

OIL ANALYSIS REPORT

Sample Rating Trend



Area **TALLASSEE** Machine Id **921070** Component

Diesel Engine

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

DIAGNOSIS	

Recommendation

Resample at the next service interval to monitor.

Fluid

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

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

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0079708	GFL0092422	GFL0086019
Sample Date		Client Info		09 Nov 2023	16 Oct 2023	22 Aug 2023
Machine Age	hrs	Client Info		6770	147679	6207
Oil Age	hrs	Client Info		6770	0	34
Oil Changed		Client Info		N/A	Not Changd	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	26	23	2
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>5	<1	1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	4	4	0
Lead	ppm	ASTM D5185m	>40	5	6	<1
Copper	ppm	ASTM D5185m	>330	3	2	0
Tin	ppm	ASTM D5185m	>15	1	2	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0
		and the second			1 C	history 0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	current 7	history1 11	49
	ppm ppm					
Boron		ASTM D5185m	0	7	11	49
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	7 0	11 0	49 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	7 0 58	11 0 63	49 0 60
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	7 0 58 <1	11 0 63 <1	49 0 60 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	7 0 58 <1 846	11 0 63 <1 896	49 0 60 0 968
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	7 0 58 <1 846 1049	11 0 63 <1 896 1100	49 0 60 0 968 1204
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	7 0 58 <1 846 1049 875	11 0 63 <1 896 1100 887	49 0 60 0 968 1204 987
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	7 0 58 <1 846 1049 875 1113	11 0 63 <1 896 1100 887 1214	49 0 60 0 968 1204 987 1241
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	0 0 60 0 1010 1070 1150 1270 2060	7 0 58 <1 846 1049 875 1113 2143	11 0 63 <1 896 1100 887 1214 2434	49 0 60 968 1204 987 1241 3838
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 ASTM D5185m ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	7 0 58 <1 846 1049 875 1113 2143 current	11 0 63 <1 896 1100 887 1214 2434 history1	49 0 60 968 1204 987 1241 3838 history2
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 method	0 0 60 1010 1070 1150 1270 2060 kimit/base >25	7 0 58 <1 846 1049 875 1113 2143 current 12	11 0 63 <1 896 1100 887 1214 2434 history1 12	49 0 60 968 1204 987 1241 3838 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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	7 0 58 <1 846 1049 875 1113 2143 <u>current</u> 12 10	11 0 63 <1 896 1100 887 1214 2434 history1 12 7	49 0 60 968 1204 987 1241 3838 history2 5 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	7 0 58 <1 846 1049 875 1113 2143 <u>current</u> 12 10 4	11 0 63 <1 896 1100 887 1214 2434 history1 12 7 4	49 0 60 0 968 1204 987 1241 3838 history2 5 1 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 Iinit/base >25	7 0 58 <1 846 1049 875 1113 2143 current 12 10 4 x	11 0 63 <1 896 1100 887 1214 2434 history1 12 7 4 kistory1	49 0 60 968 1204 987 1241 3838 history2 5 1 2 <i>h</i> istory2
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 2060 225 >25 >20 1imit/base >20	7 0 58 <1 846 1049 875 1113 2143 <u>current</u> 12 10 4 <u>current</u>	11 0 63 <1 896 1100 887 1214 2434 history1 12 7 4 history1 0.7	49 0 60 968 1204 987 1241 3838 history2 5 1 2 5 1 2 <i>history2</i> 0.2
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 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	7 0 58 <1 846 1049 875 1113 2143 <i>current</i> 12 10 4 <i>current</i> 0.8 10.1	11 0 63 <1 896 1100 887 1214 2434 history1 12 7 4 history1 0.7 9.6	49 0 60 968 1204 987 1241 3838 history2 5 1 2 5 1 2 <i>history2</i> 0.2 5.4
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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >4 >20	7 0 58 <1 846 1049 875 1113 2143 <u>current</u> 12 10 4 <u>current</u> 0.8 10.1 23.6	11 0 63 <1 896 1100 887 1214 2434 history1 12 7 4 history1 0.7 9.6 22.5	49 0 60 968 1204 987 1241 3838 history2 5 1 2 5 1 2 2 history2 0.2 5.4 17.4
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 ppm TS ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 2260 225 220 220 imit/base >4 >20 >30 imit/base	7 0 58 <1 846 1049 875 1113 2143 <i>current</i> 12 10 4 <i>current</i> 0.8 10.1 23.6 <i>current</i>	11 0 63 <1 896 1100 887 1214 2434 history1 12 7 4 history1 0.7 9.6 22.5 history1	49 0 60 968 1204 987 1241 3838 history2 5 1 2 5 1 2 5 1 2 0.2 5.4 1 7.4 history2



13 Abnormal

12 11

Jan12/23

Apr14/23

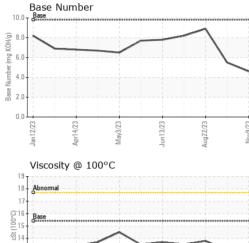
OIL ANALYSIS REPORT

scalar

*Visual

VISUAL

White Metal



Mav3/23

Jun13/23

- \	wille weta	Scalai	visuai	NONL	NONE	NONL	NONL
\sim	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		*Visual	NONE	NONE	NONE	NONE
23 -				NORML		NORML	NORML
Aug22/23 Nov9/23	Appearance	scalar	*Visual		NORML		
Au	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	ERTIES	method	limit/base	current	history1	history
	Visc @ 100°C	cSt	ASTM D445	15.4	12.5	13.0	13.8
\sim	GRAPHS						
	Ferrous Alloys						
1/23	25 - iron			1			
Aug22/23	20 nickel	1	1				
	§ 15		1				
	10		~ 1				
	5- / /	\sim	\sim				
	O	-	V				
		/23-	/23 -	/23			
	Jan 1 2/23 Apr1 4/23	May3/23 Jun13/23	Aug22/23	Nov9/23			
		-	A				
	Non-ferrous Met	ais					
	copper						
	200 - tin						
	150						
Ē	100						
	50						
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	3 3	/23 -	/23	/23			
	Jan 1 2/23 Apr1 4/23	May3/23 Jun13/23	Aug22/23	Nov9/23			
	Viscosity @ 100		A		Raco Number	-	
	¹⁹ T			10.0	Base Number		
	18 - Abnormal						1
				0.6 (mg kOH/d)			\setminus
	Base			<u> </u>	• • • • • • • • • • • • • • • • • • • •		
	316 Base 115 13 14	~		-a 			
		-		1 4.0 N			
	13 - Abnormal			2.0			
	12-						
	11	m m	~				~
	Jan 1 2/23 Apr1 4/23	May3/23 Jun13/23	Aug22/23	Nov9/23	Jan 1 2/23 Apr 1 4/23	May3/23 Jun13/23	Aug22/23
	Apr	Manul	Aug	No	Apr	Ma	Aug
oratory	: WearCheck USA	- 501 Madie		ny NC 2751	3 GEI Environ	mental - 172 - Montgomery-A	Verander City-Tallah
nple No.	: GFL0079708	Received		Nov 2023		inicitai - 172 - Woltgoniel y-A	Multiple Si
Number	: 06008962	Diagnose		Nov 2023		N	lontgomery,
ue Number	: 10742724	Diagnosti		s Davis		Ĩv	US 361
t Package	· FI FFT	2.49.1030				Contact: BICHA	

NONE

NONE

NONE

NONE



Test Package : FLEET Certificate L2367 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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