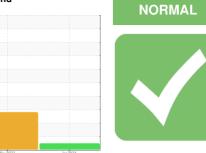


OIL ANALYSIS REPORT

Sample Rating Trend



(BD49682) 913185

DIAGNOSIS

Wear

oil.

Component **Diesel Engine** Fluid

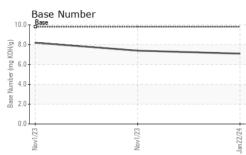
PETRO CANADA DURON SHP 15W40 (9 GAL)

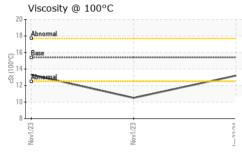
Sa Recommendation Resample at the next service interval to monitor. Sa Ma All component wear rates are normal. Oi Oi Contamination Sa There is no indication of any contamination in the Fluid Condition Fι The BN result indicates that there is suitable W alkalinity remaining in the oil. The condition of the oil is suitable for further service. Gl Iro Cł Ni Tit Si Al Le Сс Ti Va Ca Bo Ba

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0104528	GFL0041814	GFL0104538
Sample Date		Client Info		22 Jan 2024	01 Nov 2023	01 Nov 2023
Machine Age	hrs	Client Info		0	0	0
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	0.4	<1.0
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	>120	16	48	10
Chromium	ppm	ASTM D5185m	>20	<1	1	<1
Nickel	ppm	ASTM D5185m	>5	4	1 0	2
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	1
Aluminum	ppm	ASTM D5185m	>20	2	4	1
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	20	210	37
Tin	ppm	ASTM D5185m	>15	1	4	1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 3	history1 128	history2 12
	ppm ppm		0		· · · · · · · · · · · · · · · · · · ·	
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	3 0 63	128	12
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	3 0	128 0	12 0 65 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	3 0 63	128 0 111 4 734	12 0 65 <1 933
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	3 0 63 <1	128 0 111 4	12 0 65 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	3 0 63 <1 926 1094 1036	128 0 1111 4 734 1376 762	12 0 65 <1 933 1043 1072
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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 1270	3 0 63 <1 926 1094 1036 1218	128 0 1111 4 734 1376 762 896	12 0 65 <1 933 1043 1072 1218
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	0 0 60 0 1010 1070 1150	3 0 63 <1 926 1094 1036	128 0 1111 4 734 1376 762	12 0 65 <1 933 1043 1072
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	0 0 60 0 1010 1070 1150 1270	3 0 63 <1 926 1094 1036 1218	128 0 1111 4 734 1376 762 896	12 0 65 <1 933 1043 1072 1218
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 1010 1070 1150 1270 2060	3 0 63 <1 926 1094 1036 1218 2720	128 0 1111 4 734 1376 762 896 2177	12 0 65 <1 933 1043 1072 1218 2911
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	3 0 63 <1 926 1094 1036 1218 2720 current	128 0 111 4 734 1376 762 896 2177 history1	12 0 65 <1 933 1043 1072 1218 2911 history2 11 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	3 0 63 <1 926 1094 1036 1218 2720 current 5	128 0 1111 4 734 1376 762 896 2177 history1 ▲ 86	12 0 65 <1 933 1043 1072 1218 2911 history2 11
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 kimit/base	3 0 63 <1 926 1094 1036 1218 2720 current 5 2	128 0 1111 4 734 1376 762 896 2177 history1 ▲ 86 2	12 0 65 <1 933 1043 1072 1218 2911 history2 11 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	3 0 63 <1 926 1094 1036 1218 2720 current 5 2 2 2	128 0 1111 4 734 1376 762 896 2177 history1 ▲ 86 2 5	12 0 65 <1 933 1043 1072 1218 2911 history2 11 1 1 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25	3 0 63 <1 926 1094 1036 1218 2720 current 5 2 2 2 2	128 0 1111 4 734 1376 762 896 2177 history1 86 2 5 5	12 0 65 <1 933 1043 1072 1218 2911 history2 11 1 1 1 1 1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	3 0 63 <1 926 1094 1036 1218 2720 current 5 2 2 2 2 current 0.5	128 0 1111 4 734 1376 762 896 2177 history1 ▲ 86 2 5 5 history1 0.6	12 0 65 <1 933 1043 1072 1218 2911 history2 11 1 1 1 1 1 1 1 1 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	3 0 63 <1 926 1094 1036 1218 2720 current 5 2 2 2 current 0.5 8.2	128 0 1111 4 734 1376 762 896 2177 history1 ▲ 86 2 5 <u>history1</u> 0.6 10.7	12 0 65 <1 933 1043 1072 1218 2911 history2 11 1 1 1 1 history2 0.3 6.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm t ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >20 imit/base >4 >20	3 0 63 <1 926 1094 1036 1218 2720 current 5 2 2 2 2 current 0.5 8.2 19.5	128 0 1111 4 734 1376 762 896 2177 history1 ▲ 86 2 5 5 history1 0.6 10.7 24.0	12 0 65 <1 933 1043 1072 1218 2911 history2 11 1 1 1 history2 0.3 6.9 19.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAI	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 /////////////////////////////////	3 0 63 <1 926 1094 1036 1218 2720 current 5 2 2 2 current 0.5 8.2 19.5 current	128 0 1111 4 734 1376 762 896 2177 history1 ▲ 86 2 5 history1 0.6 10.7 24.0	12 0 65 <1 933 1043 1072 1218 2911 history2 11 1 1 1 history2 0.3 6.9 19.3 history2



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 PROPE		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.2	0.5	13.3
GRAPHS						
Ferrous Alloys						
iron						
0 - nickel	1					
•						
0 -	1					
and a state of the	Name of the Owner of Concession of Concession of Concession, Name					
0						
/23	/23		2/24			
Nov1/23	Nov1/23		Jan 22/24			
Non-ferrous Metal			Jan22/24			
Non-ferrous Metal			Jan22/24			
Non-ferrous Metal			Jan 22/24			
Non-ferrous Metals			Jan22/24			
Non-ferrous Metal			Jan22/24			
Non-ferrous Metals			Jan22/24			
Non-ferrous Metal			Jan2224			
Non-ferrous Metal			Jan2224			
Non-ferrous Metal	s		Jan2224			
Non-ferrous Metal	s					
Non-ferrous Metal	S		Jan22/24 Jan22/24			
Non-ferrous Metal	S		Jan22/24	Base Number	r	
Non-ferrous Metal	S			D.	r	
Non-ferrous Metal	S		Han 2007	Base Number	r	
Non-ferrous Metal	S		Han 2007	Base		
Non-ferrous Metal	S		Han 2007	Base	r	
Non-ferrous Metal	S		Han 2007	Base		
Non-ferrous Metal	S		Han 2007	Base		
Non-ferrous Metal	S		0.01 pec (umg KOH(0)	Base	r	
Non-ferrous Metal	S		10.0 (0,HQ) bul see 8.0 (0,HQ) b	Base	r	
Non-ferrous Metal	S		10.0 ase Number (mg KOH(g) 4.0	Base	Nov1/23	



Unique Number : 10939628 Diagnosed : 25 Mar 2024 - Don Baldridge Test Package : FLEET Contact: Jim Smith Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jim.smith@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (906)635-3380 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Received

Tested

: 21 Mar 2024

: 22 Mar 2024

Laboratory

Sample No. : GFL0104528

Lab Number : 06125477

GFL Environmental - 461 - Smith Hauling

3239 W. M 28

Brimley, MI

US 49715

F: