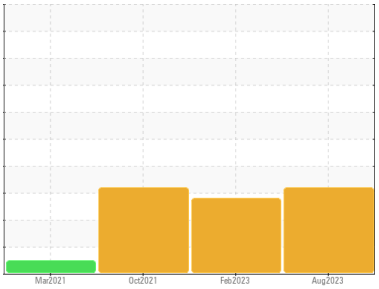
PROBLEM SUMMARY

Sample Rating Trend

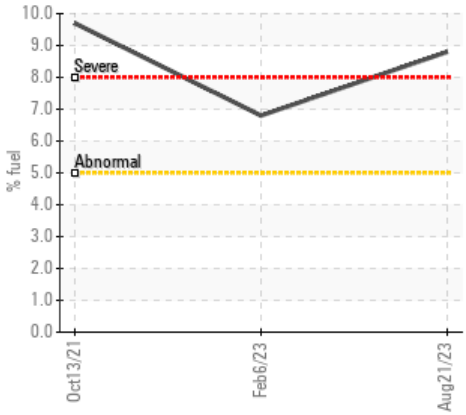


FUEL

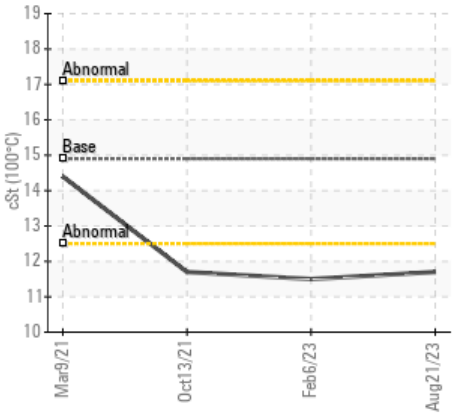
Machine Id
528011-940
Component
Diesel Engine
Fluid
CHEVRON DELO 400 XLE 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY

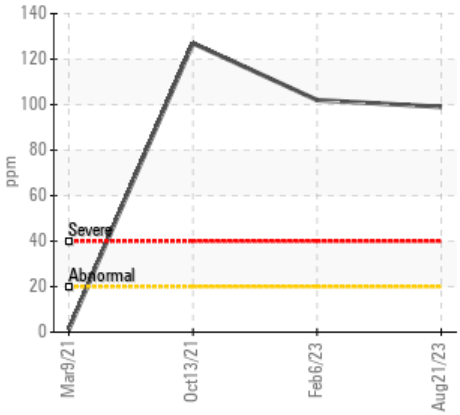
Fuel Dilution



Viscosity @ 100°C



Aluminum (ppm)



RECOMMENDATION

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	ABNORMAL	SEVERE
Aluminum	ppm	ASTM D5185m	>20	▲ **99**	▲ 102	▲ 127
Fuel	%	ASTM D3524	>5	⬢ **8.8**	▲ 6.8	⬢ 9.7
Visc @ 100°C	cSt	ASTM D445	14.9	▲ **11.7**	▲ 11.5	▲ 11.7

Customer Id: GFL629
Sample No.: GFL0084514
Lab Number: 05933149
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
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

06 Feb 2023 Diag: Don Baldridge

WEAR

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.Piston, ring and cylinder wear is indicated. 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

13 Oct 2021 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. We recommend an early resample to monitor this condition.The aluminum level is abnormal. Piston wear is indicated. There is a high 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. The oil is no longer serviceable due to the presence of contaminants.

view report

09 Mar 2021 Diag: Don Baldridge

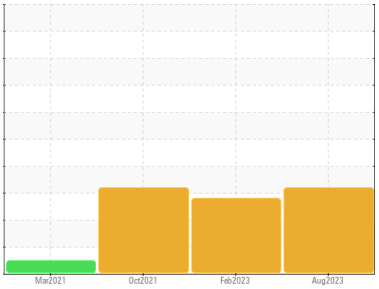
NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. Water present may be a result of cold sampling. 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
528011-940
Component
Diesel Engine
Fluid
CHEVRON DELO 400 XLE 15W40 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear
Aluminum ppm levels are abnormal. Piston wear is indicated.

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. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0084514**	GFL0064731	GFL0037079
Sample Date		Client Info		**21 Aug 2023**	06 Feb 2023	13 Oct 2021
Machine Age	hrs	Client Info		**4933**	4316	3160
Oil Age	hrs	Client Info		**617**	1156	2507
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**SEVERE**	ABNORMAL	SEVERE

CONTAMINATION	method	limit/base	current	history1	history2
Glycol	WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**147**	▲ 224	176
Chromium	ppm	ASTM D5185m	>20	**4**	5	6
Nickel	ppm	ASTM D5185m	>4	**0**	<1	0
Titanium	ppm	ASTM D5185m		**13**	5	12
Silver	ppm	ASTM D5185m	>3	**<1**	1	<1
Aluminum	ppm	ASTM D5185m	>20	▲ **99**	▲ 102	▲ 127
Lead	ppm	ASTM D5185m	>40	**5**	5	10
Copper	ppm	ASTM D5185m	>330	**4**	4	7
Tin	ppm	ASTM D5185m	>15	**<1**	1	2
Antimony	ppm	ASTM D5185m		**---**	---	<1
Vanadium	ppm	ASTM D5185m		**0**	<1	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**67**	92	50
Barium	ppm	ASTM D5185m		**2**	<1	0
Molybdenum	ppm	ASTM D5185m		**47**	85	44
Manganese	ppm	ASTM D5185m		**3**	3	3
Magnesium	ppm	ASTM D5185m		**650**	555	640
Calcium	ppm	ASTM D5185m		**1580**	1392	1353
Phosphorus	ppm	ASTM D5185m	760	**725**	614	627
Zinc	ppm	ASTM D5185m	830	**856**	763	788
Sulfur	ppm	ASTM D5185m	2770	**3165**	2799	2320

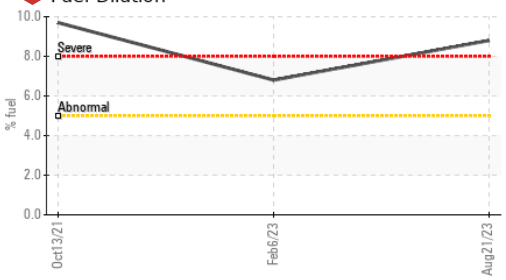
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**20**	17	23
Sodium	ppm	ASTM D5185m		**7**	10	12
Potassium	ppm	ASTM D5185m	>20	**4**	<1	<1
Fuel	%	ASTM D3524	>5	⬢ **8.8**	▲ 6.8	⬢ 9.7

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.6**	0.6	0.7
Nitration	Abs/cm	*ASTM D7624	>20	**11.1**	11.1	12.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	**21.8**	22.1	24.9

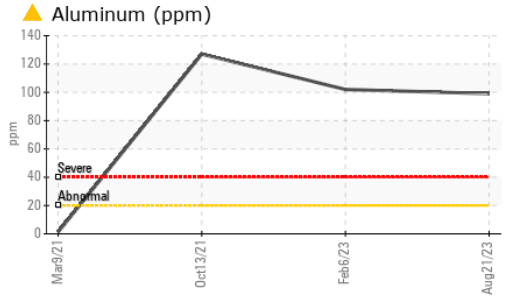
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**17.2**	17.7	21.1
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	**6.7**	7.7	6.1

OIL ANALYSIS REPORT

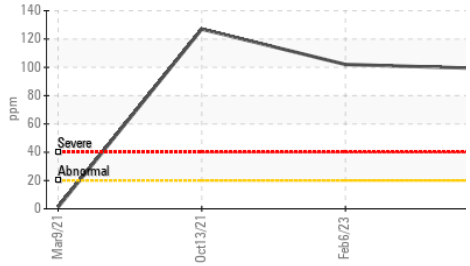
Fuel Dilution



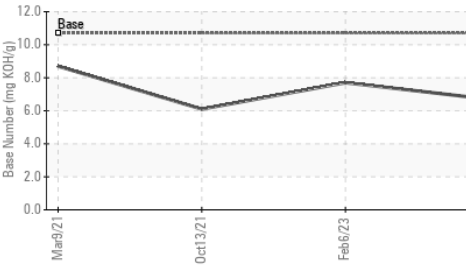
Aluminum (ppm)



Aluminum (ppm)



Base Number

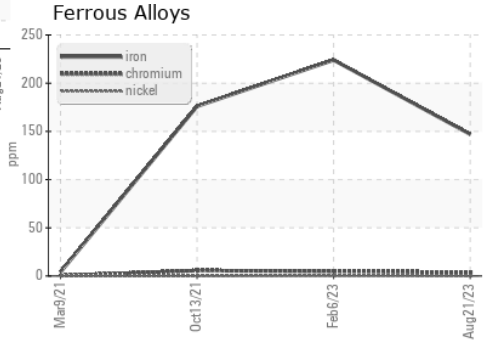


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

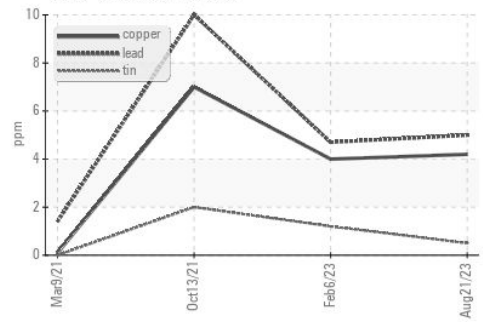
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.9	▲ **11.7**	▲ 11.5	▲ 11.7

GRAPHS

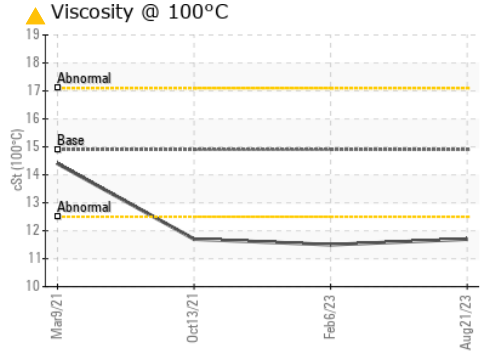
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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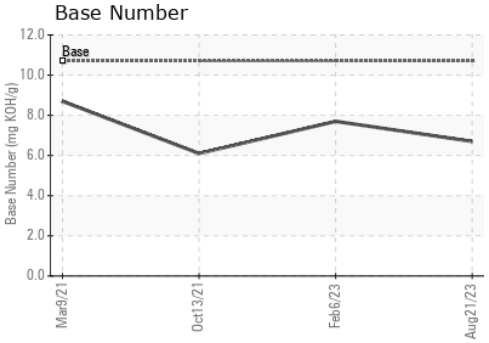

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0084514
Lab Number : 05933149
Unique Number : 10618420
Test Package : FLEET (Additional Tests: PercentFuel)

Received : 24 Aug 2023
Diagnosed : 25 Aug 2023
Diagnostician : Wes Davis

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 - 629 - Northern A1
3947 US 131 N
Kalkaska, MI
US 49646-8428
Contact: MITCH HERSHBERGER

T: (231)624-0848
F:

Report Id: GFL629 [WUSCAR] 05933149 (Generated: 08/25/2023 13:47:27) Rev: 1

Submitted By: Mitch Hershberger