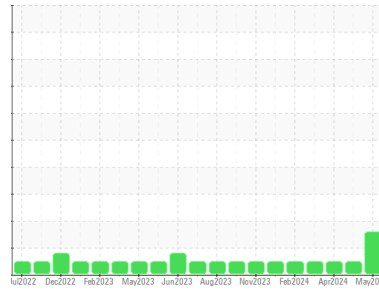




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
731122

Component
Natural Gas Engine

Fluid
PETRO CANADA DURON GEO LD 15W40 (--- GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. We recommend an early resample to monitor this condition.

Wear

Piston, ring and cylinder wear is indicated.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

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.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		GFL0120186	GFL0120172	GFL0117193
Sample Date	Client Info		21 May 2024	16 May 2024	18 Apr 2024
Machine Age	hrs	Client Info	4612	4605	4467
Oil Age	hrs	Client Info	0	0	1200
Oil Changed	Client Info		Not Chngd	Not Chngd	Changed
Sample Status			ABNORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.1	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >50	▲ 55	13	12
Chromium	ppm	ASTM D5185m >4	4	1	<1
Nickel	ppm	ASTM D5185m >2	2	<1	0
Titanium	ppm	ASTM D5185m	0	<1	0
Silver	ppm	ASTM D5185m >3	<1	<1	0
Aluminum	ppm	ASTM D5185m >9	▲ 43	3	2
Lead	ppm	ASTM D5185m >30	11	1	0
Copper	ppm	ASTM D5185m >35	5	2	2
Tin	ppm	ASTM D5185m >4	3	<1	<1
Vanadium	ppm	ASTM D5185m	0	<1	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 50	9	19	10
Barium	ppm	ASTM D5185m 5	0	0	0
Molybdenum	ppm	ASTM D5185m 50	67	56	56
Manganese	ppm	ASTM D5185m 0	4	<1	<1
Magnesium	ppm	ASTM D5185m 560	727	541	605
Calcium	ppm	ASTM D5185m 1510	1932	1692	1734
Phosphorus	ppm	ASTM D5185m 780	924	879	790
Zinc	ppm	ASTM D5185m 870	1187	1059	1056
Sulfur	ppm	ASTM D5185m 2040	3123	2946	2961

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >+100	14	5	4
Sodium	ppm	ASTM D5185m	5	7	6
Potassium	ppm	ASTM D5185m >20	23	3	0

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0.2	0.1	0.1
Nitration	Abs/cm	*ASTM D7624 >20	10.8	10.6	11.4
Sulfation	Abs/.1mm	*ASTM D7415 >30	24.8	21.0	22.8

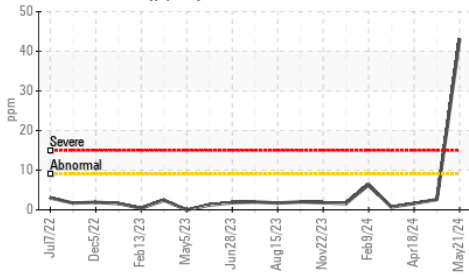
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	20.1	17.0	18.4
Base Number (BN)	mg KOH/g	ASTM D2896 10.2	6.0	5.0	4.4

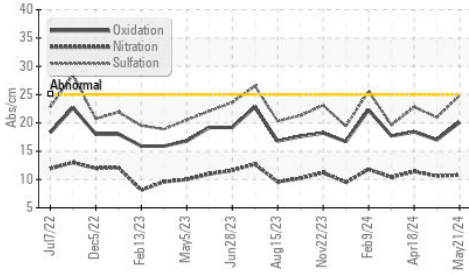


OIL ANALYSIS REPORT

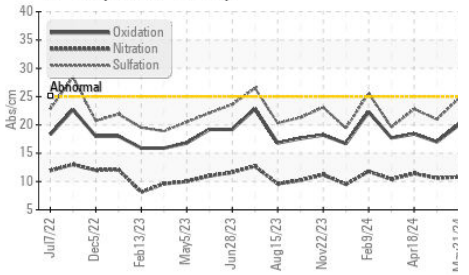
▲ Aluminum (ppm)



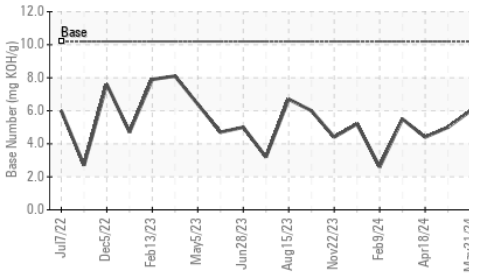
● FT-IR (Direct Trend)



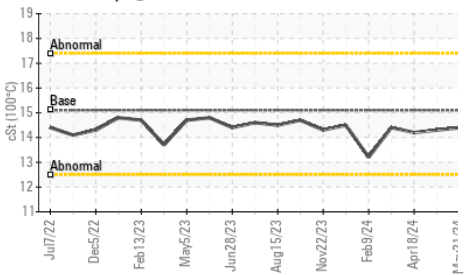
● FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C



VISUAL

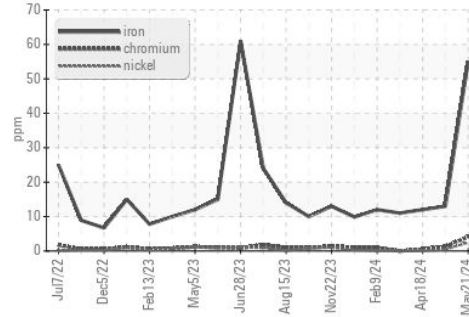
	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES

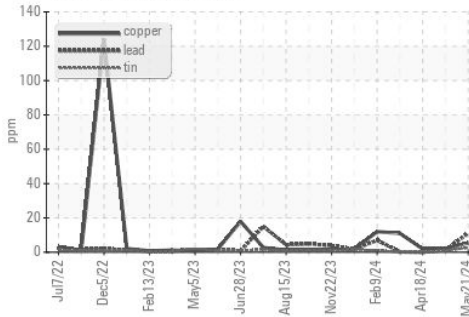
	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.1	14.4	14.3

GRAPHS

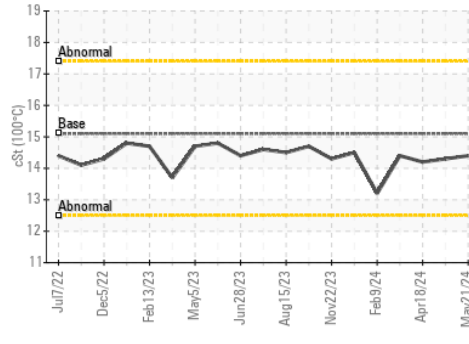
▲ Ferrous Alloys



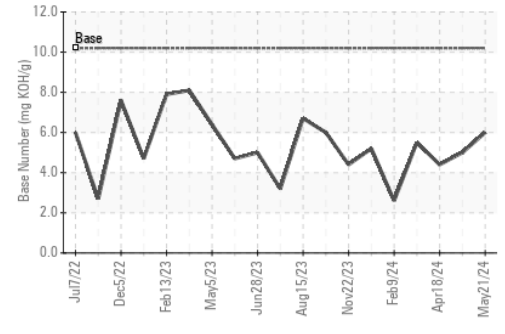
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0120186
Lab Number : 06188963
Unique Number : 11045715
Test Package : FLEET

Received : 23 May 2024
Tested : 24 May 2024
Diagnosed : 28 May 2024 - Don Baldrige

GFL Environmental - 836 - Kansas City Hauling
 7801 East Truman Road
 Kansas City, MO
 US 64126
 Contact: Loyce Stewart
 loyce.stewart@gflen.com

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)

T:
F: