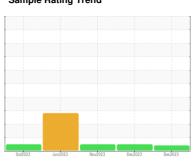


# **OIL ANALYSIS REPORT**

Sample Rating Trend



**VIS DEBRIS** 



# Machine Id 4607M

Component

**Diesel Engine** 

PETRO CANADA DURON SHP 15W40 (--- G

## **DIAGNOSIS**

#### Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

### Contamination

Moderate concentration of visible dirt/debris present in the oil.

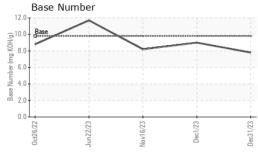
#### **Fluid Condition**

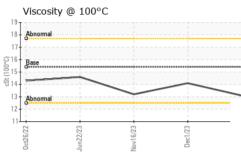
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

iAL)		0st7022	Jun2023	Nov2023 Dec2023	Dec2023	
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number	WII CHIOTA	Client Info	minu bacc	GFL0059271	GFL0104382	GFL0059230
Sample Date		Client Info		31 Dec 2023	01 Dec 2023	16 Nov 2023
•	bro	Client Info		21515	21350	21245
Machine Age	hrs					
Oil Age	hrs	Client Info		21515 Ohammad	21350 Changad	21245
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>100	6	21	6
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	2	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	4
_ead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	<1	14	11
Γin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
		4.0T14.D=4.0=	0	3	21	2
Boron	ppm	ASTM D5185m	U		∠ I	_
	ppm	ASTM D5185m ASTM D5185m	0	0	0	0
Barium	ppm					
Barium Molybdenum	ppm ppm	ASTM D5185m	0	0	0	0
Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m	0 60	0 45	0 56	0 52
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0	0 45 <1 793	0 56 <1	0 52 <1
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 45 <1 793 820	0 56 <1 432	0 52 <1 830 944
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150	0 45 <1 793 820 896	0 56 <1 432 1873 1045	0 52 <1 830 944 923
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070	0 45 <1 793 820	0 56 <1 432 1873	0 52 <1 830 944
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 60 0 1010 1070 1150 1270	0 45 <1 793 820 896 1098	0 56 <1 432 1873 1045 1209	0 52 <1 830 944 923 1117
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060	0 45 <1 793 820 896 1098 2683	0 56 <1 432 1873 1045 1209 3940	0 52 <1 830 944 923 1117 2839
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	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 60 0 1010 1070 1150 1270 2060	0 45 <1 793 820 896 1098 2683	0 56 <1 432 1873 1045 1209 3940 history1	0 52 <1 830 944 923 1117 2839
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 45 <1 793 820 896 1098 2683 current	0 56 <1 432 1873 1045 1209 3940 history1	0 52 <1 830 944 923 1117 2839 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 45 <1 793 820 896 1098 2683 current 8	0 56 <1 432 1873 1045 1209 3940 history1 6	0 52 <1 830 944 923 1117 2839 history2 5 3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25	0 45 <1 793 820 896 1098 2683 current 8 2	0 56 <1 432 1873 1045 1209 3940 history1 6 0 1	0 52 <1 830 944 923 1117 2839 history2 5 3 6
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m  method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	0 45 <1 793 820 896 1098 2683 current 8 2	0 56 <1 432 1873 1045 1209 3940 history1 6 0 1 history1	0 52 <1 830 944 923 1117 2839 history2 5 3 6
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  method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  *ASTM D5185m	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 45 <1 793 820 896 1098 2683 current 8 2 2	0 56 <1 432 1873 1045 1209 3940 history1 6 0 1 history1 0.1	0 52 <1 830 944 923 1117 2839 history2 5 3 6 history2
Silicon Sodium Potassium	ppm	ASTM D5185m  method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	0 45 <1 793 820 896 1098 2683  current 8 2 2  current 0 3.9	0 56 <1 432 1873 1045 1209 3940 history1 6 0 1 history1 0.1 5.9	0 52 <1 830 944 923 1117 2839 history2 5 3 6 history2 0.2 5.3
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m  method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624	0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20 >30	0 45 <1 793 820 896 1098 2683  current 8 2 2  current 0 3.9 18.0	0 56 <1 432 1873 1045 1209 3940 history1 6 0 1 history1 0.1 5.9 17.9	0 52 <1 830 944 923 1117 2839 history2 5 3 6 history2 0.2 5.3 18.7



## **OIL ANALYSIS REPORT**

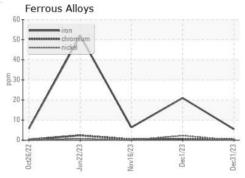


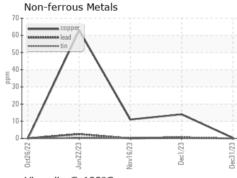


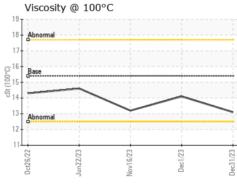
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	MODER	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG

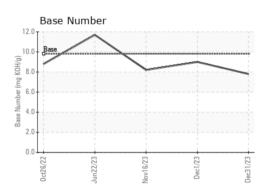
FLUID PHOPENTIES		method	IIIIII/Dase	Current	HISTORY	HISTOLA	
Visc @ 100°C	cSt	ASTM D445	15.4	13.1	14.1	13.2	

#### **GRAPHS**













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10816619 Test Package : FLEET

: GFL0059271 : 06050670

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Recieved : 04 Jan 2024 Diagnosed : 04 Jan 2024 Diagnostician : Don Baldridge

GFL Environmental - 410 - Michigan West 39000 Van Born Rd

Wayne, MI US 48184 Contact: Belal Dgheish bdgheish@gflenv.com T: (734)714-2340

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)