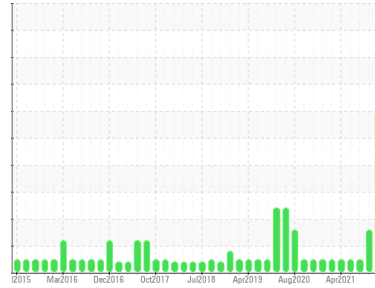




OIL ANALYSIS REPORT

Sample Rating Trend



Area
(YA117733)

Machine Id
2529

Component
Diesel Engine

Fluid
PETRO CANADA DURON SHP 15W40 (--- 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. Resample at the next service interval to monitor. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

Wear

The lead level is abnormal. Cylinder, crank, or cam shaft wear is indicated.

Contamination

There is an abnormal amount of solids and carbon present in the oil. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition

The BN level is low.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0048875	GFL0048829	GFL0026401
Sample Date	Client Info	15 Nov 2022	12 Jul 2022	27 May 2021
Machine Age	hrs	0	0	0
Oil Age	hrs	653	242	181
Oil Changed	Client Info	Changed	Not Changd	Not Changd
Sample Status		ABNORMAL	ABNORMAL	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	▲ 205	64	45
Chromium	ppm ASTM D5185m >20	7	4	1
Nickel	ppm ASTM D5185m >2	0	0	0
Titanium	ppm ASTM D5185m >2	11	10	<1
Silver	ppm ASTM D5185m >2	0	<1	0
Aluminum	ppm ASTM D5185m >20	▲ 15	5	15
Lead	ppm ASTM D5185m >40	▲ 60	8	4
Copper	ppm ASTM D5185m >330	27	11	3
Tin	ppm ASTM D5185m >15	4	2	<1
Antimony	ppm ASTM D5185m	---	---	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	11	22	16
Barium	ppm ASTM D5185m 0	0	<1	0
Molybdenum	ppm ASTM D5185m 60	49	42	63
Manganese	ppm ASTM D5185m 0	5	3	<1
Magnesium	ppm ASTM D5185m 1010	722	722	977
Calcium	ppm ASTM D5185m 1070	1613	1574	1212
Phosphorus	ppm ASTM D5185m 1150	871	810	1078
Zinc	ppm ASTM D5185m 1270	1052	993	1268
Sulfur	ppm ASTM D5185m 2060	3508	3524	2825

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >25	▲ 65	▲ 66	6
Sodium	ppm ASTM D5185m	11	12	7
Potassium	ppm ASTM D5185m >20	8	3	2

INFRA-RED

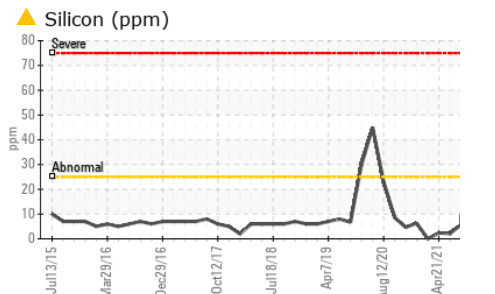
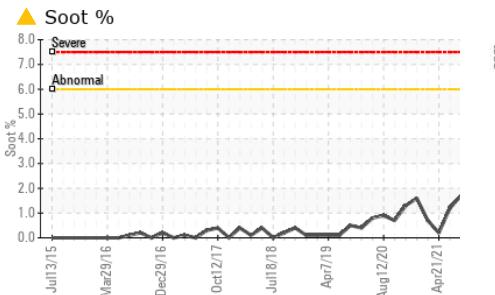
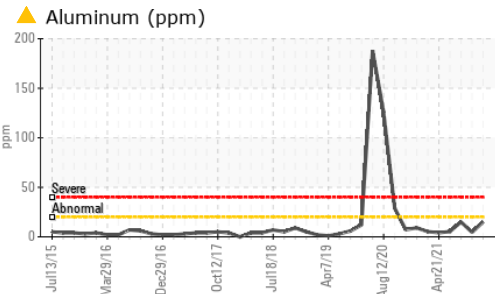
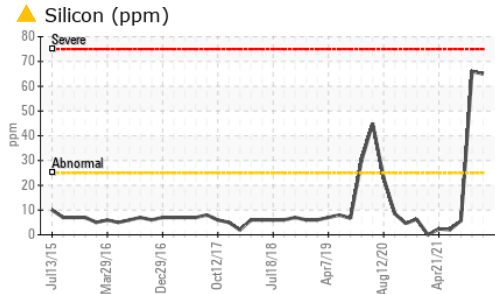
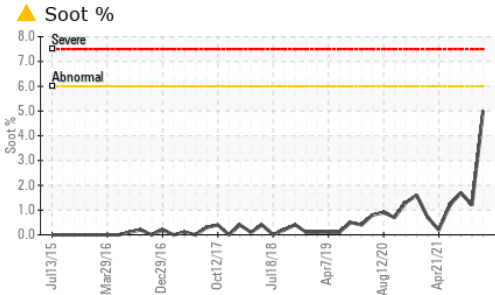
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >6	▲ 5	1.2	1.7
Nitration	Abs/cm *ASTM D7624 >20	16.9	11.5	9.5
Sulfation	Abs/.1mm *ASTM D7415 >30	37.3	25.3	23.6

FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	27.1	19.6	16.2
Base Number (BN)	mg KOH/g ASTM D2896 9.8	▲ 0.0	6.8	9.5



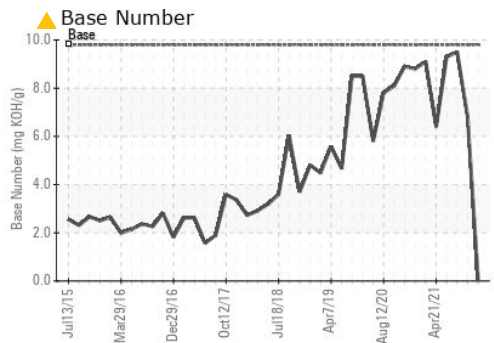
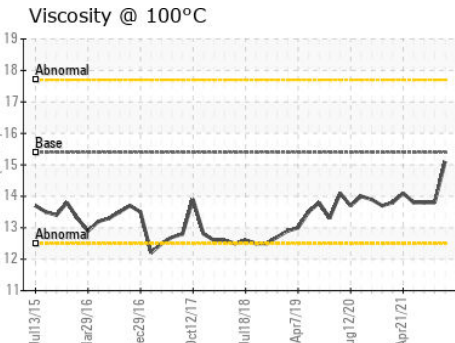
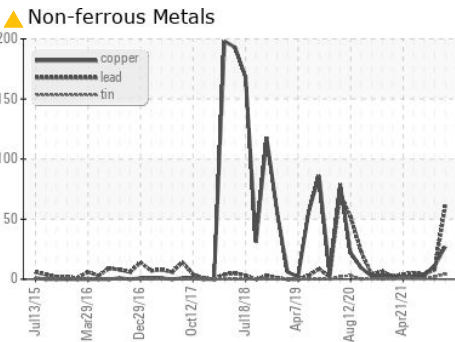
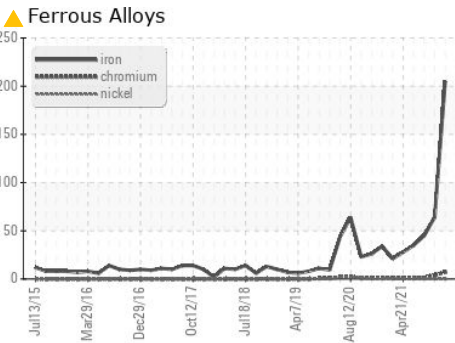
OIL ANALYSIS REPORT



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	15.1	13.8

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0048875
Lab Number : 05700729
Unique Number : 10230303
Test Package : FLEET

GFL Environmental - 005 - Wilson/Tri-East(CNG)
 2810 Contentnea Road S
 Wilson, NC
 US 27893-8501
 Contact: SPENCER LIGGON
 spencer.liggon@gflenv.com
 T: (800)207-6618
 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)