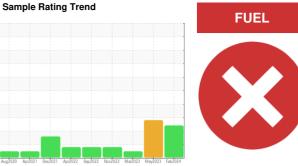


OIL ANALYSIS REPORT





Machine Id **727004** Component **Diesel Engine**

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.

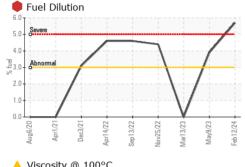
Fluid Condition

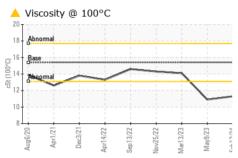
Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

		Aug2020 Ap	r2021 Dec2021 Apr2022 S	Sep2022 Nov2022 Mar2023 May20		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0102848	GFL0082564	GFL0071297
Sample Date		Client Info		12 Feb 2024	09 May 2023	13 Mar 2023
Machine Age	hrs	Client Info		0	38250	38038
Oil Age	hrs	Client Info		0	0	546
Oil Changed		Client Info	N/A		N/A	N/A
Sample Status				SEVERE	ABNORMAL	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 D5185(m)	>120	16	8	16
Chromium	ppm	ASTM D5185(m)	>20	<1	0	<1
Nickel	ppm	ASTM D5185(m)	>5	<1	<1	<1
Titanium	ppm	ASTM D5185(m)	>2	0	<1	0
Silver	ppm	ASTM D5185(m)	>2	0	0	0
Aluminum	ppm	ASTM D5185(m)	>20	2	1	2
_ead	ppm	ASTM D5185(m)	>40	2	<1	3
Copper	ppm	ASTM D5185(m)	>330	3	<1	2
 Γin	ppm	ASTM D5185(m)	>15	0	0	<1
Antimony	ppm	ASTM D5185(m)		0	0	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
		method	limit/base	current	history1	history2
ADDITIVES		mounou				
	ppm	ASTM D5185(m)	0	31	4 1	4
Boron	ppm			31 0	▲ 41 0	4 0
Boron Barium		ASTM D5185(m)	0			
Boron Barium Molybdenum	ppm	ASTM D5185(m) ASTM D5185(m)	0	0	0	0
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60	0 38	0 40	0 53
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	0 0 60 0	0 38 0	0 40 <1 • 492	0 53 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185(m)	0 0 60 0 1010	0 38 0 460 1597	0 40 <1	0 53 <1 890
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 60 0 1010 1070	0 38 0 460 1597 675	0 40 <1 ▲ 492 ▲ 1643 803	0 53 <1 890 1060 1027
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270	0 38 0 460 1597 675 782	0 40 <1 ▲ 492 ▲ 1643 803 ▲ 851	0 53 <1 890 1060 1027 1108
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 60 0 1010 1070 1150	0 38 0 460 1597 675	0 40 <1 ▲ 492 ▲ 1643 803	0 53 <1 890 1060 1027
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270	0 38 0 460 1597 675 782 1944	0 40 <1 ▲ 492 ▲ 1643 803 ▲ 851 2147	0 53 <1 890 1060 1027 1108 2416
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270 2060	0 38 0 460 1597 675 782 1944	0 40 <1 ▲ 492 ▲ 1643 803 ▲ 851 2147 <1	0 53 <1 890 1060 1027 1108 2416 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270 2060	0 38 0 460 1597 675 782 1944 <1	0 40 <1 ▲ 492 ▲ 1643 803 ▲ 851 2147 <1	0 53 <1 890 1060 1027 1108 2416 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) method ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270 2060	0 38 0 460 1597 675 782 1944 <1 current	0 40 <1 ▲ 492 ▲ 1643 803 ▲ 851 2147 <1 history1	0 53 <1 890 1060 1027 1108 2416 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270 2060	0 38 0 460 1597 675 782 1944 <1 current 3	0 40 <1 ▲ 492 ▲ 1643 803 ▲ 851 2147 <1 history1 4	0 53 <1 890 1060 1027 1108 2416 <1 history2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270 2060	0 38 0 460 1597 675 782 1944 <1 current 3 2 <1	0 40 <1 ▲ 492 ▲ 1643 803 ▲ 851 2147 <1 history1 4 2 0	0 53 <1 890 1060 1027 1108 2416 <1 history2 2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm	ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	0 38 0 460 1597 675 782 1944 <1 current 3 2 <1 • 5.7	0 40 <1 ▲ 492 ▲ 1643 803 ▲ 851 2147 <1 history1 4 2 0 ▲ 3.9	0 53 <1 890 1060 1027 1108 2416 <1 history2 2 1 <1 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185(m)	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 >3.0	0 38 0 460 1597 675 782 1944 <1 current 3 2 <1 5.7 current	0 40 <1 ▲ 492 ▲ 1643 803 ▲ 851 2147 <1 history1 4 2 0 ▲ 3.9	0 53 <1 890 1060 1027 1108 2416 <1 history2 2 1 <1 <1.0 history2



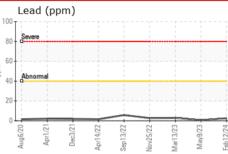
OIL ANALYSIS REPORT

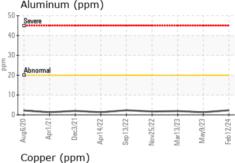


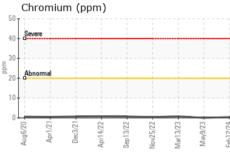


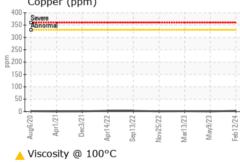
FLUID DEGRAD	ATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	21.5	18.3	7.7
VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPER	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	<u> </u>	△ 10.9	14.1
GRAPHS						

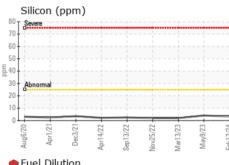
300 T	(pp	111)						
250 Severe								
200								
150 Abnor	mal							
100								
50								
50				-				
20 1	21-	21+	22+	22	22	23+	23	24
Aug6/20	Apr1)	Dec3	Apr14/2:	Sep13/	Nov25/	Mar13/	May9/23	Feb12/24
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Alun	ninui	m (p	om)					

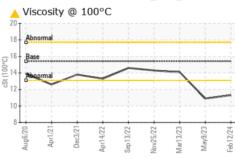


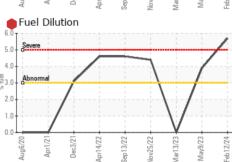














CALA ISO 17025:2017

Laboratory Sample No.

: GFL0102848 Lab Number : 02615242 Unique Number : 5724337

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 246 - Windsor Received

Tested Diagnosed

: 13 Feb 2024 : 14 Feb 2024

: 14 Feb 2024 - Wes Davis

Test Package: MOB 1 (Additional Tests: FuelDilution, PercentFuel)

2700 Deziel Dr Windsor, ON CA N8W 5H8 Contact: Dave Varga dvarga@gflenv.com T: (519)944-8009

Accredited Laboratory

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.