



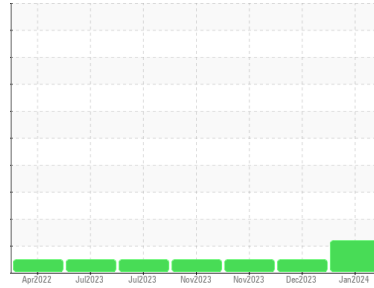
OIL ANALYSIS REPORT

Sample Rating Trend

GLYCOL



Machine Id
4659M
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)



DIAGNOSIS

Recommendation

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

Wear

All component wear rates are normal.

Contamination

Sodium and/or potassium levels are high.

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		GFL0109994	GFL0104395	GFL0059164
Sample Date	Client Info		16 Jan 2024	28 Dec 2023	09 Nov 2023
Machine Age	mls	Client Info	108906	108001	105803
Oil Age	mls	Client Info	0	108001	105803
Oil Changed	Client Info		Changed	N/A	Changed
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	18	16	60
Chromium	ppm	ASTM D5185m >20	<1	<1	2
Nickel	ppm	ASTM D5185m >2	0	0	<1
Titanium	ppm	ASTM D5185m >2	0	0	<1
Silver	ppm	ASTM D5185m >2	0	0	<1
Aluminum	ppm	ASTM D5185m >20	2	2	2
Lead	ppm	ASTM D5185m >40	0	<1	<1
Copper	ppm	ASTM D5185m >330	<1	<1	3
Tin	ppm	ASTM D5185m >15	0	<1	0
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 0	12	2	6
Barium	ppm	ASTM D5185m 0	0	0	6
Molybdenum	ppm	ASTM D5185m 60	56	53	59
Manganese	ppm	ASTM D5185m 0	<1	<1	<1
Magnesium	ppm	ASTM D5185m 1010	866	864	838
Calcium	ppm	ASTM D5185m 1070	1007	950	1038
Phosphorus	ppm	ASTM D5185m 1150	810	977	920
Zinc	ppm	ASTM D5185m 1270	1081	1171	1116
Sulfur	ppm	ASTM D5185m 2060	2537	2696	2911

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	7	3	7
Sodium	ppm	ASTM D5185m	▲ 144	5	4
Potassium	ppm	ASTM D5185m >20	2	1	3
Glycol	%	*ASTM D2982	NEG	NEG	NEG

INFRA-RED

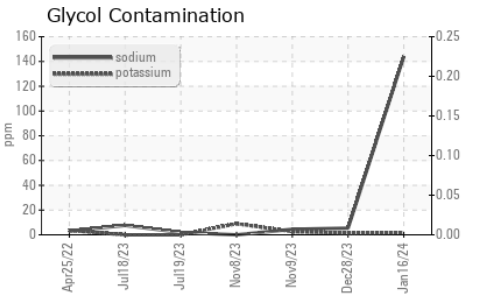
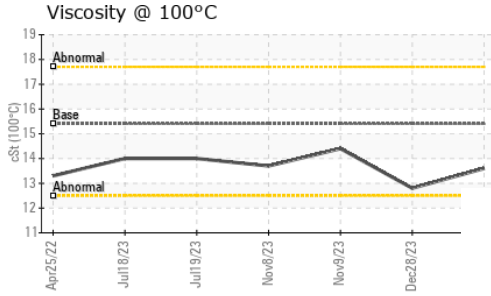
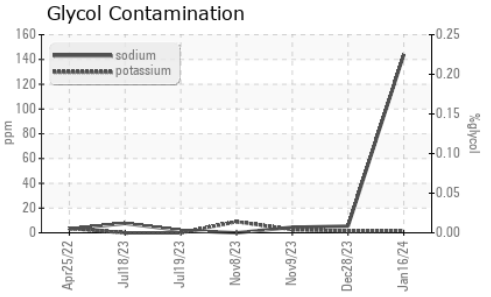
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >6	0.4	0.5	1.2
Nitration	Abs/cm	*ASTM D7624 >20	10.4	11.0	14.9
Sulfation	Abs/.1mm	*ASTM D7415 >30	21.7	21.9	28.9

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	20.8	20.9	32.6
Base Number (BN)	mg KOH/g	ASTM D2896 9.8	8.0	7.1	4.4



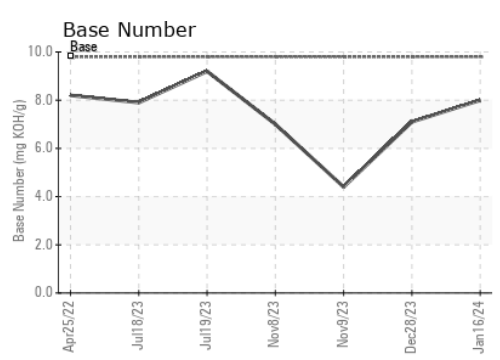
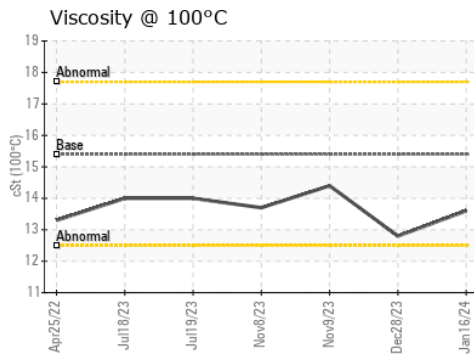
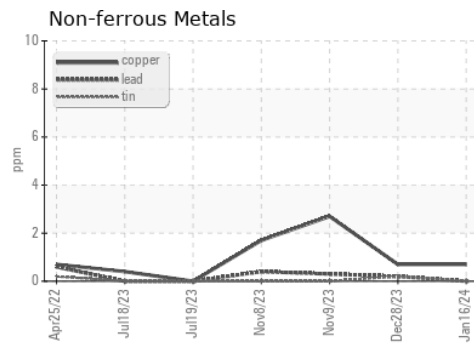
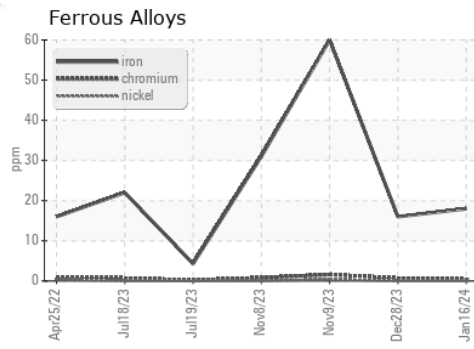
OIL ANALYSIS REPORT



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	13.6	12.8	14.4

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0109994 **Received** : 24 Jan 2024
Lab Number : **06069330** **Diagnosed** : 26 Jan 2024
Unique Number : 10846007 **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)