25.9	23.8

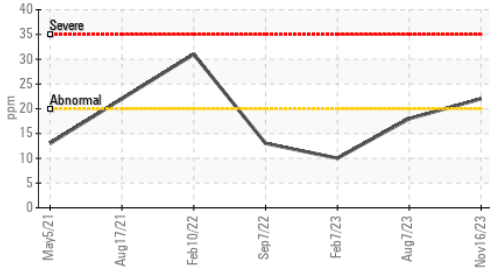
FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	32.3	27.6	23.1
Base Number (BN)	mg KOH/g ASTM D2896 9.8	7.6	6.5	8.3

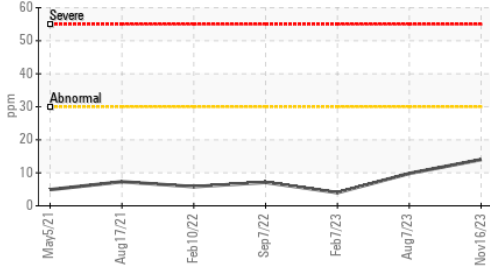


OIL ANALYSIS REPORT

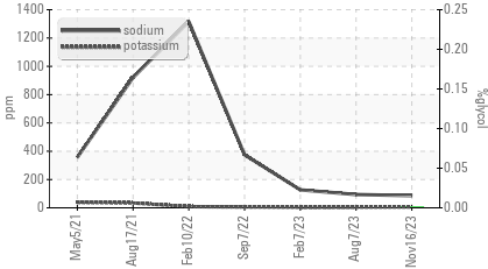
▲ Silicon (ppm)



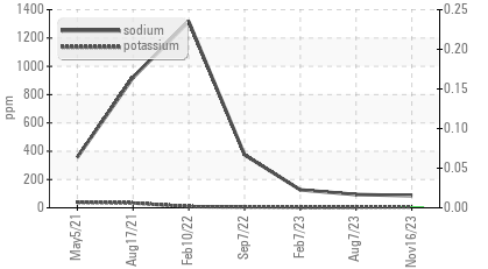
▲ Aluminum (ppm)



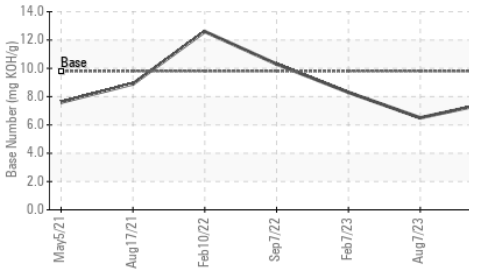
▲ Glycol Contamination



▲ Glycol Contamination



▲ Base Number

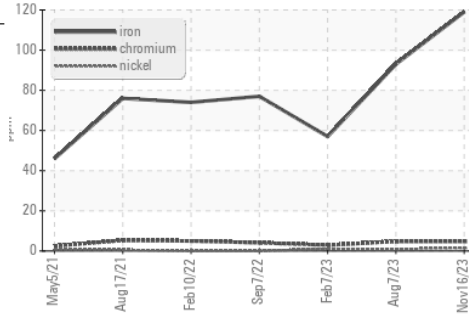


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

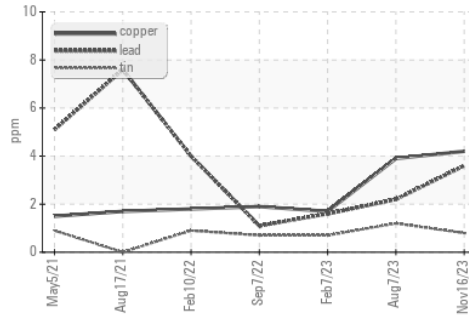
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	15.4	15.2	13.6	12.7

GRAPHS

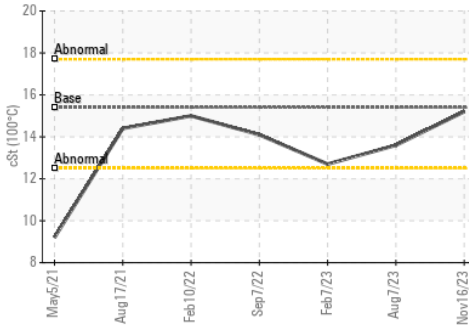
▲ Ferrous Alloys



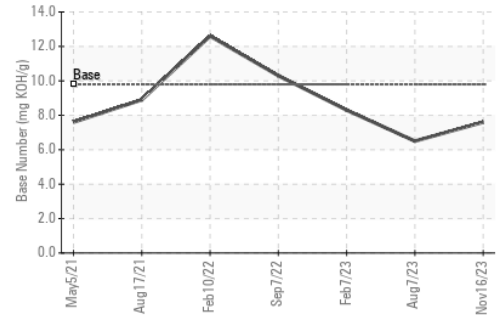
▲ Non-ferrous Metals



▲ Viscosity @ 100°C



▲ Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0101570 **Received** : 17 Nov 2023
Lab Number : 06010517 **Diagnosed** : 21 Nov 2023
Unique Number : 10749661 **Diagnostician** : Jonathan Hester
Test Package : FLEET (Additional Tests: Glycol)

GFL Environmental - 415 - Michigan East
 6200 Elmridge
 Sterling Heights, MI
 US 48313
 Contact: Frank Wolak
 fwolak@gflenv.com
 T: (586)825-9514
 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)