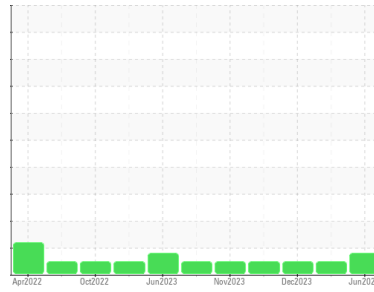




OIL ANALYSIS REPORT

Sample Rating Trend



Area
(BC60905)
 Machine Id
411016-1387
 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 aluminum level is abnormal. All other component wear rates are normal.

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 suitable for further service.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0100016	GFL0110294	GFL0103052
Sample Date	Client Info	10 Jun 2024	04 Mar 2024	21 Dec 2023
Machine Age	hrs	4135	4033	3966
Oil Age	hrs	500	67	130
Oil Changed	Client Info	Not Chngd	Not Chngd	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
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
Iron	ppm ASTM D5185m >90	22	7	15
Chromium	ppm ASTM D5185m >20	<1	0	<1
Nickel	ppm ASTM D5185m >2	<1	0	0
Titanium	ppm ASTM D5185m >2	0	0	<1
Silver	ppm ASTM D5185m >2	0	0	0
Aluminum	ppm ASTM D5185m >20	▲ 27	7	11
Lead	ppm ASTM D5185m >40	0	0	0
Copper	ppm ASTM D5185m >330	11	7	1
Tin	ppm ASTM D5185m >15	0	0	<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	8	0	6
Barium	ppm ASTM D5185m 0	0	0	9
Molybdenum	ppm ASTM D5185m 60	59	56	64
Manganese	ppm ASTM D5185m 0	<1	<1	0
Magnesium	ppm ASTM D5185m 1010	927	880	922
Calcium	ppm ASTM D5185m 1070	1111	1033	1118
Phosphorus	ppm ASTM D5185m 1150	1060	1001	1003
Zinc	ppm ASTM D5185m 1270	1257	1169	1217
Sulfur	ppm ASTM D5185m 2060	3616	2860	3020

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	5	3	4
Sodium	ppm ASTM D5185m	2	0	0
Potassium	ppm ASTM D5185m >20	13	1	12

INFRA-RED

method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >6	0.3	0.1	0.3
Nitration	Abs/cm *ASTM D7624 >20	6.6	5.5	6.8
Sulfation	Abs/.1mm *ASTM D7415 >30	17.6	16.8	18.0

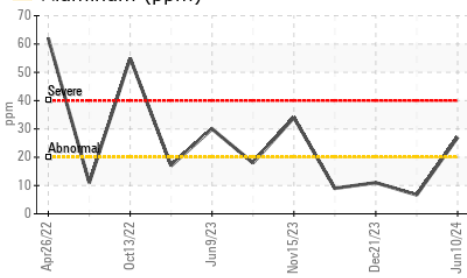
FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	13.8	13.3	14.3
Base Number (BN)	mg KOH/g ASTM D2896 9.8	8.7	8.7	8.7

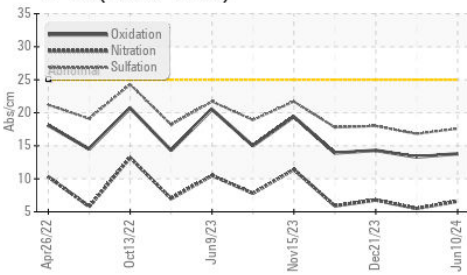


OIL ANALYSIS REPORT

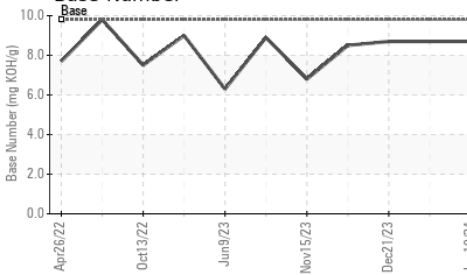
▲ Aluminum (ppm)



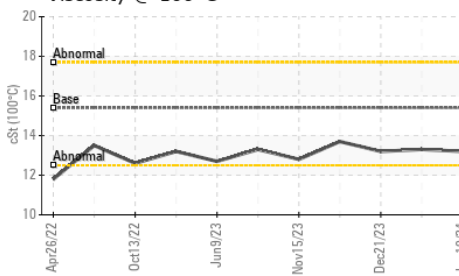
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

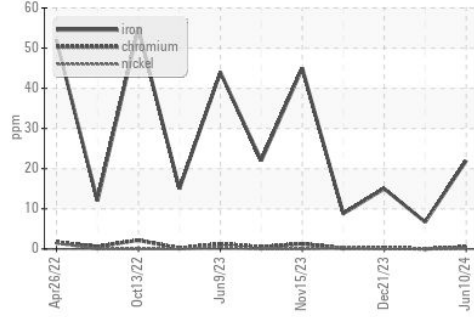


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

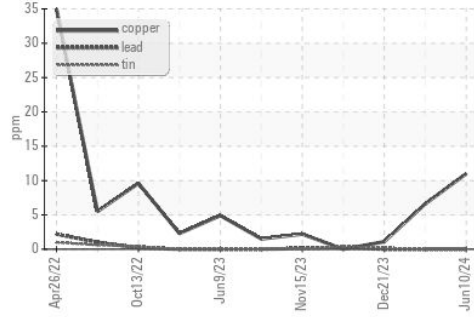
FLUID PROPERTIES	method	limit/base	current	history1	history2	
Visc @ 100°C	cSt	ASTM D445	15.4	13.2	13.3	13.2

GRAPHS

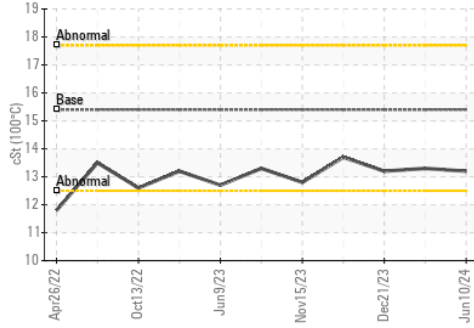
Ferrous Alloys



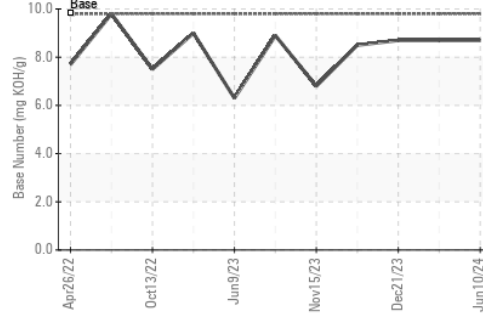
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0100016 **Received** : 17 Jun 2024
Lab Number : **06211336** **Tested** : 19 Jun 2024
Unique Number : 11084200 **Diagnosed** : 19 Jun 2024 - Don Baldrige
Test Package : FLEET

GFL Environmental - 622 - Traverse City Hauling
 160 Hughes Dr
 Traverse City, MI
 US 49686
 Contact: GARY BREWER

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: