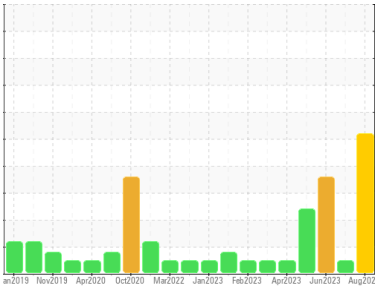
PROBLEM SUMMARY

Sample Rating Trend

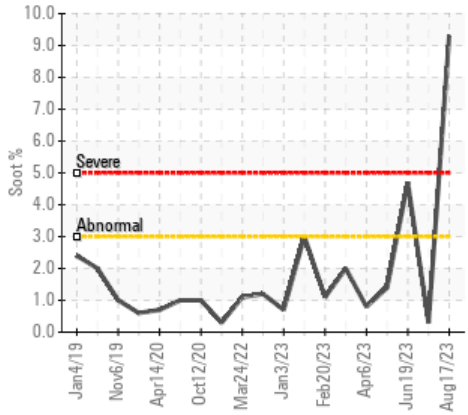


SOOT

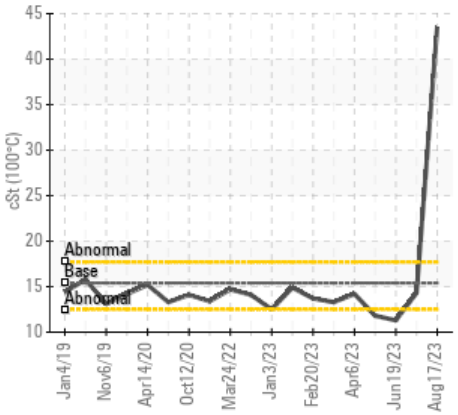
Machine Id
722021-310026
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY

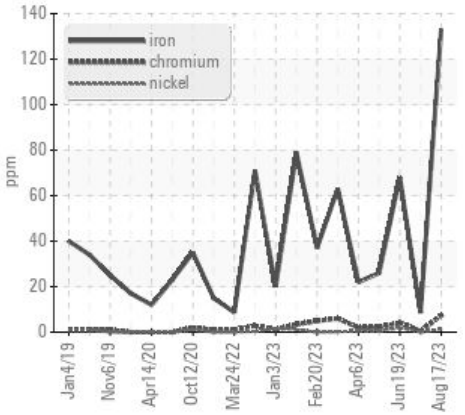
Soot %



Viscosity @ 100°C



Ferrous Alloys



RECOMMENDATION

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. 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.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	NORMAL	SEVERE
Iron	ppm	ASTM D5185m	>110	▲ **133**	9	68
Chromium	ppm	ASTM D5185m	>4	▲ **7**	<1	4
Soot %	%	*ASTM D7844	>3	⬢ **9.3**	0.3	4.7
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	▲ **0.0**	8.7	▲ 0.0
Visc @ 100°C	cSt	ASTM D445	15.4	▲ **43.5**	14.3	▲ 11.3

Customer Id: GFL836
Sample No.: GFL0090641
Lab Number: 05934175
Test Package: FLEET

To manage this report scan the QR code

To discuss the diagnosis or test data:
Don Baldridge +1
don.b505@comcast.net

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	Oil and filter change at the time of sampling has been noted.
Change Filter	---	---	?	Oil and filter change at the time of sampling has been noted.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Alert	---	---	?	NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.
Check Combustion	---	---	?	We advise that you check for faulty combustion, plugged air filters, or aftercoolers.

HISTORICAL DIAGNOSIS

17 Jul 2023 Diag: Wes Davis

NORMAL

No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. Light fuel dilution occurring. No other contaminants were detected in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

19 Jun 2023 Diag: Don Baldridge

FUEL

We advise that you check the fuel injection system. We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.All component wear rates are normal. There is a high amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The BN level is low. The oil is no longer serviceable due to the presence of contaminants.

view report

17 May 2023 Diag: Wes Davis

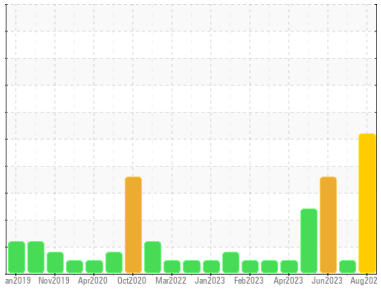
FUEL

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.All component wear rates are normal. There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil. 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 oil is no longer serviceable due to the presence of contaminants.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



SOOT

Machine Id
722021-310026
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. Oil and filter change at the time of sampling has been noted. 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
Cylinder, crank, or cam shaft wear is indicated.

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

Fluid Condition
The oil viscosity is higher than normal. The BN level is low. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0090641**	GFL0087196	GFL0083801
Sample Date		Client Info		**17 Aug 2023**	17 Jul 2023	19 Jun 2023
Machine Age	hrs	Client Info		**19427**	19265	19122
Oil Age	hrs	Client Info		**600**	0	0
Oil Changed		Client Info		**Changed**	Not Changd	Not Changd
Sample Status				**SEVERE**	NORMAL	SEVERE

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	**<1.0**	1.2	19.3
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>110	**133**	9	68
Chromium	ppm	ASTM D5185m	>4	**7**	<1	4
Nickel	ppm	ASTM D5185m	>2	**1**	0	2
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>25	**10**	1	4
Lead	ppm	ASTM D5185m	>45	**13**	0	9
Copper	ppm	ASTM D5185m	>85	**29**	<1	19
Tin	ppm	ASTM D5185m	>4	**3**	0	2
Vanadium	ppm	ASTM D5185m		**0**	0	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**0**	2	<1
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	60	**56**	60	48
Manganese	ppm	ASTM D5185m	0	**2**	<1	<1
Magnesium	ppm	ASTM D5185m	1010	**864**	991	862
Calcium	ppm	ASTM D5185m	1070	**964**	1081	851
Phosphorus	ppm	ASTM D5185m	1150	**900**	1055	856
Zinc	ppm	ASTM D5185m	1270	**1129**	1292	1098
Sulfur	ppm	ASTM D5185m	2060	**2818**	3712	2949

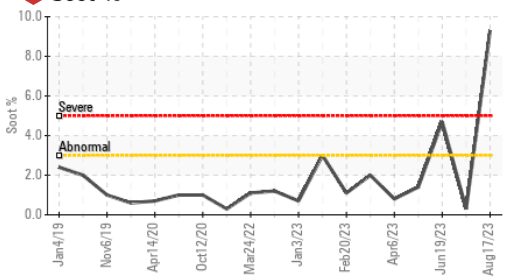
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>30	**13**	6	9
Sodium	ppm	ASTM D5185m		**36**	11	19
Potassium	ppm	ASTM D5185m	>20	**5**	2	7

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**9.3**	0.3	4.7
Nitration	Abs/cm	*ASTM D7624	>20	**26.9**	7.0	17.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	**59.2**	19.0	35.4

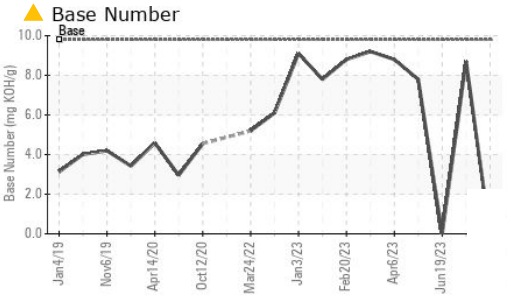
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**52.7**	15.4	35.6
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**0.0**	8.7	0.0

OIL ANALYSIS REPORT

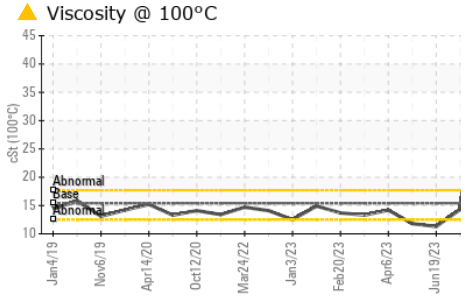
Soot %



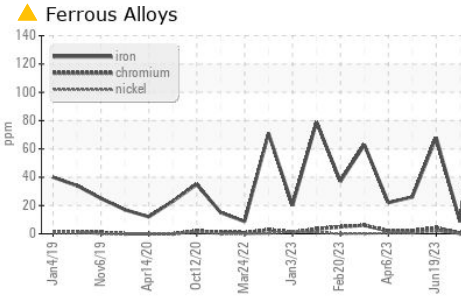
Base Number



Viscosity @ 100°C



Ferrous Alloys

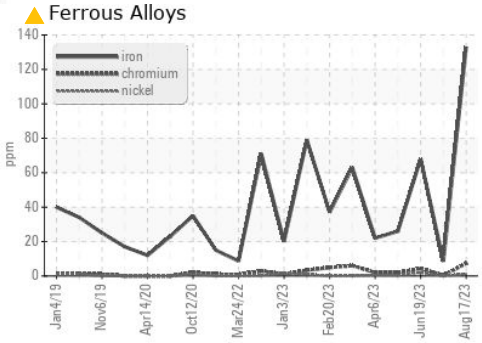


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

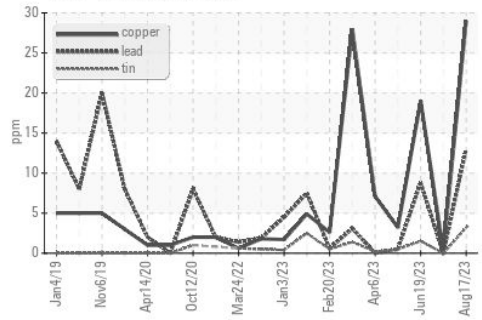
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ **43.5**	14.3	▲ 11.3

GRAPHS

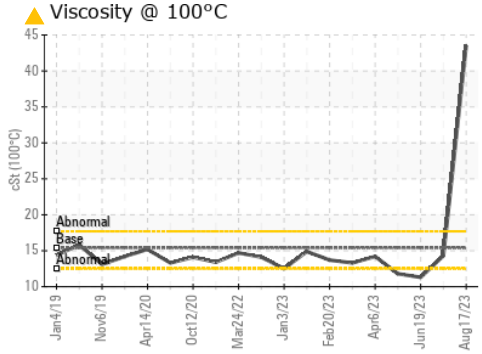
Ferrous Alloys



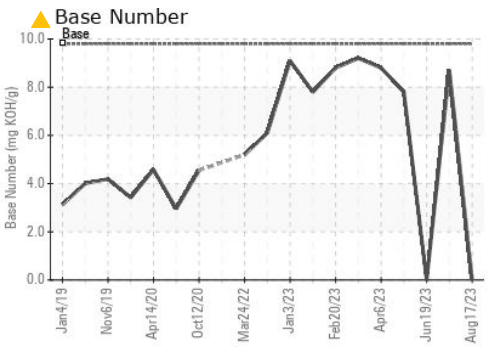
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0090641
Lab Number : 05934175
Unique Number : 10619446
Test Package : FLEET

Received : 24 Aug 2023
Diagnosed : 27 Aug 2023
Diagnostician : Don Baldridge

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)

GFL Environmental - 836 - Kansas City Hauling
7801 East Truman Road
Kansas City, MO
US 64126
Contact: Robert Hart
rhart@gflenv.com
T: (580)461-1509
F:

Report Id: GFL836 [WUSCAR] 05934175 (Generated: 08/28/2023 17:56:42) Rev: 1

Contact/Location: See also GFL823, 834, 837, 840 - Robert Hart - GFL836