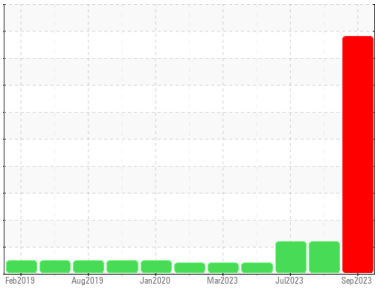
PROBLEM SUMMARY

Sample Rating Trend

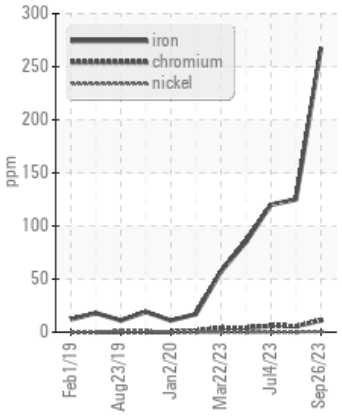


WEAR

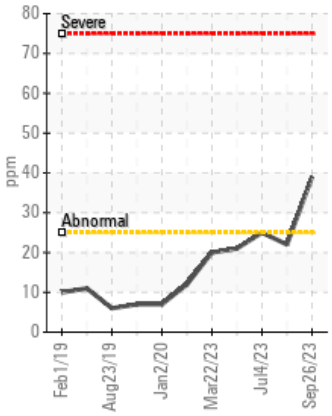
Machine Id
721024-361461
Component
Diesel Engine
Fluid
PETRO CANADA DURON SHP 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY

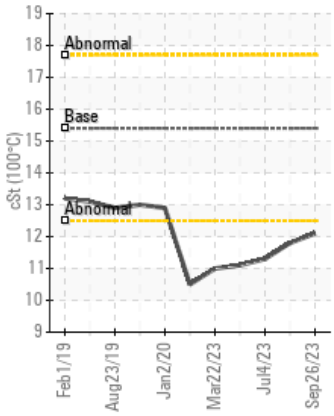
Ferrous Alloys



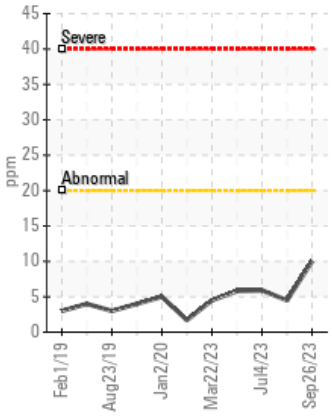
Silicon (ppm)



Viscosity @ 100°C



Aluminum (ppm)



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. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	ABNORMAL
Iron	ppm	ASTM D5185m	>100	**268**	125	120
Aluminum	ppm	ASTM D5185m	>20	**10**	4	6
Silicon	ppm	ASTM D5185m	>25	**39**	22	25
Visc @ 100°C	cSt	ASTM D445	15.4	**12.1**	11.8	11.3

Customer Id: GFL821
Sample No.: GFL0090178
Lab Number: 05970055
Test Package: FLEET

To manage this report scan the QR code

To discuss the diagnosis or test data:
Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

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

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Inspect Wear Source	MISSED	Oct 10 2023	?	We advise that you inspect for the source(s) of wear.
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	MISSED	Oct 10 2023	?	We recommend an early resample to monitor this condition.
Check Dirt Access	MISSED	Oct 10 2023	?	We advise that you check the air filter, air induction system, and any areas where dirt may enter the component.

HISTORICAL DIAGNOSIS

20 Jul 2023 Diag: Sean Felton

WEAR

No corrective action is recommended at this time. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.Cylinder, crank, or cam shaft wear is indicated. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

view report

04 Jul 2023 Diag: Doug Bogart

WEAR

No corrective action is recommended at this time. Resample at the next service interval to monitor.Cylinder, crank, or cam shaft wear is indicated. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

view report

10 May 2023 Diag: Don Baldridge

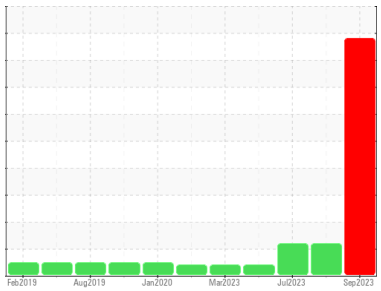
VISCOSITY

No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
721024-361461
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. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

Wear
Cylinder, crank, or cam shaft wear is indicated.

Contamination
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

Fluid Condition
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**GFL0090178**	GFL0076811	GFL0076779
Sample Date		Client Info		**26 Sep 2023**	20 Jul 2023	04 Jul 2023
Machine Age	hrs	Client Info		**6538**	5967	5854
Oil Age	hrs	Client Info		**600**	600	150
Oil Changed		Client Info		**Changed**	Changed	Not Changd
Sample Status				**SEVERE**	ABNORMAL	ABNORMAL

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	**268**	125	120
Chromium	ppm	ASTM D5185m	>20	**11**	6	6
Nickel	ppm	ASTM D5185m	>4	**<1**	0	0
Titanium	ppm	ASTM D5185m		**<1**	<1	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**10**	4	6
Lead	ppm	ASTM D5185m	>40	**18**	8	10
Copper	ppm	ASTM D5185m	>330	**24**	14	14
Tin	ppm	ASTM D5185m	>15	**10**	6	6
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	**8**	5	9
Barium	ppm	ASTM D5185m	0	**0**	0	0
Molybdenum	ppm	ASTM D5185m	60	**88**	63	65
Manganese	ppm	ASTM D5185m	0	**3**	2	2
Magnesium	ppm	ASTM D5185m	1010	**1302**	959	950
Calcium	ppm	ASTM D5185m	1070	**1543**	1198	1198
Phosphorus	ppm	ASTM D5185m	1150	**1369**	1027	1027
Zinc	ppm	ASTM D5185m	1270	**1767**	1256	1330
Sulfur	ppm	ASTM D5185m	2060	**3862**	3246	3440

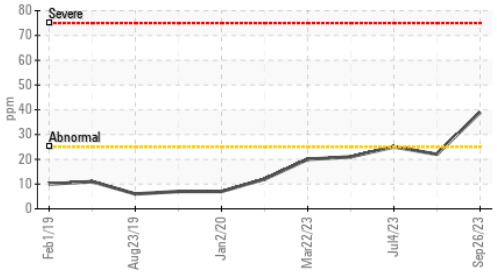
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**39**	22	25
Sodium	ppm	ASTM D5185m		**22**	16	12
Potassium	ppm	ASTM D5185m	>20	**6**	<1	3
Fuel	%	ASTM D3524	>5	**<1.0**	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**2.1**	1.3	1.2
Nitration	Abs/cm	*ASTM D7624	>20	**15.2**	12.8	13.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	**29.1**	24.8	24.2

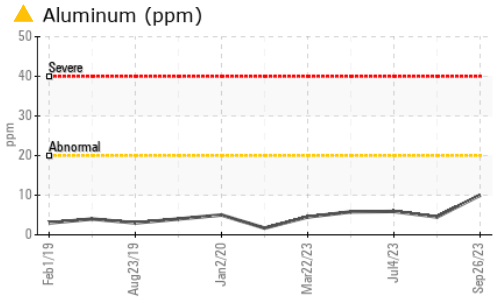
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**26.2**	21.8	21.2
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	**5.1**	6.6	6.9

OIL ANALYSIS REPORT

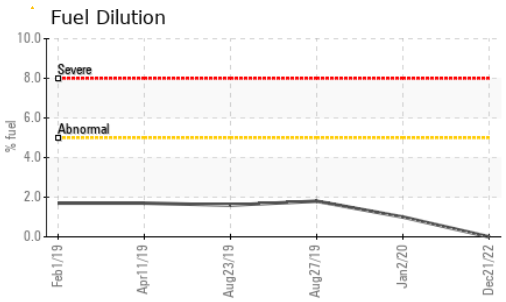
Silicon (ppm)



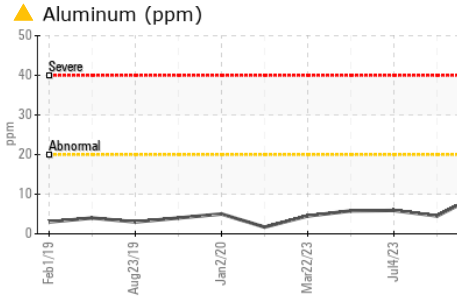
Aluminum (ppm)



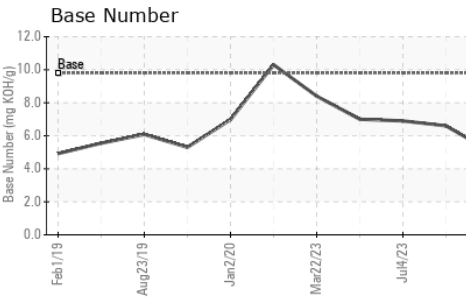
Fuel Dilution



Aluminum (ppm)



Base Number

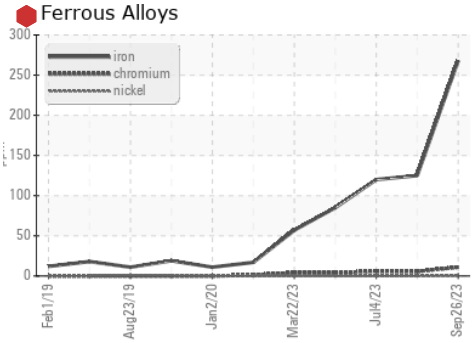


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

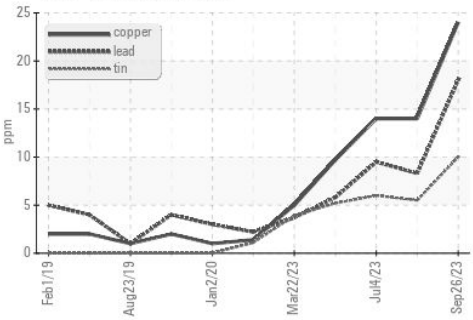
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	▲ **12.1**	▲ 11.8	▲ 11.3

GRAPHS

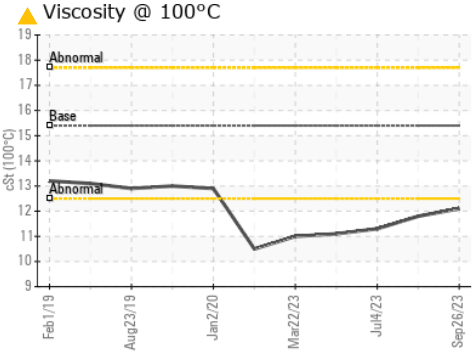
Ferrous Alloys



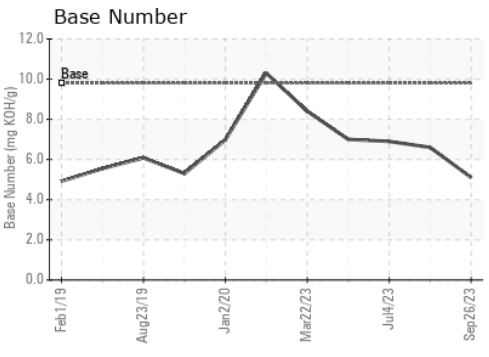
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : GFL0090178 **Received** : 05 Oct 2023
Lab Number : 05970055 **Diagnosed** : 05 Oct 2023
Unique Number : 10682005 **Diagnostician** : Jonathan Hester
Test Package : FLEET (Additional Tests: FuelDilution)

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)

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