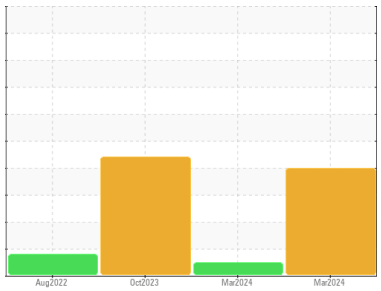
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
575M
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (5 GAL)

DIAGNOSIS

Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

The copper level is abnormal. Cylinder, crank, or cam shaft wear is indicated. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core).

Contamination

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. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0115185**	GFL0115100	GFL0087270
Sample Date		Client Info		**21 Mar 2024**	07 Mar 2024	02 Oct 2023
Machine Age	hrs	Client Info		**5646**	5646	5120
Oil Age	hrs	Client Info		**526**	526	800
Oil Changed		Client Info		**Changed**	Not Changd	Changed
Sample Status				**ABNORMAL**	NORMAL	ABNORMAL

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	▲ **224**	2	▲ 210
Chromium	ppm	ASTM D5185m	>20	**11**	0	11
Nickel	ppm	ASTM D5185m	>2	**3**	<1	3
Titanium	ppm	ASTM D5185m	>2	**<1**	0	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>20	● **16**	2	6
Lead	ppm	ASTM D5185m	>40	**2**	0	2
Copper	ppm	ASTM D5185m	>330	▲ **199**	0	▲ 303
Tin	ppm	ASTM D5185m	>15	**4**	0	4
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**<1**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**14**	0	29
Barium	ppm	ASTM D5185m	0	**5**	0	14
Molybdenum	ppm	ASTM D5185m	60	**46**	59	51
Manganese	ppm	ASTM D5185m	0	**8**	<1	10
Magnesium	ppm	ASTM D5185m	1010	**551**	939	569
Calcium	ppm	ASTM D5185m	1070	**1421**	1015	1890
Phosphorus	ppm	ASTM D5185m	1150	**827**	1032	1072
Zinc	ppm	ASTM D5185m	1270	**1064**	1220	1262
Sulfur	ppm	ASTM D5185m	2060	**2226**	3347	2909

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	▲ **43**	3	▲ 62
Sodium	ppm	ASTM D5185m		**70**	4	▲ 104
Potassium	ppm	ASTM D5185m	>20	**15**	0	8

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>6	**3.2**	0.2	2.3
Nitration	Abs/cm	*ASTM D7624	>20	**20.5**	6.5	16.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	**34.4**	18.4	29.0

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**37.9**	14.5	30.9
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**6.5**	7.8	6.9

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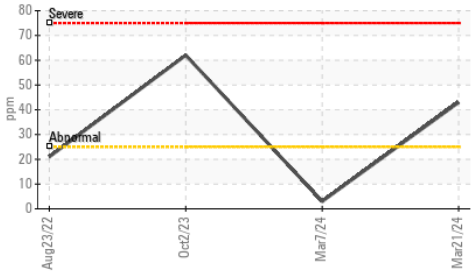
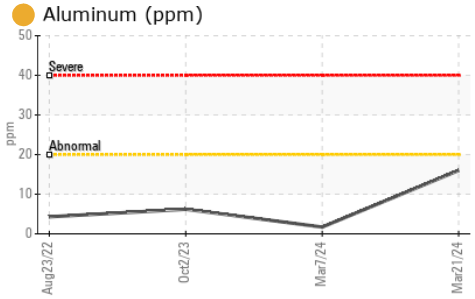
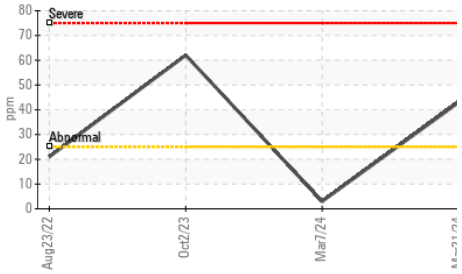
Silicon (ppm)



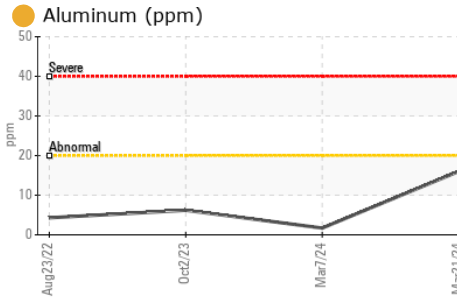
Aluminum (ppm)



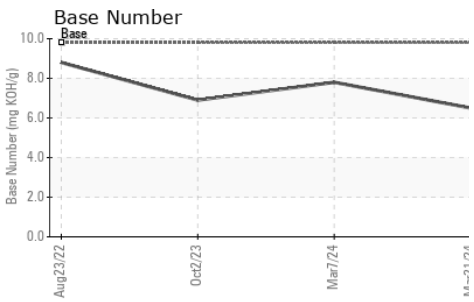
Silicon (ppm)



Aluminum (ppm)



Base Number

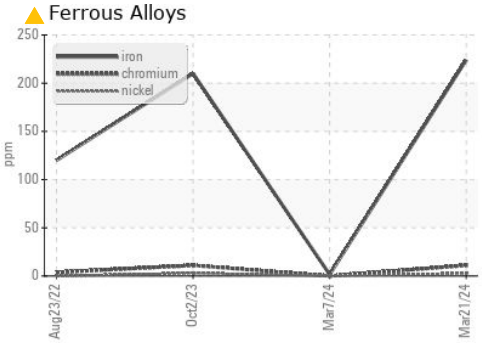


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

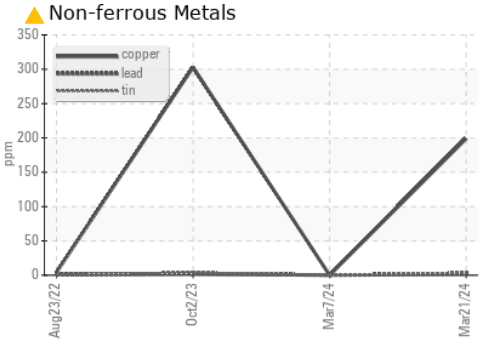
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	**15.3**	13.8	13.3

GRAPHS

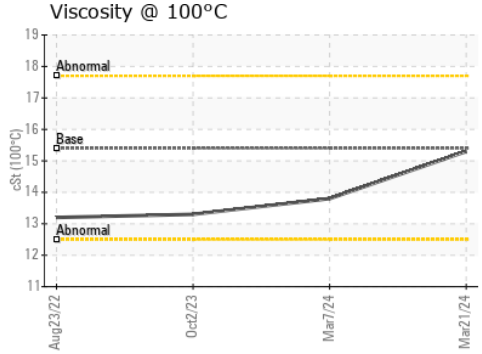
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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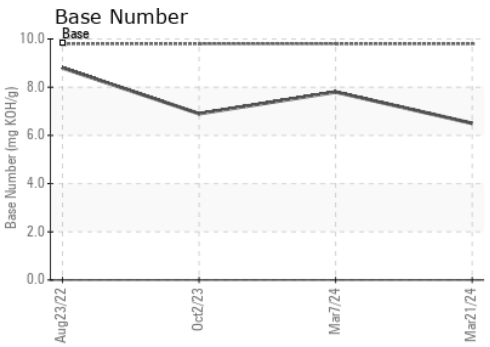

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0115185
Lab Number : 06129190
Unique Number : 10943341
Test Package : FLEET

Received : 26 Mar 2024
Tested : 02 Apr 2024
Diagnosed : 02 Apr 2024 - Jonathan Hester

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)

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