

PROBLEM SUMMARY

Sample Rating Trend

FUEL



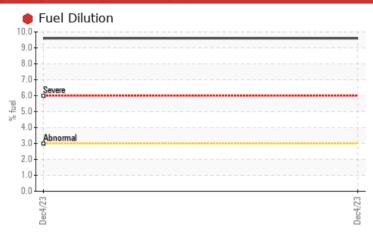


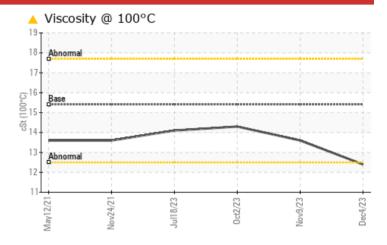
Machine Id 4709M Component

Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- GAL)

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	NORMAL	NORMAL		
Fuel	%	ASTM D3524	>3.0	9.6	<1.0	<1.0		
Visc @ 100°C	cSt	ΔSTM D445	15.4	<u> </u>	13.6	14.3		

Customer Id: GFL415 Sample No.: GFL0101484 Lab Number: 06026082 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 We recommend that you drain the oil from the component if this has not ? Change Fluid already been done. Resample ? We recommend an early resample to monitor this condition. Check Fuel/injector ? We advise that you check the fuel injection system. System

HISTORICAL DIAGNOSIS

09 Nov 2023 Diag: Wes Davis

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. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



02 Oct 2023 Diag: Wes Davis

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. 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

18 Jul 2023 Diag: Wes Davis

NORMAL



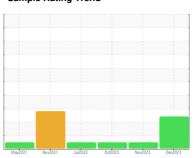
Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id
4709M
Component
Diesel Engine
Fluid

PETRO CANADA DURON SHP 15W40 (--- GAL

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.

N SHP 15W40 (- GAL)	May2021	Nov2021 Jul2023	Oct2023 Nov2023	Dec2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0101484	GFL0101587	GFL0093211
Sample Date		Client Info		04 Dec 2023	09 Nov 2023	02 Oct 2023
Machine Age	hrs	Client Info		12084	11918	11627
Oil Age	hrs	Client Info		11918	11627	11014
Oil Changed		Client Info		Not Changd	N/A	Changed
Sample Status				SEVERE	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	15	4	7
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>15	2	2	2
Lead	ppm	ASTM D5185m	>25	1	<1	<1
Copper	ppm	ASTM D5185m	>100	<1	<1	2
Tin	ppm	ASTM D5185m	>4	0	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 7	history1 <1	history2
	ppm	ASTM D5185m			•	
Boron		ASTM D5185m	0	7	<1	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	7 2	<1 <1	3
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	7 2 57	<1 <1 60	3 0 64
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	7 2 57 0	<1 <1 60 <1	3 0 64 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	7 2 57 0 861	<1 <1 60 <1 930	3 0 64 <1 989
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	7 2 57 0 861 1032	<1 <1 60 <1 930 1101	3 0 64 <1 989 1094
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	7 2 57 0 861 1032 901	<1 <1 60 <1 930 1101 1039	3 0 64 <1 989 1094 1074
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	7 2 57 0 861 1032 901 1133	<1 <1 60 <1 930 1101 1039 1230	3 0 64 <1 989 1094 1074 1304
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	7 2 57 0 861 1032 901 1133 2918	<1 <1 60 <1 930 1101 1039 1230 3142	3 0 64 <1 989 1094 1074 1304 3249
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	7 2 57 0 861 1032 901 1133 2918	<1 <1 60 <1 930 1101 1039 1230 3142 history1	3 0 64 <1 989 1094 1074 1304 3249 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Iimit/base	7 2 57 0 861 1032 901 1133 2918 current	<1 <1 60 <1 930 1101 1039 1230 3142 history1 5	3 0 64 <1 989 1094 1074 1304 3249 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 Iimit/base	7 2 57 0 861 1032 901 1133 2918 current 4	<1 <1 60 <1 930 1101 1039 1230 3142 history1 5	3 0 64 <1 989 1094 1074 1304 3249 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	7 2 57 0 861 1032 901 1133 2918 current 4 18 4	<1 <1 60 <1 930 1101 1039 1230 3142 history1 5 0 3	3 0 64 <1 989 1094 1074 1304 3249 history2 3 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	7 2 57 0 861 1032 901 1133 2918 current 4 18 4	<1 <1 60 <1 930 1101 1039 1230 3142 history1 5 0 3 <1.0	3 0 64 <1 989 1094 1074 1304 3249 history2 3 2 1 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	7 2 57 0 861 1032 901 1133 2918 current 4 18 4 9.6 current	<1 <1 60 <1 930 1101 1039 1230 3142 history1 5 0 3 <1.0 history1	3 0 64 <1 989 1094 1074 1304 3249 history2 3 2 1 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 >3.0	7 2 57 0 861 1032 901 1133 2918 current 4 18 4 9.6 current 0.3	<1 <1 60 <1 930 1101 1039 1230 3142 history1 5 0 3 <1.0 history1 0.1	3 0 64 <1 989 1094 1074 1304 3249 history2 3 2 1 <1.0 history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 60 0 1010 1150 1270 2060 limit/base >25 >20 >3.0 limit/base	7 2 57 0 861 1032 901 1133 2918 current 4 18 4 9.6 current 0.3 11.4	<1 <1 60 <1 930 1101 1039 1230 3142 history1 5 0 3 <1.0 history1 0.1 6.8	3 0 64 <1 989 1094 1074 1304 3249 history2 3 2 1 <1.0 history2 0.1 8.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6 >20 >30	7 2 57 0 861 1032 901 1133 2918 current 4 18 4 9.6 current 0.3 11.4 21.7	<1 <1 60 <1 930 1101 1039 1230 3142 history1 5 0 3 <1.0 history1 0.1 6.8 19.0	3 0 64 <1 989 1094 1074 1304 3249 history2 3 2 1 <1.0 history2 0.1 8.0 20.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0 limit/base >6 >20 >30 limit/base	7 2 57 0 861 1032 901 1133 2918 current 4 18 4 9.6 current 0.3 11.4 21.7 current	<1 <1 60 <1 930 1101 1039 1230 3142 history1 5 0 3 <1.0 history1 0.1 6.8 19.0 history1	3 0 64 <1 989 1094 1074 1304 3249 history2 3 2 1 <1.0 history2 0.1 8.0 20.3 history2

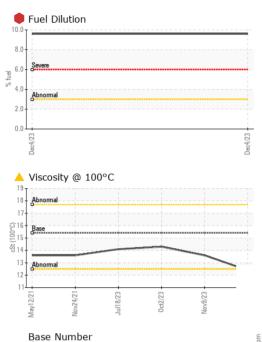


10.0

(mg KOH/g)

Base 0.0

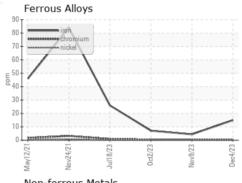
OIL ANALYSIS REPORT



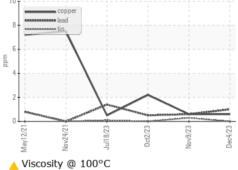
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

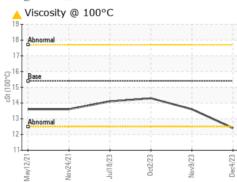
FLUID PROP	ERITES	method	ilmivbase	current	nistory i	nistoryz
Visc @ 100°C	cSt	ASTM D445	15.4	12.4	13.6	14.3

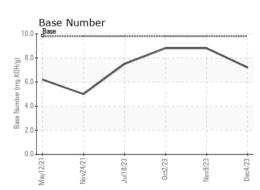
GRAPHS



	Non-ferrous Me	tais
10-		
	anner 1	
	copper	











Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10775873

: GFL0101484

: 06026082

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 06 Dec 2023 Diagnosed : 12 Dec 2023 Diagnostician : Wes Davis

Test Package: FLEET (Additional Tests: FuelDilution, 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 - 415 - Michigan East

6200 Elmridge Sterling Heights, MI US 48313 Contact: Frank Wolak fwolak@gflenv.com T: (586)825-9514

Report Id: GFL415 [WUSCAR] 06026082 (Generated: 12/12/2023 21:23:51) Rev: 1

Submitted By: Frank Wolak