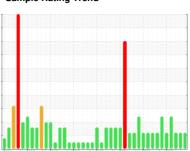


OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



NOVA BUS 163

Component

Rear Diesel Engine

ESSO XD-3 EXTRA 15W40 (24 LTR)

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition

Viscosity of sample indicates oil is within SAE 30 range, advise investigate. The oil is no longer serviceable due to the presence of contaminants.

12016 Aug2017 May2018 Apz2019 Heb2029 May2021 Maz2022 Dec2022						
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0816368	WC0816514	WC0730851
Sample Date		Client Info		20 Sep 2023	21 Jul 2023	12 Apr 2023
Machine Age	kms	Client Info		0	0	0
Oil Age	kms	Client Info		9436	9337	9328
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Glycol		WC Method		NEG	0.0	0.0
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>75	38	38	24
Chromium	ppm	ASTM D5185(m)	>5	<1	1	<1
Nickel	ppm	ASTM D5185(m)	>4	<1	0	<1
Titanium	ppm	ASTM D5185(m)	>2	0	0	<1
Silver	ppm	ASTM D5185(m)	>2	<1	<1	0
Aluminum	ppm	ASTM D5185(m)	>15	2	2	2
Lead	ppm	ASTM D5185(m)	>25	4	2	<1
Copper	ppm	ASTM D5185(m)	>100	3	4	4
Tin	ppm	ASTM D5185(m)	>4	0	0	<1
Antimony	ppm	ASTM D5185(m)		0	0	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
		()			0	-
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	. ,	limit/base			history2
	ppm	method	limit/base	current	history1	
Boron		method ASTM D5185(m)	limit/base	current 42 <1 8	history1	50 0 31
Boron Barium Molybdenum Manganese	ppm	method ASTM D5185(m) ASTM D5185(m)	limit/base	current 42 <1	history1 11 0 50 <1	50
Boron Barium Molybdenum	ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)		current 42 <1 8 0 117	history1 11 0 50 <1 710	50 0 31 <1 47
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm	method ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	limit/base	current 42 <1 8 0 117 1900	history1 11 0 50 <1	50 0 31 <1 47 2145
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	method ASTM D5185(m)	3780 1370	current 42 <1 8 0 117 1900 834	history1 11 0 50 <1 710 1200 945	50 0 31 <1 47 2145 963
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	method ASTM D5185(m)	3780 1370 1500	current 42 <1 8 0 117 1900 834 1042	history1 11 0 50 <1 710 1200 945 1079	50 0 31 <1 47 2145 963 1070
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	3780 1370 1500 3800	current 42 <1 8 0 117 1900 834 1042 2511	history1 11 0 50 <1 710 1200 945 1079 2325	50 0 31 <1 47 2145 963 1070 2768
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	3780 1370 1500 3800	current 42 <1 8 0 117 1900 834 1042	history1 11 0 50 <1 710 1200 945 1079	50 0 31 <1 47 2145 963 1070
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	3780 1370 1500 3800	current 42 <1 8 0 117 1900 834 1042 2511	history1 11 0 50 <1 710 1200 945 1079 2325	50 0 31 <1 47 2145 963 1070 2768
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	3780 1370 1500 3800	current 42 <1 8 0 117 1900 834 1042 2511 <1	history1 11 0 50 <1 710 1200 945 1079 2325 <1	50 0 31 <1 47 2145 963 1070 2768 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	3780 1370 1500 3800	current 42 <1 8 0 117 1900 834 1042 2511 <1 current	history1 11 0 50 <1 710 1200 945 1079 2325 <1 history1	50 0 31 <1 47 2145 963 1070 2768 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	3780 1370 1500 3800 limit/base >25	current 42 <1 8 0 117 1900 834 1042 2511 <1 current 5	history1 11 0 50 <1 710 1200 945 1079 2325 <1 history1 6	50 0 31 <1 47 2145 963 1070 2768 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	3780 1370 1500 3800 Iimit/base >25 >192	current 42 <1 8 0 117 1900 834 1042 2511 <1 current 5 13	history1 11 0 50 <1 710 1200 945 1079 2325 <1 history1 6 28	50 0 31 <1 47 2145 963 1070 2768 <1 history2 5 78
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	3780 1370 1500 3800 limit/base >25 >192 >20	current 42 <1 8 0 117 1900 834 1042 2511 <1 current 5 13 6	history1 11 0 50 <1 710 1200 945 1079 2325 <1 history1 6 28 6	50 0 31 <1 47 2145 963 1070 2768 <1 history2 5 78 18
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D5185(m)	3780 1370 1500 3800 limit/base >25 >192 >20 >3.0	current 42 <1 8 0 117 1900 834 1042 2511 <1 current 5 13 6 ▲ 5.9	history1 11 0 50 <1 710 1200 945 1079 2325 <1 history1 6 28 6 ▲ 4.8	50 0 31 <1 47 2145 963 1070 2768 <1 history2 5 78 18 7.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m)	3780 1370 1500 3800 limit/base >25 >192 >20 >3.0	current 42 <1 8 0 117 1900 834 1042 2511 <1 current 5 13 6 ▲ 5.9 current	history1 11 0 50 <1 710 1200 945 1079 2325 <1 history1 6 28 6 ▲ 4.8 history1	50 0 31 <1 47 2145 963 1070 2768 <1 history2 5 78 18 7.3 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D7593* method ASTM D7593*	3780 1370 1500 3800 limit/base >25 >192 >20 >3.0 limit/base >6	current 42 <1 8 0 117 1900 834 1042 2511 <1 current 5 13 6 ▲ 5.9 current 0.6	history1 11 0 50 <1 710 1200 945 1079 2325 <1 history1 6 28 6 ▲ 4.8 history1 0.6	50 0 31 <1 47 2145 963 1070 2768 <1 history2 5 78 18 ▲ 7.3 history2 0.6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185(m) ASTM D7844* ASTM D7624*	3780 1370 1500 3800 limit/base >25 >192 >20 >3.0 limit/base >6 >20	current 42 <1 8 0 117 1900 834 1042 2511 <1 current 5 13 6 ▲ 5.9 current 0.6 12.6	history1 11 0 50 <1 710 1200 945 1079 2325 <1 history1 6 28 6 ▲ 4.8 history1 0.6 11.5	50 0 31 <1 47 2145 963 1070 2768 <1 history2 5 78 18 7.3 history2 0.6 11.2



OIL ANALYSIS REPORT





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number **Unique Number**

: WC0816368 : 02586693 : 5655759

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received : 04 Oct 2023 Diagnosed

: 05 Oct 2023 Diagnostician : Kevin Marson Test Package : MOB 1 (Additional Tests: PercentFuel)

0.0

CITY OF THUNDER BAY AUTO MAINTENANCE STORES, 570 FORT WILLIAM ROAD THUNDER BAY, ON **CA P7B 2Z8**

Contact: Sean Malcolm sean.malcolm@thunderbay.ca T: (807)684-2716

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.

Validity of results and interpretation are based on the sample and information as supplied.

F: (807)344-0237