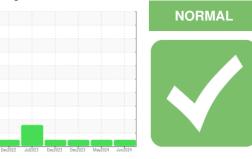


# **OIL ANALYSIS REPORT**

Sample Rating Trend



928035 Component Diesel Engine Fluid

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

SAMPLE INFORMATION method

## DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Machine Id

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

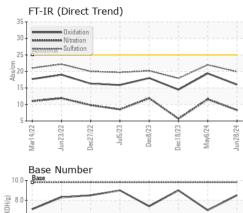
### Fluid Condition

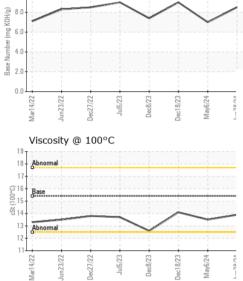
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

O a marcha Nhamaha an				0510405440		
Sample Number		Client Info		GFL0125446	GFL0116149	GFL0104581
Sample Date	la un	Client Info		28 Jun 2024	06 May 2024	18 Dec 2023
Machine Age	hrs	Client Info		35897	35681	35049
Oil Age	hrs	Client Info		216 Ohannad	596	501
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<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	11	23	3
Chromium	ppm	ASTM D5185m	>20	<1	<1	0
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	3	3	<1
Lead	ppm	ASTM D5185m	>40	<1	1	0
Copper	ppm	ASTM D5185m	>330	1	2	<1
Tin	ppm	ASTM D5185m	>15	<1	1	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		<1	<1	0
ADDITIVES		method				history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 2	history1 1	history2 1
	ppm ppm		0			
Boron		ASTM D5185m	0	2	1	1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	2 <1	1 2	1 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 <1 63	1 2 65	1 0 54
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 <1 63 <1	1 2 65 <1	1 0 54 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	2 <1 63 <1 923	1 2 65 <1 937	1 0 54 0 935
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	2 <1 63 <1 923 1078	1 2 65 <1 937 1081	1 0 54 0 935 1061
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	2 <1 63 <1 923 1078 969	1 2 65 <1 937 1081 1080	1 0 54 0 935 1061 952
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	2 <1 63 <1 923 1078 969 1176	1 2 65 <1 937 1081 1080 1214	1 0 54 0 935 1061 952 1191
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	2 <1 63 <1 923 1078 969 1176 2608	1 2 65 <1 937 1081 1080 1214 3131	1 0 54 0 935 1061 952 1191 2873
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 0 1010 1070 1150 1270 2060	2 <1 63 <1 923 1078 969 1176 2608 current	1 2 65 <1 937 1081 1080 1214 3131 history1	1 0 54 0 935 1061 952 1191 2873 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 <b>method</b>	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	2 <1 63 <1 923 1078 969 1176 2608 <i>current</i> 5	1 2 65 <1 937 1081 1080 1214 3131 history1 7	1 0 54 0 935 1061 952 1191 2873 history2 4
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 ASTM D5185m <b>method</b> ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 <b>limit/base</b>	2 <1 63 <1 923 1078 969 1176 2608 current 5 3	1 2 65 <1 937 1081 1080 1214 3131 history1 7 2	1 0 54 0 935 1061 952 1191 2873 history2 4 2
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 60 0 1010 1070 1150 1270 2060 <b>limit/base</b> >25 >20	2 <1 63 <1 923 1078 969 1176 2608 <u>current</u> 5 3 3	1 2 65 <1 937 1081 1080 1214 3131 history1 7 2 4	1 0 54 0 935 1061 952 1191 2873 history2 4 2 0
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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20	2 <1 63 <1 923 1078 969 1176 2608 <i>current</i> 5 3 3 3 <i>current</i>	1 2 65 <1 937 1081 1080 1214 3131 history1 7 2 4 4 history1	1 0 54 0 935 1061 952 1191 2873 history2 4 2 0 bistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	2 <1 63 <1 923 1078 969 1176 2608 <i>current</i> 5 3 3 3 <i>current</i> 0.4	1 2 65 <1 937 1081 1080 1214 3131 history1 7 2 4 4 history1 0.7	1 0 54 0 935 1061 952 1191 2873 history2 4 2 0 history2 0.2
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 2060 225 20 225 20 20 20 20 20 20 20 20 20 20 20 20 20	2 <1 63 <1 923 1078 969 1176 2608 <i>current</i> 5 3 3 3 <i>current</i> 0.4 8.3 19.9	1 2 65 <1 937 1081 1080 1214 3131 history1 7 2 4 history1 0.7 11.6 22.0	1 0 54 0 935 1061 952 1191 2873 <b>history2</b> 4 2 0 <b>history2</b> 0.2 5.7 17.9
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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 220 220 220 220 230 20 20 20 20 20 20 20 20 20 20 20 20 20	2 <1 63 <1 923 1078 969 1176 2608 <i>current</i> 5 3 3 3 <i>current</i> 0.4 8.3 19.9 <i>current</i>	1 2 65 <1 937 1081 1080 1214 3131 history1 7 2 4 history1 0.7 11.6 22.0 history1	1 0 54 0 935 1061 952 1191 2873 history2 4 2 2 0 history2 0.2 5.7 17.9 history2
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 2060 225 20 225 20 20 20 20 20 20 20 20 20 20 20 20 20	2 <1 63 <1 923 1078 969 1176 2608 <i>current</i> 5 3 3 3 <i>current</i> 0.4 8.3 19.9	1 2 65 <1 937 1081 1080 1214 3131 history1 7 2 4 history1 0.7 11.6 22.0	1 0 54 0 935 1061 952 1191 2873 <b>history2</b> 4 2 0 <b>history2</b> 0.2 5.7 17.9



# **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
- CHANNES	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
a/	Appearance Odor	scalar scalar	*Visual *Visual	NORML NORML	NORML	NORML NORML	NORML NORML
7	Emulsified Water	scalar	*Visual	>0.2	NORML NEG	NEG	NEG
	Free Water	scalar	*Visual	~V.2	NEG	NEG	NEG
/	FLUID PROPER	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.9	13.5	14.1
	GRAPHS						
2	Ferrous Alloys						
2 2 2	o - iron iron chromium	~	Λ				
1	IIICKEI	/ \					
mqq			/ /	$\backslash$			
10	0		$\backslash /$				
	5-		V				
				000000000			
-	Mar14/22 Jun23/22 Dec27/22 Jul5/23	Dec8/23	Dec18/23 - May6/24 -	Jun28/24			
	≤ ⊰ ă Non-ferrous Metals			Ϋ́			
τς 10 ας	T						
	8 - Copper						
mqq	D						
	4						
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(			52 52	54			
	Mar14/22 Jun23/22 Dec27/22 Jul5/23	Dec8/23	Dec18/23 May6/24	Jun28/24			
1	Viscosity @ 100°C				Base Number		
18				10.0	Base	~	~
1	7-			(B/H		$\sim$	$\sim$
() 0	Base			6.0 1.0 kOH(d) 4.1	D -		
11 cSt (100°C)	5-			nber (r			
را د. ۱:			$\sim$	MnV as	U +		
1	Abnormai	$\sim$		<u>2.</u>	D -		
1							
	Mar14/22 Jun23/22 Dec27/22 Jul5/23	Dec8/23	Dec18/23 - May6/24 -	Jun28/24	Mar14/22 Jun23/22 Dec27/22	Jul5/23 Dec8/23	Dec18/23 May6/24
	Jun Dec	De	Dec	Jun	Ma. Jun	n ē	Ma
on	loarChack USA End	Modiac		NC 07510		vironmental - 9	)25 - Omro 11
No. : G	/earCheck USA - 501 iFL0125446	Recei	ved : 02	Jul 2024			0 Alder Avenu
	6226071	Teste		Jul 2024			Omro, W
umber : 1 :kage : Fi		Diagn	<b>osed</b> : 03	Jul 2024 - W	les Davis	Cont	US 5496 act: Tim Kieffe
	LEEI ntact Customer Servid	e at 1-8	00-237-1369	1			act: Tim Kiene er@aflenv.co

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)

Submitted By: See also GFL935 - Tim Kieffer

F:

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