

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 412010

Component Diesel Engine PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION method

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.

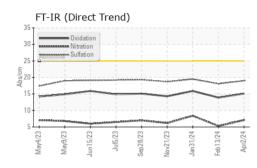
Fluid Condition

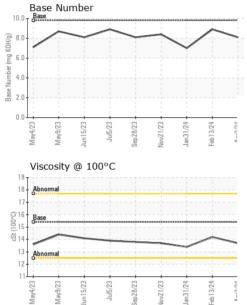
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number		Client Info		GFL0112771	GFL0112719	GFL0045541
Sample Date		Client Info		02 Apr 2024	13 Feb 2024	31 Jan 2024
Machine Age	hrs	Client Info		4884	4536	4482
Oil Age	hrs	Client Info		4482	4482	2991
Oil Changed		Client Info		Changed	Not Changd	Changed
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	10	2	11
Chromium	ppm	ASTM D5185m	>20	1	0	<1
Nickel	ppm	ASTM D5185m	>5	3	<1	5
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	5	2	2
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	3	<1	4
Tin	ppm	ASTM D5185m	>15	1	<1	1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	<1
ADDITIVES		ام م ال م مور		current	biotonut	history2
ADDITIVES		method	limit/base	current	history1	TIIStOLYZ
Boron	ppm	ASTM D5185m	0	2	2	1
	ppm ppm	ASTM D5185m			· · · · · · · · · · · · · · · · · · ·	
Boron		ASTM D5185m	0	2	2	1
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	2 0	2 0	1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	2 0 86	2 0 54	1 13 65
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	2 0 86 <1	2 0 54 <1	1 13 65 <1
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 0 86 <1 1429	2 0 54 <1 875	1 13 65 <1 968
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	2 0 86 <1 1429 1477	2 0 54 <1 875 920	1 13 65 <1 968 1090
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 0 86 <1 1429 1477 1421	2 0 54 <1 875 920 984	1 13 65 <1 968 1090 975
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 0 86 <1 1429 1477 1421 1767	2 0 54 <1 875 920 984 1153	1 13 65 <1 968 1090 975 1246
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	2 0 86 <1 1429 1477 1421 1767 4319	2 0 54 <1 875 920 984 1153 2851	1 13 65 <1 968 1090 975 1246 3238
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	2 0 86 <1 1429 1477 1421 1767 4319 current	2 0 54 <1 875 920 984 1153 2851 history1	1 13 65 <1 968 1090 975 1246 3238 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 ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	2 0 86 <1 1429 1477 1421 1767 4319 current 7	2 0 54 <1 875 920 984 1153 2851 history1 3	1 13 65 <1 968 1090 975 1246 3238 history2 7
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 0 1010 1070 1150 1270 2060 kimit/base	2 0 86 <1 1429 1477 1421 1767 4319 current 7 7 7 5	2 0 54 <1 875 920 984 1153 2851 history1 3 2	1 13 65 <1 968 1090 975 1246 3238 history2 7 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 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	2 0 86 <1 1429 1477 1421 1767 4319 current 7 7 7 5	2 0 54 <1 875 920 984 1153 2851 history1 3 2 2 1	1 13 65 <1 968 1090 975 1246 3238 history2 7 0 9
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 2060 225 >25 >20	2 0 86 <1 1429 1477 1421 1767 4319 current 7 7 5 5	2 0 54 <1 875 920 984 1153 2851 history1 3 2 2 1 1 history1	1 13 65 <1 968 1090 975 1246 3238 history2 7 0 9 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 >25 >20 limit/base >20	2 0 86 <1 1429 1477 1421 1767 4319 <u>current</u> 7 7 5 <u>current</u> 0.3	2 0 54 <1 875 920 984 1153 2851 history1 3 2 2 1 history1 0.1	1 13 65 <1 968 1090 975 1246 3238 history2 7 0 9 history2 0.5
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	2 0 86 <1 1429 1477 1421 1767 4319 <u>current</u> 7 7 5 <u>current</u> 0.3 7.1 19.0	2 0 54 <1 875 920 984 1153 2851 history1 3 2 2 1 history1 0.1 5.3	1 13 65 <1 968 1090 975 1246 3238 history2 7 0 9 history2 0.5 8.4
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	2 0 86 <1 1429 1477 1421 1767 4319 <u>current</u> 7 7 5 <u>current</u> 0.3 7.1 19.0	2 0 54 <1 875 920 984 1153 2851 history1 3 2 2 1 1 history1 0.1 5.3 18.1	1 13 65 <1 968 1090 975 1246 3238 history2 7 0 9 history2 0.5 8.4 19.5
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 D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 220 220 20 20 20 20 20 20 20 20	2 0 86 <1 1429 1477 1421 1767 4319 Current 7 7 7 5 Current 0.3 7.1 19.0 Current	2 0 54 <1 875 920 984 1153 2851 history1 3 2 2 1 history1 0.1 5.3 18.1 history1	1 13 65 <1 968 1090 975 1246 3238 history2 7 0 9 history2 0.5 8.4 19.5 history2



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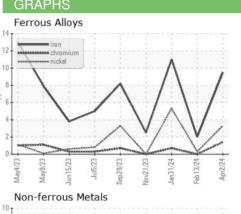


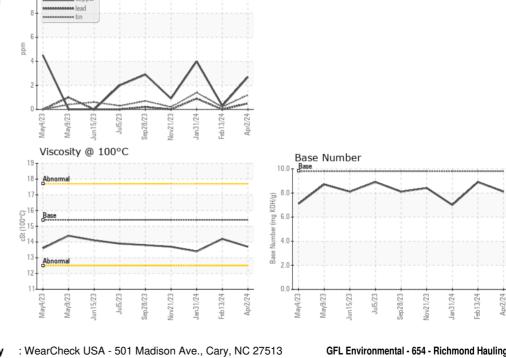


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Aav9/23 un15/23

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	RTIES	method	limit/base	current	history1	history2
					motory	
Visc @ 100°C	cSt	ASTM D445	15.4	13.7	14.2	13.4
CRADHC						





Laboratory GFL Environmental - 654 - Richmond Hauling Sample No. : GFL0112771 Received : 05 Apr 2024 11800 Lewis Road Lab Number : 06140551 Tested : 08 Apr 2024 Chester, VA Unique Number : 10965359 Diagnosed : 09 Apr 2024 - Don Baldridge US 23831 Test Package : FLEET Contact: TECHNICIAN ACCOUNT Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. catherine.anastasio@wearcheck.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: GFL654 [WUSCAR] 06140551 (Generated: 04/09/2024 11:29:03) Rev: 1

Submitted By: TECHNICIAN ACCOUNT