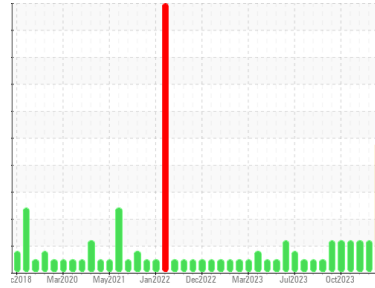




OIL ANALYSIS REPORT

Sample Rating Trend



GLYCOL



Machine Id

3667

Component

Diesel Engine

Fluid

PETRO CANADA DURON SHP 15W40 (38 QTS)

DIAGNOSIS

Recommendation

We advise that you check for the source of the coolant leak. Check for low coolant level. 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

All component wear rates are normal.

Contamination

Sodium and/or potassium levels are high. Test for glycol is positive.

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.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0097151	GFL0097147	GFL0097238
Sample Date	Client Info	22 Dec 2023	05 Dec 2023	16 Nov 2023
Machine Age	hrs	20839	20648	20534
Oil Age	hrs	0	0	0
Oil Changed	Client Info	Not Changed	Not Changed	Not Changed
Sample Status		ABNORMAL	ABNORMAL	ABNORMAL

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 >100	6	27	28
Chromium	ppm ASTM D5185m >20	0	1	2
Nickel	ppm ASTM D5185m >4	0	0	<1
Titanium	ppm ASTM D5185m	0	<1	<1
Silver	ppm ASTM D5185m >3	14	0	0
Aluminum	ppm ASTM D5185m >20	1	10	11
Lead	ppm ASTM D5185m >40	<1	0	<1
Copper	ppm ASTM D5185m >330	3	2	3
Tin	ppm ASTM D5185m >15	0	0	<1
Vanadium	ppm ASTM D5185m	0	0	<1
Cadmium	ppm ASTM D5185m	<1	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	15	8	7
Barium	ppm ASTM D5185m 0	0	0	0
Molybdenum	ppm ASTM D5185m 60	76	59	63
Manganese	ppm ASTM D5185m 0	<1	<1	<1
Magnesium	ppm ASTM D5185m 1010	881	860	878
Calcium	ppm ASTM D5185m 1070	941	949	1041
Phosphorus	ppm ASTM D5185m 1150	1028	968	1058
Zinc	ppm ASTM D5185m 1270	1243	1173	1207
Sulfur	ppm ASTM D5185m 2060	3032	2903	2561

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	5	12	14
Sodium	ppm ASTM D5185m	▲ 287	▲ 181	▲ 162
Potassium	ppm ASTM D5185m >20	▲ 241	29	2
Glycol	% *ASTM D2982	▲ 0.06	NEG	NEG

INFRA-RED

method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	0.2	0.5	0.5
Nitration	Abs/cm *ASTM D7624 >20	5.6	7.1	6.9
Sulfation	Abs/.1mm *ASTM D7415 >30	16.7	18.3	18.4

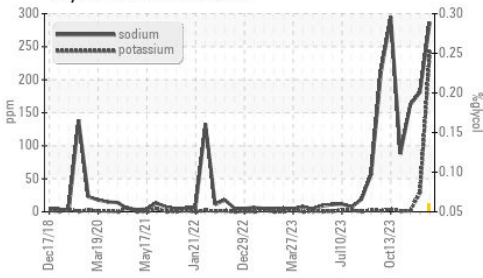
FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	12.2	13.2	13.4
Base Number (BN)	mg KOH/g ASTM D2896 9.8	11.6	9.0	8.8



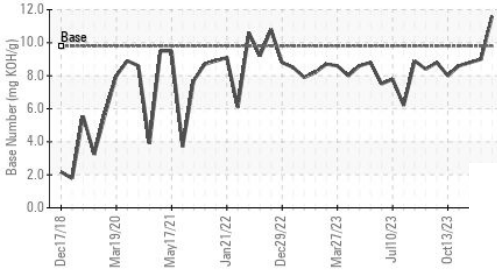
OIL ANALYSIS REPORT

▲ Glycol Contamination



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

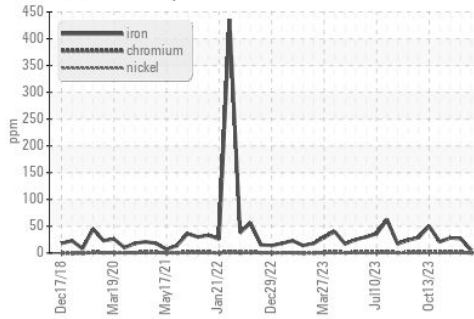
Base Number



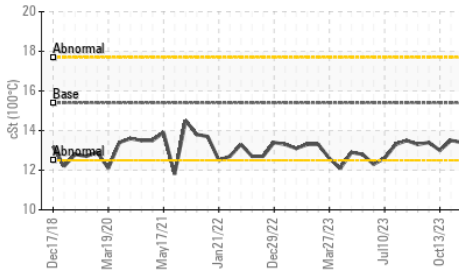
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	14.5	13.5

GRAPHS

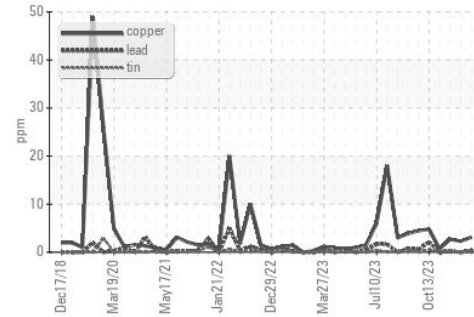
Ferrous Alloys



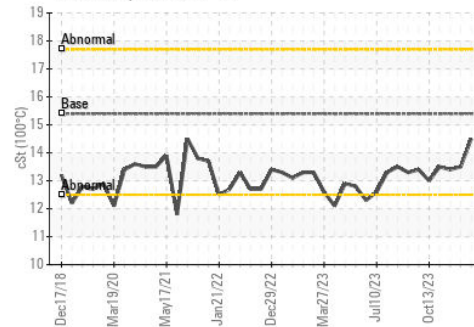
Viscosity @ 100°C



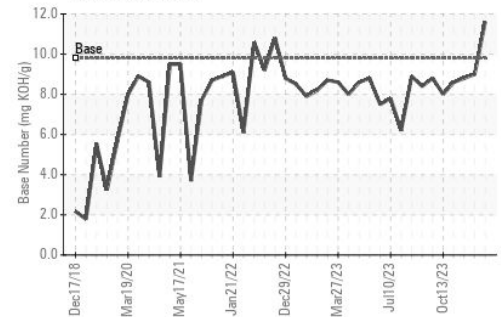
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0097151 **Received** : 28 Dec 2023
Lab Number : 06046791 **Diagnosed** : 29 Dec 2023
Unique Number : 10807399 **Diagnostician** : Don Baldrige
Test Package : FLEET (Additional Tests: Glycol)

GFL Environmental - 073 - Warner Robins - Transwaste
 155 Story Road
 Warner Robins, GA
 US 31093
 Contact: Mike Taft

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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F: