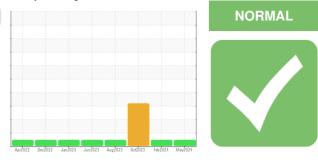


OIL ANALYSIS REPORT

Sample Rating Trend



1117M 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.

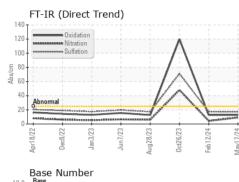
Fluid Condition

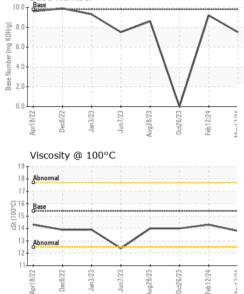
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		GFL0101003	GFL0101069	GFL0092776
Sample Date		Client Info		17 May 2024	12 Feb 2024	26 Oct 2023
Machine Age	hrs	Client Info		11721	0	11721
Oil Age	hrs	Client Info		10764	0	11721
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	SEVERE
-					-	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	0.3
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron		ASTM D5185m	>200	8	3	5
-	ppm			-		5 <1
Chromium	ppm	ASTM D5185m	>20	<1	<1	
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m		3	1	1
Lead	ppm	ASTM D5185m	>30	0	<1	0
Copper	ppm	ASTM D5185m	>30	2	2	3
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	<1
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	Method ASTM D5185m	limit/base	current 5	history1 4	history2 3
	ppm ppm		0			
Boron		ASTM D5185m	0	5	4	3
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0 0 60	5 0	4	3 4
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	5 0 61	4 0 59	3 4 75
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	5 0 61 <1	4 0 59 <1	3 4 75 0
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	5 0 61 <1 937	4 0 59 <1 908	3 4 75 0 1060
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	5 0 61 <1 937 1032	4 0 59 <1 908 1010	3 4 75 0 1060 1250
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	5 0 61 <1 937 1032 997	4 0 59 <1 908 1010 999	3 4 75 0 1060 1250 1107
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	5 0 61 <1 937 1032 997 1214 3338	4 0 59 <1 908 1010 999 1138 3536	3 4 75 0 1060 1250 1107 1372 3528
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	5 0 61 <1 937 1032 997 1214 3338 current	4 0 59 <1 908 1010 999 1138 3536 history1	3 4 75 0 1060 1250 1107 1372 3528 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 ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	5 0 61 <1 937 1032 997 1214 3338 current 7	4 0 59 <1 908 1010 999 1138 3536 history1 8	3 4 75 0 1060 1250 1107 1372 3528 history2 6
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 method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30	5 0 61 <1 937 1032 997 1214 3338 <u>current</u> 7 2	4 0 59 <1 908 1010 999 1138 3536 history1 8 0	3 4 75 0 1060 1250 1107 1372 3528 history2 6 0
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 >30	5 0 61 <1 937 1032 997 1214 3338 current 7 2 2 <1	4 0 59 <1 908 1010 999 1138 3536 history1 8 0 1	3 4 75 0 1060 1250 1107 1372 3528 history2 6 0 2
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 method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >30	5 0 61 <1 937 1032 997 1214 3338 current 7 2 2 <1	4 0 59 <1 908 1010 999 1138 3536 history1 8 0	3 4 75 0 1060 1250 1107 1372 3528 history2 6 0
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 >30	5 0 61 <1 937 1032 997 1214 3338 current 7 2 2 <1	4 0 59 <1 908 1010 999 1138 3536 history1 8 0 1	3 4 75 0 1060 1250 1107 1372 3528 history2 6 0 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 >20 limit/base	5 0 61 <1 937 1032 997 1214 3338 <u>current</u> 7 2 2 <1 <u>current</u>	4 0 59 <1 908 1010 999 1138 3536 history1 8 0 1 1 history1	3 4 75 0 1060 1250 1107 1372 3528 history2 6 0 2 2 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 ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >30 >20 limit/base	5 0 61 <1 937 1032 997 1214 3338 <u>current</u> 7 2 <1 2 <1 <u>current</u> 0.2	4 0 59 <1 908 1010 999 1138 3536 history1 8 0 1 history1 0.1	3 4 75 0 1060 1250 1107 1372 3528 history2 6 0 2 2 history2 kistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc 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 limit/base >30 200 limit/base >30	5 0 61 <1 937 1032 997 1214 3338 <u>current</u> 7 2 <1 2 <1 0.2 9.2 17.0	4 0 59 <1 908 1010 999 1138 3536 history1 8 0 1 8 0 1 history1 0.1 4.4	3 4 75 0 1060 1250 1107 1372 3528 history2 6 0 2 2 history2 kas2 48.0
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 TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 0 0 1010 1070 1150 1270 2060 2060 2060 2060 200 200 200 200 20	5 0 61 <1 937 1032 997 1214 3338 Current 7 2 2 <1 Current 0.2 9.2 17.0 Current	4 0 59 <1 908 1010 999 1138 3536 history1 8 0 1 history1 0.1 4.4 17.3 history1	3 4 75 0 1060 1250 1107 1372 3528 history2 6 0 2 bistory2 ▲ 8.2 48.0 71.1
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 >30 imit/base >3 20	5 0 61 <1 937 1032 997 1214 3338 <u>current</u> 7 2 <1 2 <1 0.2 9.2 17.0	4 0 59 <1 908 1010 999 1138 3536 history1 8 0 1 history1 0.1 4.4 17.3	3 4 75 0 1060 1250 1107 1372 3528 history2 6 0 2 bistory2 ▲ 8.2 48.0 71.1

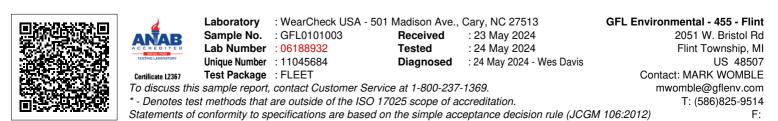


OIL ANALYSIS REPORT





White Metal Yellow Metal Precipitate Silt Debris	scalar scalar	*Visual	NONE			
^D recipitate Silt			NONE	NONE	NONE	NONE
Silt		*Visual	NONE	NONE	NONE	NONE
	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
	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 PROPER	RTIES	method	limit/base	current	history1	history2
/isc @ 100°C	cSt	ASTM D445	15.4	13.8	14.3	14.0
GRAPHS						
Ferrous Alloys						
iron	A					
chromium						
nickel						
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\mathbf{X}						
\sum			1			
		\sim				
Stan						
	Standard Street Street					
Apr18/22 Dec8/22 Jan3/23	Jun //23 Aug 28/23	0ct26/23 Feb12/24	17/21			
Apr1 Jar	Aug2	Oct2 Feb1	May17/24			
Non-ferrous Metals	5					
T						
copper						
essesses tin						
	-	~				
\rightarrow						
		THE REAL PROPERTY NAMES	Long of the local			
Apr18/22 Dec8/22 Jan3/23	Jun //23 Aug 28/23	0ct26/23 Feb12/24	ay17/24			
4	Aug	Oc	\geq			
Viscosity @ 100°C			10.0 -	Base Number		
Abnormal						Ν
I LINE IN THE REPORT OF THE RE					\bigvee 1	
			KOH			
			문 6.0			
			<u> </u>			
Base	_		Land Mundary 4.0 -			/
Base Abnormal	_		iber (n			/
Base			2.0-			
Base Abnormal	Juni 1/23	0ct26/23	0.0	Apri 8/22 Dec8/22 Jan3/23	Jun7/23 Aug28/23	0ct26/23 Feb 12/24



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Submitted By: MARK WOMBLE

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