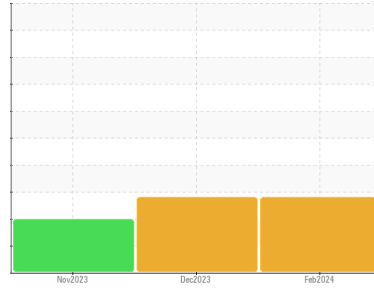




OIL ANALYSIS REPORT

Sample Rating Trend



DIRT



Machine Id
414046

Component
Diesel Engine

Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

DIAGNOSIS

▲ Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

▲ 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 level of silicon (Si) above normal indicating ingress of seal material.

● Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0105546	GFL0101105	GFL0087073
Sample Date	Client Info	19 Feb 2024	19 Dec 2023	29 Nov 2023
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	Not Changed	Not Changed	Not Changed
Sample Status		ABNORMAL	ABNORMAL	ABNORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method >0.2	NEG	NEG	NEG
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >110	37	24	18
Chromium	ppm ASTM D5185m >4	1	<1	<1
Nickel	ppm ASTM D5185m >2	3	<1	1
Titanium	ppm ASTM D5185m	0	0	<1
Silver	ppm ASTM D5185m >2	<1	<1	<1
Aluminum	ppm ASTM D5185m >25	10	11	8
Lead	ppm ASTM D5185m >45	4	<1	<1
Copper	ppm ASTM D5185m >85	▲ 198	▲ 126	47
Tin	ppm ASTM D5185m >4	3	2	2
Vanadium	ppm ASTM D5185m	<1	0	<1
Cadmium	ppm ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	178	302	372
Barium	ppm ASTM D5185m 0	0	0	0
Molybdenum	ppm ASTM D5185m 60	118	131	118
Manganese	ppm ASTM D5185m 0	5	3	4
Magnesium	ppm ASTM D5185m 1010	860	682	662
Calcium	ppm ASTM D5185m 1070	1637	1514	1398
Phosphorus	ppm ASTM D5185m 1150	853	689	691
Zinc	ppm ASTM D5185m 1270	1066	787	812
Sulfur	ppm ASTM D5185m 2060	2813	2311	2152

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >30	▲ 51	▲ 59	▲ 63
Sodium	ppm ASTM D5185m	2	2	3
Potassium	ppm ASTM D5185m >20	19	20	14
Fuel	% ASTM D3524 >5	<1.0	<1.0	0.0

INFRA-RED

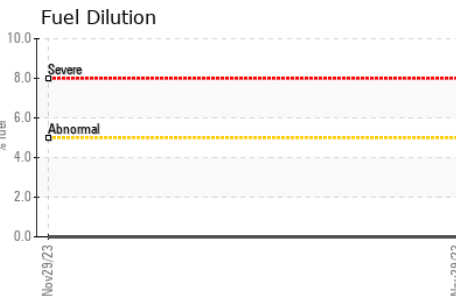
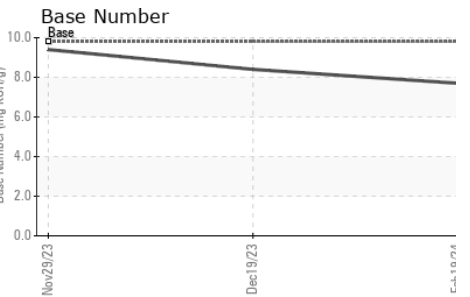
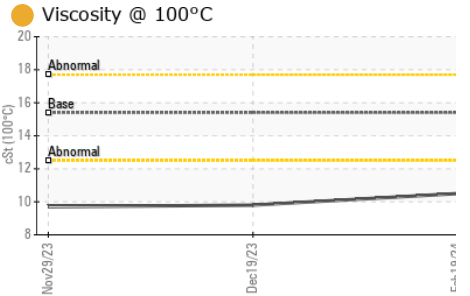
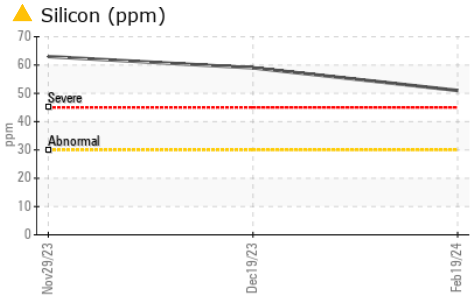
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	0.2	0.2	0.1
Nitration	Abs/cm *ASTM D7624 >20	9.4	8.6	6.8
Sulfation	Abs/.1mm *ASTM D7415 >30	24.1	25.6	26.0

FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	21.1	22.4	20.8
Base Number (BN)	mg KOH/g ASTM D2896 9.8	7.7	8.4	9.4



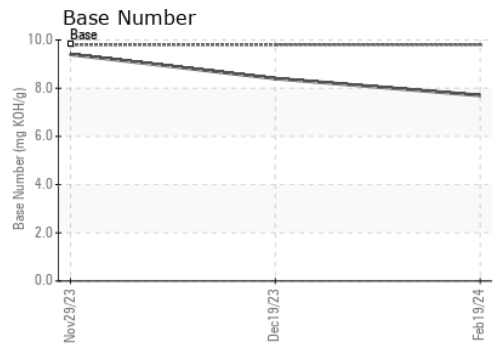
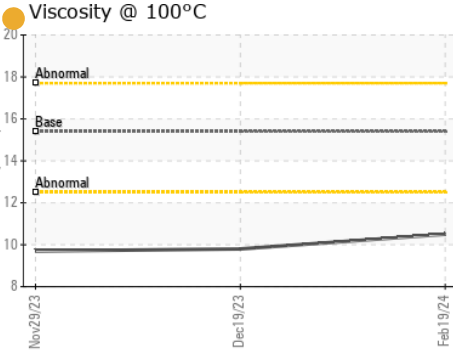
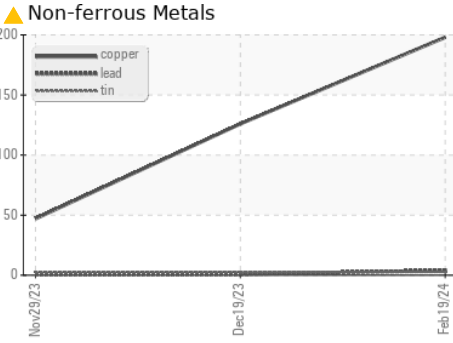
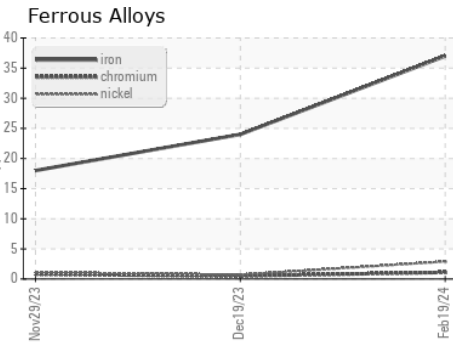
OIL ANALYSIS REPORT



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	10.5	9.8

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0105546 **Received** : 29 Feb 2024
Lab Number : 06104114 **Tested** : 01 Mar 2024
Unique Number : 10902344 **Diagnosed** : 02 Mar 2024 - Don Baldrige
Test Package : FLEET (Additional Tests: FuelDilution)

GFL Environmental - 846 - Mayfield Hauling
 3426 State Route 45
 Mayfield, KY
 US 42066
 Contact: Jack Lindsey
 jack.lindsey@gflenv.com
 T: (270)970-3690
 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)