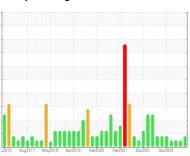


OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



2008 NOVA 150

Component

Rear Diesel Engine

ESSO XD-3 EXTRA 15W40 (--- GAL)

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.

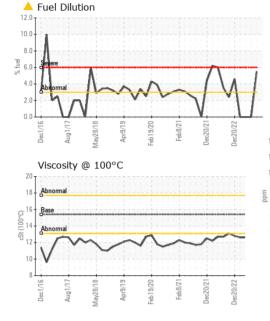
Fluid Condition

The oil is no longer serviceable due to the presence of contaminants.

		c2016 Aug20	17 May2018 Apr2019	Feb2020 Feb2021 Dec2021	Dec2022	
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0816374	WC0816474	WC0816457
Sample Date		Client Info		25 Sep 2023	03 Aug 2023	26 May 2023
Machine Age	kms	Client Info		0	0	0
Oil Age	kms	Client Info		9406	9031	9285
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>75	30	36	29
Chromium	ppm	ASTM D5185(m)	>5	<1	1	1
Nickel	ppm	ASTM D5185(m)	>4	<1	<1	0
Titanium	ppm	ASTM D5185(m)	>2	0	<1	0
Silver	ppm	ASTM D5185(m)	>2	<1	<1	0
Aluminum	ppm	ASTM D5185(m)	>15	4	6	7
Lead	ppm	ASTM D5185(m)	>25	2	2	1
Copper	ppm	ASTM D5185(m)		2	3	3
Tin	ppm	ASTM D5185(m)	>4	0	0	0
Antimony	ppm	ASTM D5185(m)		0	0	0
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		53	57	57
Barium	ppm	ASTM D5185(m)		<1	0	0
Molybdenum	ppm	ASTM D5185(m)		2	11	33
Manganese	ppm	ASTM D5185(m)		0	<1	<1
Magnesium	ppm	ASTM D5185(m)		30	82	84
Calcium	ppm	ASTM D5185(m)	3780	2188	2410	2283
Phosphorus	ppm	ASTM D5185(m)	1370	877	988	1042
Zinc	ppm	ASTM D5185(m)	1500	1062	1152	1154
Sulfur	ppm	ASTM D5185(m)	3800	2763	2680	2864
Lithium	ppm	ASTM D5185(m)		<1	<1	<1
CONTAMINANTS		method	limit/base			
				current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	10	13	9
Sodium	ppm ppm	ASTM D5185(m) ASTM D5185(m)	>25 >192	10 6	13 5	9
Sodium Potassium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>25 >192 >20	10 6 9	13 5 7	9 4 5
Sodium Potassium Fuel	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7593*	>25 >192 >20 >3.0	10 6	13 5	9
Sodium Potassium	ppm ppm ppm %	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	>25 >192 >20	10 6 9	13 5 7	9 4 5 <1.0
Sodium Potassium Fuel	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7593*	>25 >192 >20 >3.0	10 6 9 ▲ 5.5	13 5 7 <1.0	9 4 5 <1.0
Sodium Potassium Fuel INFRA-RED	ppm ppm ppm %	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7593* method	>25 >192 >20 >3.0 limit/base	10 6 9 ▲ 5.5 current	13 5 7 <1.0 history1	9 4 5 <1.0
Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm %	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7593* method ASTM D7844*	>25 >192 >20 >3.0 limit/base >6	10 6 9 ▲ 5.5 current	13 5 7 <1.0 history1	9 4 5 <1.0 history2
Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm % % Abs/cm Abs/.1mm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7593* method ASTM D7844* ASTM D7624*	>25 >192 >20 >3.0 limit/base >6 >20	10 6 9 ▲ 5.5 current 1.1 13.3	13 5 7 <1.0 history1 1 13.1	9 4 5 <1.0 history2 1 11.9



OIL ANALYSIS REPORT



VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG
FLUID PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15.4	12.8	13.2	12.6
GRAPHS						
Iron (ppm)			60	Lead (ppm)		
Severe			50	Course		
100000000000000000000000000000000000000			40)		
Abnormal		A	Ē 30	Abnormal		
NVV	22	1/1	20	7		
		V	\			
717 	720	121-	72		719	227
Dec1/16 Aug1/17 May28/18	Feb19/20	Feb8/21 Dec20/21	neczu/zz	Dec1/16 Aug1/17 May28/18	Apr9/19 Feb19/20 Feb8/21	Dec20/21
Aluminum (ppm)			11	Chromium (p	pm)	
Severe			12	Course		
Abnormal		Λ	E. C			
NVI		1	11111	Abnormal		V
h	~~	100	~		V	\sim
18 18	20	21-	7	18	20	27
Aug1/17 May28/18	Feb 19/20	Feb8/21 Dec20/21	Deczu/22	Dec1/16 Aug1/17	Apr9/19 - Feb19/20 - Feb8/21	Dec20/21 Dec20/22
Copper (ppm)				Silicon (ppm)		
Severe			50 	Course		
Severe			40			
			E 30	A.		
Abnormal			20	0		
\wedge		٨	10	~~/	hund	V/
	02		7		202	21
Dec1/16 Aug1/17 May28/18	Feb19/20	Feb8/21	Deczu/22	Dec1/16 Aug1/17 May28/18	Apr9/19 Feb19/20 Feb8/21	Dec20/21
Viscosity @ 100°0				Fuel Dilution	_	_
Abnormal				A CALL TO SERVICE STATE		
Abnormal			10.0			
Base			9.6.0 32 6.0			
Abnormal	M	~~	3º 4.0	11 1		/_
\vee . \vee			2.0	Applormal	$\sim \sim \sim$	V VI
			0.0	1 / V		V. L



CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number : 5655762

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 : 02586696

: WC0816374

Received

: 04 Oct 2023 Diagnosed

: 05 Oct 2023 Diagnostician : Kevin Marson

Test Package: MOB 1 (Additional Tests: FuelDilution, PercentFuel) To discuss this sample report, contact Customer Service at 1-800-268-2131.

CA P7B 2Z8 Contact: Sean Malcolm sean.malcolm@thunderbay.ca T: (807)684-2716

AUTO MAINTENANCE STORES, 570 FORT WILLIAM ROAD

CITY OF THUNDER BAY

THUNDER BAY, ON

F: (807)344-0237

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.