



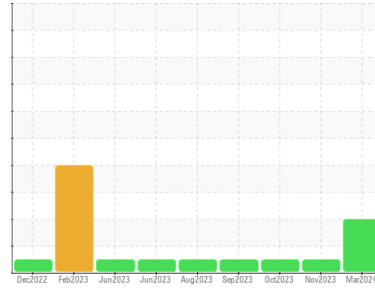
OIL ANALYSIS REPORT

Sample Rating Trend

DEGRADATION



Machine Id
927090
 Component
Diesel Engine
 Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)



DIAGNOSIS

Recommendation

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

Wear

All component wear rates are normal.

Contamination

There is an abnormal amount of solids and carbon present in the oil.

Fluid Condition

The BN level is low.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	GFL0100960	GFL0086854	GFL0086900
Sample Date	Client Info	13 Mar 2024	06 Nov 2023	06 Oct 2023
Machine Age	hrs	21545	21545	21319
Oil Age	hrs	21545	1200	600
Oil Changed	Client Info	Not Chngd	Changed	N/A
Sample Status		ABNORMAL	NORMAL	NORMAL

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 >80	36	10	28
Chromium	ppm ASTM D5185m >5	2	<1	1
Nickel	ppm ASTM D5185m >2	<1	<1	<1
Titanium	ppm ASTM D5185m	<1	0	<1
Silver	ppm ASTM D5185m >3	0	0	0
Aluminum	ppm ASTM D5185m >30	2	3	0
Lead	ppm ASTM D5185m >30	1	<1	1
Copper	ppm ASTM D5185m >150	<1	<1	<1
Tin	ppm ASTM D5185m >5	<1	<1	<1
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	2	7	4
Barium	ppm ASTM D5185m 0	0	0	<1
Molybdenum	ppm ASTM D5185m 60	63	54	59
Manganese	ppm ASTM D5185m 0	<1	<1	<1
Magnesium	ppm ASTM D5185m 1010	897	919	849
Calcium	ppm ASTM D5185m 1070	1103	997	1039
Phosphorus	ppm ASTM D5185m 1150	1018	1024	950
Zinc	ppm ASTM D5185m 1270	1159	1267	1136
Sulfur	ppm ASTM D5185m 2060	3045	3147	3030

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >20	7	5	8
Sodium	ppm ASTM D5185m	0	2	0
Potassium	ppm ASTM D5185m >20	2	5	2
Fuel	% ASTM D3524 >5	<1.0	<1.0	<1.0

INFRA-RED

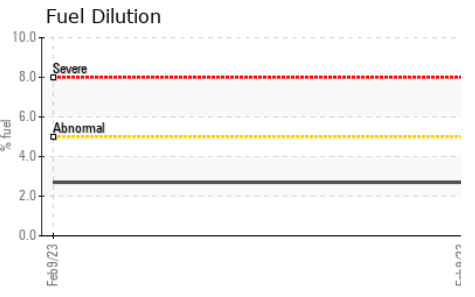
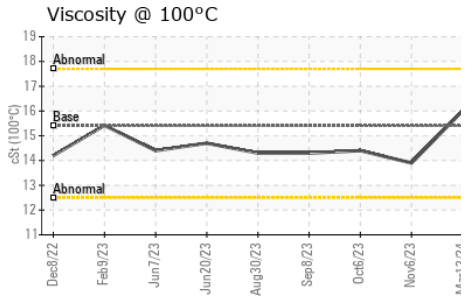
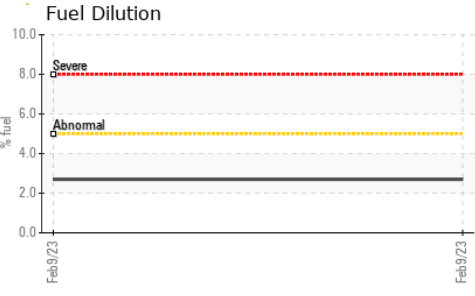
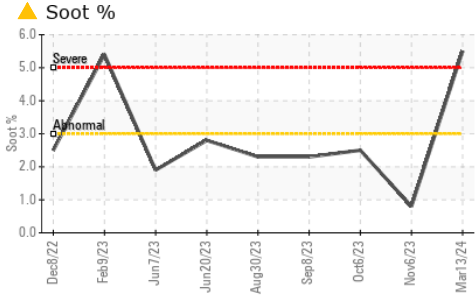
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844 >3	▲ 5.5	0.8	2.5
Nitration	Abs/cm *ASTM D7624 >20	11.4	5.9	7.8
Sulfation	Abs/.1mm *ASTM D7415 >30	28.1	18.4	21.9

FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414 >25	16.4	13.2	13.5
Base Number (BN)	mg KOH/g ASTM D2896 9.8	▲ 0.0	9.1	8.0



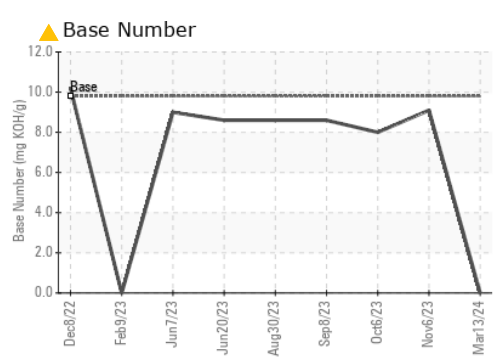
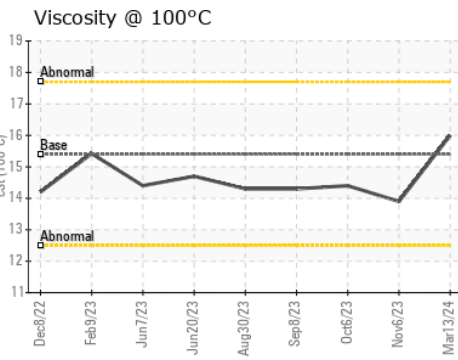
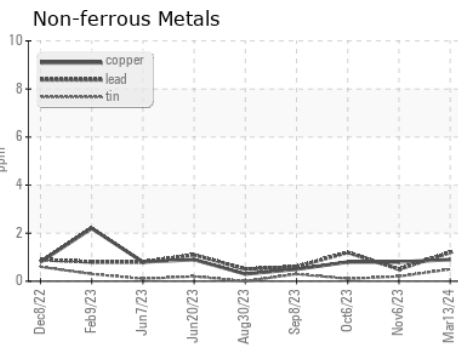
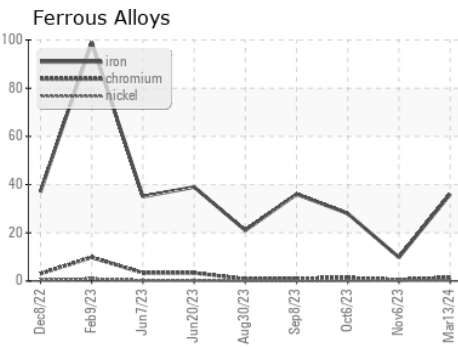
OIL ANALYSIS REPORT



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	16.0	13.9	14.4

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0100960 **Received** : 15 Mar 2024
Lab Number : **06119294** **Tested** : 18 Mar 2024
Unique Number : 10928127 **Diagnosed** : 18 Mar 2024 - Don Baldrige
Test Package : FLEET (Additional Tests: FuelDilution)

GFL Environmental - 419 - Metro Saginaw
 6950 N Michigan
 Saginaw, MI
 US 48604
 Contact: Jeremy Hines
 jhines@gflenv.com
 T: (800)684-1277
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Certificate L2367
 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)