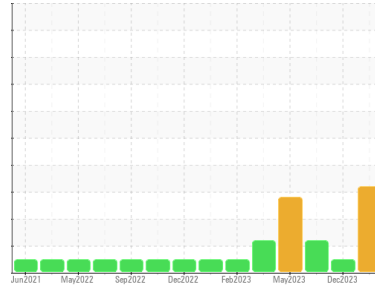




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
4698M

Component
Diesel Engine

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

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

Aluminum ppm levels are noted. All other component wear rates are normal.

Contamination

Light fuel dilution occurring.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0107658	GFL0107088	GFL0091548
Sample Date	Client Info	19 Feb 2024	19 Dec 2023	18 Sep 2023
Machine Age	hrs	13086	12692	12491
Oil Age	hrs	600	600	600
Oil Changed	Client Info	Changed	Changed	N/A
Sample Status		ABNORMAL	NORMAL	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	>100	49	21	20
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	6	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	9	<1	1
Lead	ppm	ASTM D5185m	>40	1	0	0
Copper	ppm	ASTM D5185m	>330	2	4	30
Tin	ppm	ASTM D5185m	>15	0	<1	<1
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	40	2	31
Barium	ppm	ASTM D5185m	0	0	<1	0
Molybdenum	ppm	ASTM D5185m	60	60	61	118
Manganese	ppm	ASTM D5185m	0	<1	1	<1
Magnesium	ppm	ASTM D5185m	1010	671	917	880
Calcium	ppm	ASTM D5185m	1070	1153	1098	1001
Phosphorus	ppm	ASTM D5185m	1150	698	1020	1034
Zinc	ppm	ASTM D5185m	1270	841	1239	1215
Sulfur	ppm	ASTM D5185m	2060	2394	2585	3791

CONTAMINANTS

method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185m	>25	10	4	21
Sodium	ppm	ASTM D5185m		3	6	1152
Potassium	ppm	ASTM D5185m	>20	6	2	11
Fuel	%	ASTM D3524	>5	3.3	<1.0	<1.0

INFRA-RED

method	limit/base	current	history1	history2		
Soot %	%	*ASTM D7844	>3	0.5	1.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	11.0	9.7	7.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.1	21.3	17.6

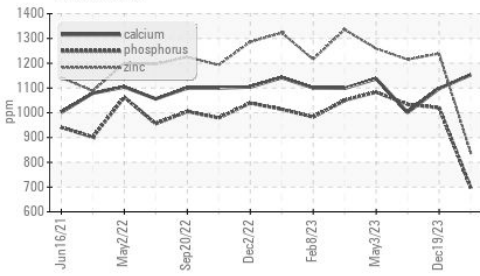
FLUID DEGRADATION

method	limit/base	current	history1	history2		
Oxidation	Abs/.1mm	*ASTM D7414	>25	20.4	16.3	12.7
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	5.6	6.9	14.0

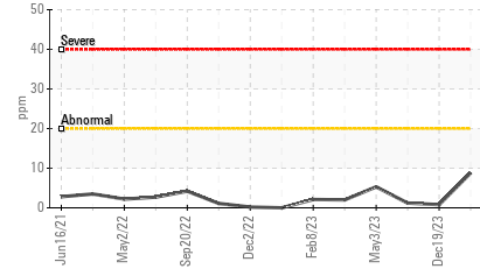


OIL ANALYSIS REPORT

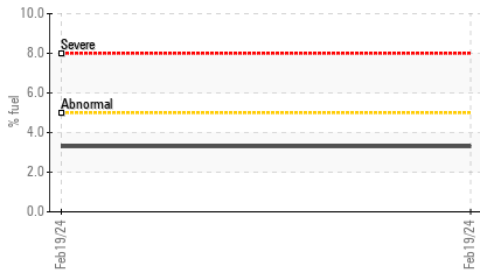
▲ Additives



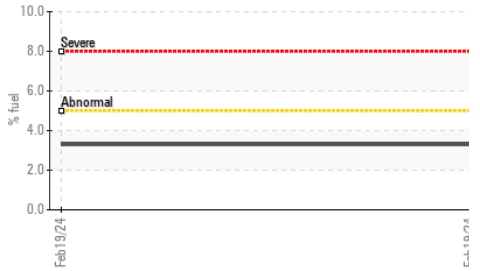
▲ Aluminum (ppm)



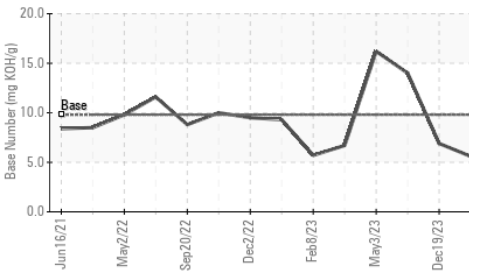
▲ Fuel Dilution



▲ Fuel Dilution



Base Number

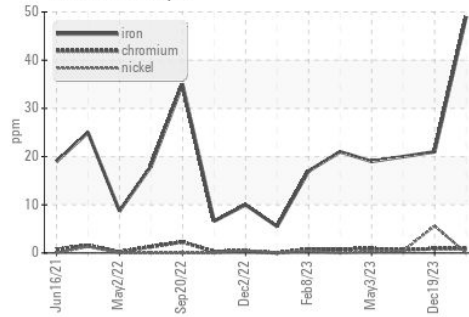


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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

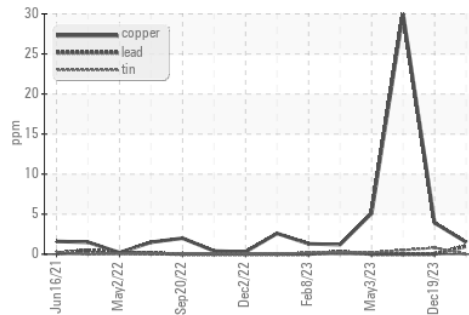
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4 ▲ 11.0	14.0	14.4

GRAPHS

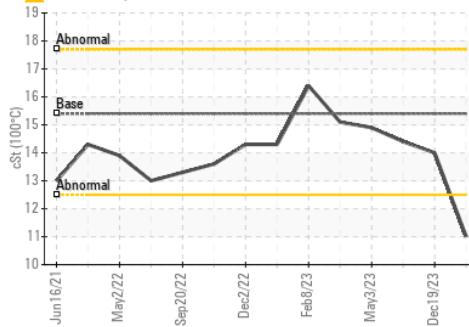
Ferrous Alloys



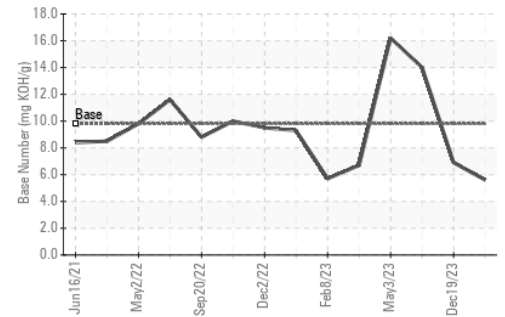
Non-ferrous Metals



▲ Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0107658 **Received** : 23 Feb 2024
Lab Number : 06099013 **Tested** : 27 Feb 2024
Unique Number : 10897243 **Diagnosed** : 27 Feb 2024 - Wes Davis
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

GFL Environmental - 465 - Pontiac
 888 Baldwin
 Pontiac, MI
 US 48340
 Contact: Ricky Matthews
 rickymathews@gflenv.com
 T: (586)825-9514
 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)