

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id 836M Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (36 QTS)

DIAGNOSIS	

Recommendation

Resample at the next service interval to monitor.

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.

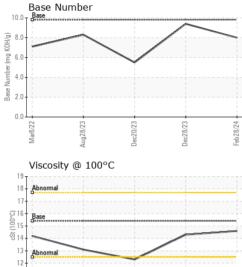
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SAMPLE INFORI	VIATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0107651	GFL0107058	GFL0107045
Sample Date		Client Info		28 Feb 2024	28 Dec 2023	20 Dec 2023
Machine Age	hrs	Client Info		10279	10199	10184
Oil Age	hrs	Client Info		600	600	600
Oil Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	SEVERE
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	0.5	9 .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	>90	13	3	20
Chromium	ppm	ASTM D5185m		0	<1	<1
Nickel	ppm	ASTM D5185m	>2	۰ <1	0	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver		ASTM D5185m	>2	0	0	0
Aluminum	ppm ppm		>20	1	<1	2
Lead		ASTM D5185m	>40	1	<1	0
	ppm	ASTM D5185m		، <1	1	<1
Copper Tin	ppm	ASTM D5185m		<1	<1	0
Vanadium	ppm	ASTM D5185m	>10	< 1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
Gaumum	ppm	ASTIVI DUTOJITI		U	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 0	history1 1	history2 <1
	ppm ppm					
Boron		ASTM D5185m	0	0	1	<1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	0 0	1 0	<1 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	0 0 66	1 0 57	<1 0 54
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	0 0 66 <1	1 0 57 0	<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	0 0 66 <1 1158	1 0 57 0 922	<1 0 54 0 831
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	0 0 66 <1 1158 1168	1 0 57 0 922 1031	<1 0 54 0 831 972
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	0 0 66 <1 1158 1168 1195	1 0 57 0 922 1031 1067	<1 0 54 0 831 972 884
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	0 0 66 <1 1158 1168 1195 1590	1 0 57 0 922 1031 1067 1204	<1 0 54 0 831 972 884 1087
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 1010 1070 1150 1270 2060	0 0 66 <1 1158 1168 1195 1590 3703	1 0 57 0 922 1031 1067 1204 3163	<1 0 54 0 831 972 884 1087 2636
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	0 0 60 1010 1070 1150 1270 2060	0 0 66 <1 1158 1168 1195 1590 3703 current	1 0 57 0 922 1031 1067 1204 3163 history1	<1 0 54 0 831 972 884 1087 2636 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 0 1010 1070 1150 1270 2060 limit/base	0 0 66 <1 1158 1168 1195 1590 3703 <u>current</u> 4	1 0 57 0 922 1031 1067 1204 3163 history1 4	<1 0 54 0 831 972 884 1087 2636 history2 3
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 ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	0 0 66 <1 1158 1168 1195 1590 3703 <u>current</u> 4 0	1 0 57 0 922 1031 1067 1204 3163 history1 4 2	<1 0 54 0 831 972 884 1087 2636 history2 3 <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 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	0 0 66 <1 1158 1168 1195 1590 3703 current 4 0 <1	1 0 57 0 922 1031 1067 1204 3163 history1 4 2 0	<1 0 54 0 831 972 884 1087 2636 history2 3 <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 2060 225 >25	0 0 66 <1 1158 1168 1195 1590 3703 <u>current</u> 4 0 <1 <u>current</u>	1 0 57 0 922 1031 1067 1204 3163 history1 4 2 0 0 history1	<1 0 54 0 831 972 884 1087 2636 history2 3 <1 2 history2 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	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >20	0 0 66 <1 1158 1168 1195 1590 3703 <i>current</i> 4 0 <1 <i>current</i>	1 0 57 0 922 1031 1067 1204 3163 history1 4 2 0 0 history1 0.1	<1 0 54 0 831 972 884 1087 2636 history2 3 <1 2 2 3 <1 2 2 history2 0.6
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 2060 225 >25 >20 imit/base >20	0 0 66 <1 1158 1168 1195 1590 3703 <i>current</i> 4 0 <1 <i>current</i> 0.2 7.5	1 0 57 0 922 1031 1067 1204 3163 history1 4 2 0 history1 0.1 0.1	<1 0 54 0 831 972 884 1087 2636 history2 3 <11 2 history2 0.6 11.4
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 D7844 *ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 20 20 20 20 20 20 20 20 2	0 0 66 <1 1158 1168 1195 1590 3703 <i>current</i> 4 0 <1 <i>current</i> 0.2 7.5 20.1 <i>current</i>	1 0 57 0 922 1031 1067 1204 3163 history1 4 2 0 history1 0.1 5.4 17.5 history1	<1 0 54 0 831 972 884 1087 2636 history2 3 <10 2 history2 0.6 11.4 23.1 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 <u>imit/base</u> >6 >20 20	0 0 66 <1 1158 1168 1195 1590 3703 current 4 0 <1 current 0.2 7.5 20.1	1 0 57 0 922 1031 1067 1204 3163 history1 4 2 0 history1 0.1 5.4 17.5	<1 0 54 0 831 972 884 1087 2636 history2 3 <1 2 history2 0.6 11.4 23.1



Mar8/22

ua28/23

OIL ANALYSIS REPORT



Jec20/73

	VISUAL		method	limit/base	current	history1	history2
\sim	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
1/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Dec28/23 Feb28/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
1 1	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	14.6	14.3	▲ 12.3
	GRAPHS						
	Ferrous Alloys						
Dec28/23	35 - iron		 				
Dec28,	30 - nickel						
	25 Ē 20						
	15	\wedge					
	10			1			
	5		\sim				
	0		* 				
	Mar8/22 Jug28/23	Dec20/23	Dec28/23	Feb28/24			
	A	_	Dec	Feb			
	Non-ferrous Meta	ls					
	10 copper						
	8 - sessesses lead						
	Б- Щ.		1				
	4-		 				
	2-		1				
			and				
	Mar8/22 Aug28/23	ec20/23	ec28/23	-eb28/24			
			De	E			
	Viscosity @ 100°C				Base Number		
	18 - Abnormal		1	10.0	Base		\sim
	17-		I 				
				K0H/{		\setminus	
	C-000 15 ts3 14			B_6.0		\sim	
	₹3 ₁₄		-	(0,)HOX (0,0) 			
	13 Abnormal			ase N			
	12-			°° 2.0]		
	11						
	Mar8/22 Aug28/23	Dec20/23	Dec28/23	Feb28/24	Mar8/22 - Aug28/23	Dec20/23	Dec28/23 Feb28/24
	Mi	Dec	Dec	Feb	M	Dec	Feb
Laboratory	: WearCheck USA - 50	1 Madisc	on Ave., Carv	. NC 27513	GFI F	nvironmenta	I - 465 - Pontiac
Sample No.	: GFL0107651	Rece	ived : 01	Mar 2024	0. E E		888 Baldwin
Lab Number	: 06106594	Teste		Mar 2024	,		Pontiac, MI
	: 06106594	Teste	ed : 04		les Davis		



Diagnosed Unique Number : 10910091 : 04 Mar 2024 - Wes Davis Test Package : FLEET Contact: Ricky Matthews Certificate L2367 rickymathews@gflenv.com 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)

US 48340

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