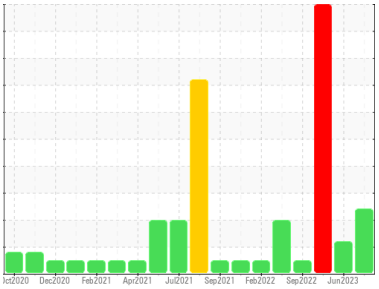
PROBLEM SUMMARY

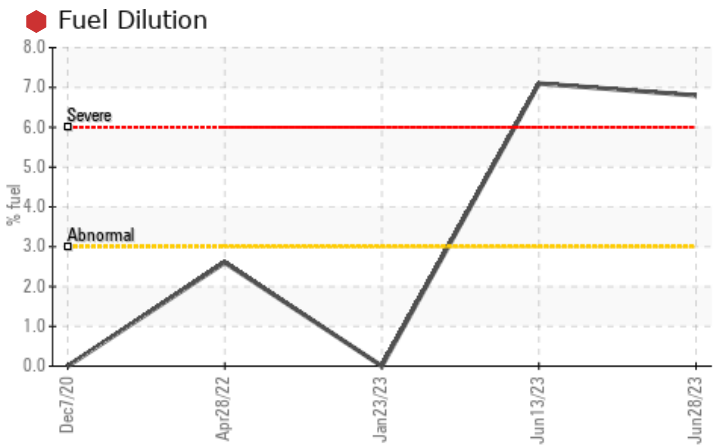
Sample Rating Trend

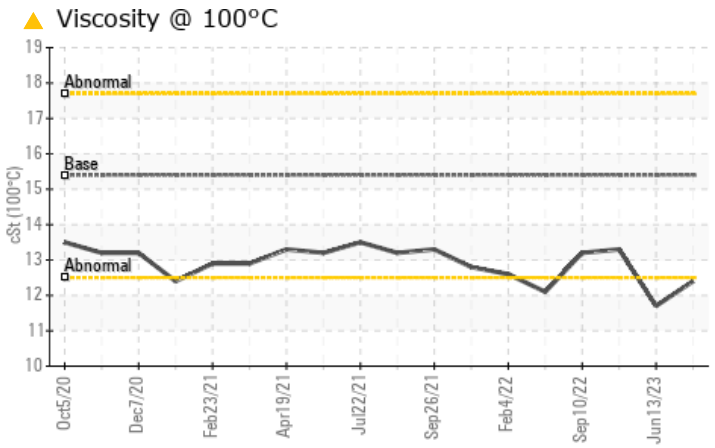


FUEL

Machine Id
810029
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (28 QTS)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

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.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	SEVERE
Fuel	%	ASTM D3524	>3.0	**6.8**	7.1	<1.0
Visc @ 100°C	cSt	ASTM D445	15.4	**12.4**	11.7	13.3

Customer Id: GFL073
Sample No.: GFL0068747
Lab Number: 05887671
Test Package: FLEET

To manage this report scan the QR code

To discuss the diagnosis or test data:
Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

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	---	---	?	We recommend that you drain the oil from the component if this has not already been done.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Fuel/injector System	---	---	?	We advise that you check the fuel injection system.

HISTORICAL DIAGNOSIS

13 Jun 2023 Diag: Jonathan Hester

FUEL

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

view report

23 Jan 2023 Diag: Jonathan Hester

GLYCOL

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.Piston and cylinder wear is indicated. Sodium and/or potassium levels are high. There is a high concentration of glycol present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

view report

10 Sep 2022 Diag: Wes Davis

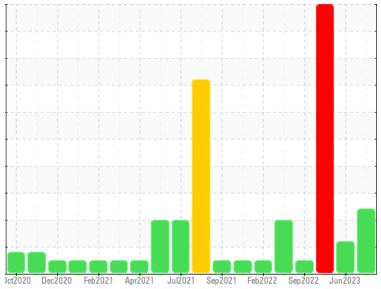
NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination 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

OIL ANALYSIS REPORT

Sample Rating Trend



FUEL

Machine Id
810029
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (28 QTS)

DIAGNOSIS

Recommendation
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.

Wear
All component wear rates are normal.

Contamination
There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition
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.

SAMPLE INFORMATION		method	limit/base	current	history 1	history 2
Sample Number		Client Info		**GFL0068747**	GFL0068726	GFL0057618
Sample Date		Client Info		**28 Jun 2023**	13 Jun 2023	23 Jan 2023
Machine Age	hrs	Client Info		**8271**	8135	5502
Oil Age	hrs	Client Info		**136**	2633	0
Oil Changed		Client Info		**Not Changd**	Changed	Changed
Sample Status				**SEVERE**	ABNORMAL	SEVERE

CONTAMINATION	method	limit/base	current	history 1	history 2
Glycol	WC Method		**NEG**	NEG	⬢ 0.12

WEAR METALS		method	limit/base	current	history 1	history 2
Iron	ppm	ASTM D5185m	>75	**8**	40	▲ 83
Chromium	ppm	ASTM D5185m	>5	**<1**	2	4
Nickel	ppm	ASTM D5185m	>4	**0**	0	1
Titanium	ppm	ASTM D5185m	>2	**<1**	<1	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	<1
Aluminum	ppm	ASTM D5185m	>15	**<1**	6	▲ 31
Lead	ppm	ASTM D5185m	>25	**0**	0	2
Copper	ppm	ASTM D5185m	>100	**2**	12	19
Tin	ppm	ASTM D5185m	>4	**0**	<1	1
Vanadium	ppm	ASTM D5185m		**0**	<1	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history 1	history 2
Boron	ppm	ASTM D5185m	0	**7**	16	26
Barium	ppm	ASTM D5185m	0	**15**	3	1
Molybdenum	ppm	ASTM D5185m	60	**55**	57	162
Manganese	ppm	ASTM D5185m	0	**<1**	1	2
Magnesium	ppm	ASTM D5185m	1010	**843**	738	767
Calcium	ppm	ASTM D5185m	1070	**951**	1126	1171
Phosphorus	ppm	ASTM D5185m	1150	**867**	661	913
Zinc	ppm	ASTM D5185m	1270	**1097**	842	1208
Sulfur	ppm	ASTM D5185m	2060	**3203**	2478	3285

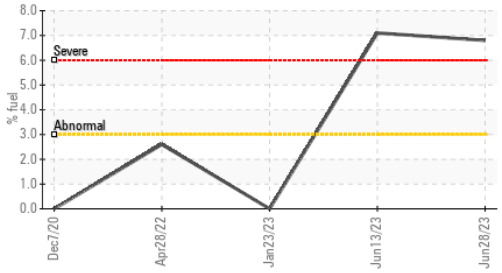
CONTAMINANTS		method	limit/base	current	history 1	history 2
Silicon	ppm	ASTM D5185m	>25	**4**	12	▲ 28
Sodium	ppm	ASTM D5185m		**4**	18	▲ 1168
Potassium	ppm	ASTM D5185m	>20	**5**	14	▲ 549
Fuel	%	ASTM D3524	>3.0	⬢ **6.8**	▲ 7.1	<1.0

INFRA-RED		method	limit/base	current	history 1	history 2
Soot %	%	*ASTM D7844	>6	**0.4**	1.3	1.5
Nitration	Abs/cm	*ASTM D7624	>20	**8.3**	14.4	15.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	**19.7**	25.2	22.6

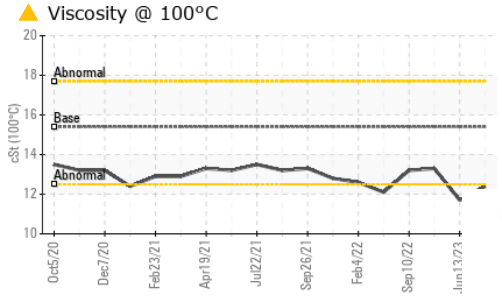
FLUID DEGRADATION		method	limit/base	current	history 1	history 2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**16.2**	26.5	15.4
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**8.7**	5.8	12.1

OIL ANALYSIS REPORT

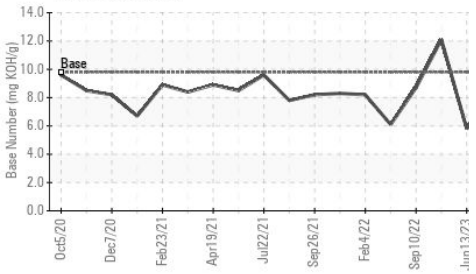
Fuel Dilution



Viscosity @ 100°C



Base Number

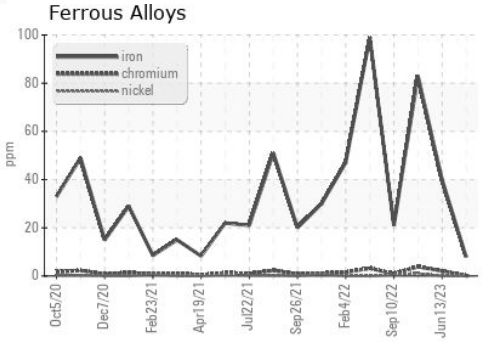


VISUAL		method	limit/base	current	history 1	history 2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

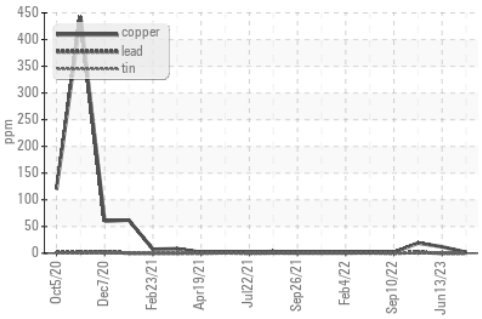
FLUID PROPERTIES		method	limit/base	current	history 1	history 2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ **12.4**	▲ 11.7	13.3

GRAPHS

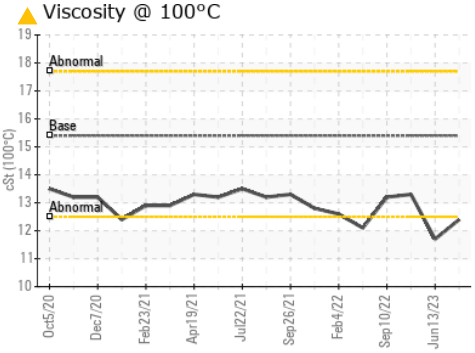
Ferrous Alloys



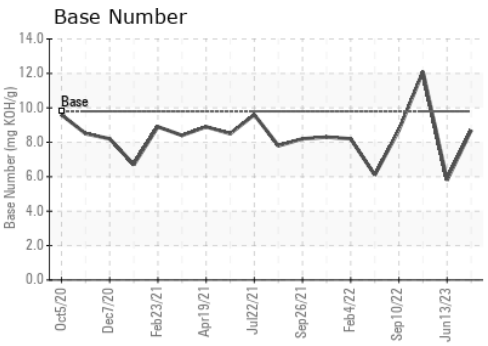
Non-ferrous Metals



Viscosity @ 100°C



Base Number



ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0068747 **Received** : 30 Jun 2023
Lab Number : 05887671 **Diagnosed** : 03 Jul 2023
Unique Number : 10538154 **Diagnostician** : Wes Davis
Test Package : FLEET (Additional Tests: PercentFuel)

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 - 073 - Warner Robbins - Transwaste
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Warner Robbins, GA
US 31093
Contact: JOSH MALONEY
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Report Id: GFL073 [WUSCAR] 05887671 (Generated: 07/03/2023 08:32:19) Rev: 1

Submitted By: JOSH MALONEY