



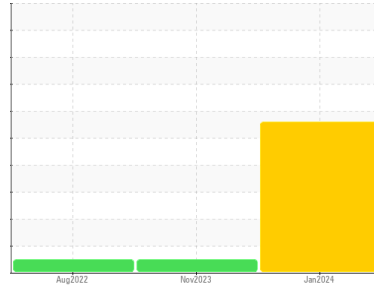
OIL ANALYSIS REPORT

Sample Rating Trend

DIRT



Machine Id
7823M
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)



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 air filter, air induction system, and any areas where dirt may enter the component. We recommend an early resample to monitor this condition.

Wear

Cylinder, crank, or cam shaft wear is indicated.

Contamination

Sodium and/or potassium levels are high. 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.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0110020	GFL0059146	GFL0052127
Sample Date	Client Info	11 Jan 2024	07 Nov 2023	09 Aug 2022
Machine Age	hrs	8607	8503	7196
Oil Age	hrs	8607	0	7196
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ABNORMAL	NORMAL	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >3.0	<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 >90	▲ 111	71	81
Chromium	ppm ASTM D5185m >20	6	2	2
Nickel	ppm ASTM D5185m >2	1	<1	0
Titanium	ppm ASTM D5185m >2	<1	0	0
Silver	ppm ASTM D5185m >2	0	3	0
Aluminum	ppm ASTM D5185m >20	▲ 18	5	5
Lead	ppm ASTM D5185m >40	6	<1	2
Copper	ppm ASTM D5185m >330	7	6	2
Tin	ppm ASTM D5185m >15	1	0	<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	28	0	3
Barium	ppm ASTM D5185m 0	0	6	2
Molybdenum	ppm ASTM D5185m 60	153	67	66
Manganese	ppm ASTM D5185m 0	2	<1	<1
Magnesium	ppm ASTM D5185m 1010	936	938	966
Calcium	ppm ASTM D5185m 1070	1065	1182	1135
Phosphorus	ppm ASTM D5185m 1150	1026	1035	1108
Zinc	ppm ASTM D5185m 1270	1314	1260	1345
Sulfur	ppm ASTM D5185m 2060	3144	3098	2724

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	▲ 36	14	7
Sodium	ppm ASTM D5185m	▲ 1802	0	9
Potassium	ppm ASTM D5185m >20	▲ 23	2	2
Glycol	% *ASTM D2982	NEG	NEG	NEG

INFRA-RED

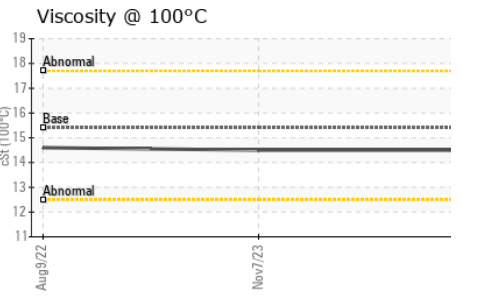
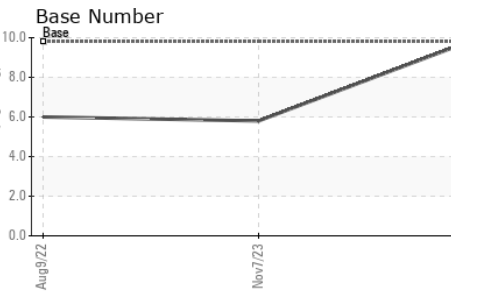
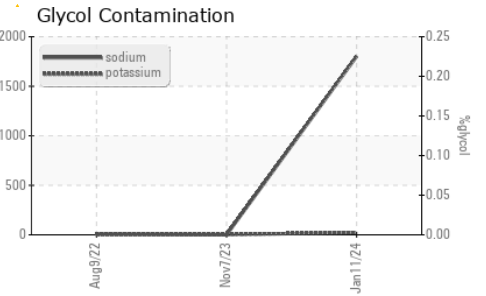
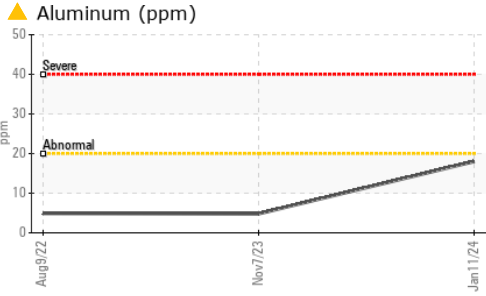
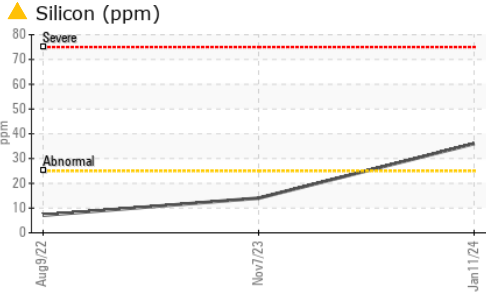
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >6	2.3	0.9	1.4
Nitration	Abs/cm *ASTM D7624 >20	17.8	13.0	14.3
Sulfation	Abs/.1mm *ASTM D7415 >30	28.9	24.9	28.8

FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	22.1	25.7	26.3
Base Number (BN)	mg KOH/g ASTM D2896 9.8	9.9	5.8	6.0



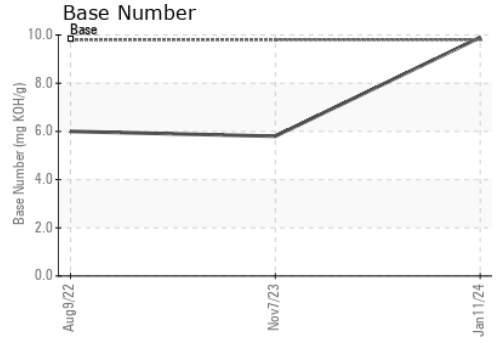
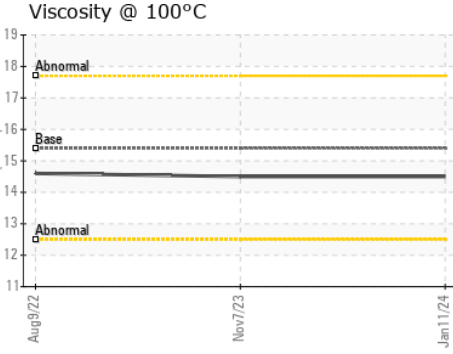
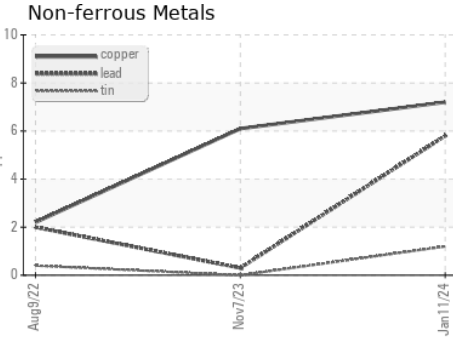
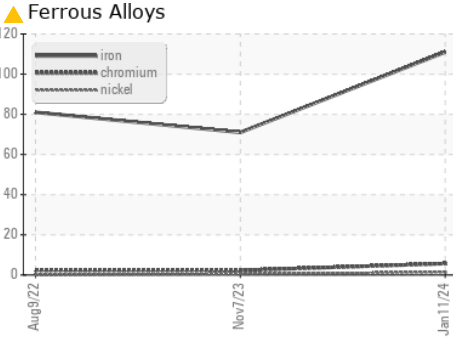
OIL ANALYSIS REPORT



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	14.5	14.6

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0110020 **Received** : 16 Jan 2024
Lab Number : **06060758** **Diagnosed** : 17 Jan 2024
Unique Number : 10832140 **Diagnostician** : Jonathan Hester
Test Package : FLEET (Additional Tests: Glycol)

GFL Environmental - 410 - Michigan West
 39000 Van Born Rd
 Wayne, MI
 US 48184
 Contact: Belal Dgheish
 bdgheish@gflenv.com
 T: (734)714-2340
 F:

Certificate L2367
 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)