

# **OIL ANALYSIS REPORT**

# Area 52000 series Machine Id Navistar 52825

Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 10W30 (40 LTR)

# DIAGNOSIS

# Recommendation

We advise that you check for the source of the coolant leak. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

# Wear

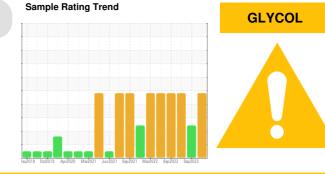
All component wear rates are normal.

# Contamination

Test for glycol is positive. There is a light concentration of glycol present in the oil.

#### Fluid Condition

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



SAMPLE INFORMA	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0864507	WC0848032	WC0753920
Sample Date		Client Info		07 Oct 2023	18 Sep 2023	26 Nov 2022
Machine Age	kms	Client Info		455612	450833	400755
Oil Age	kms	Client Info		26045	21266	21530
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>100	30	29	26
Chromium	ppm	ASTM D5185(m)	>20	1	1	2
Nickel	ppm	ASTM D5185(m)	>4	0	0	<1
Titanium	ppm	ASTM D5185(m)		0	0	<1
Silver	ppm	ASTM D5185(m)	>3	<1	<1	0
Aluminum	ppm	ASTM D5185(m)	>20	4	3	4
Lead	ppm	ASTM D5185(m)	>40	6	8	2
Copper	ppm	ASTM D5185(m)	>330	3	4	2
Tin 🛛	ppm	ASTM D5185(m)	>15	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
ADDITIVES						
ADDITIVES		method	limit/base	current	history1	history2
_	ppm	ASTM D5185(m)	limit/base	current	history1	history2 2
Boron	ppm ppm					
Boron F Barium F		ASTM D5185(m)	250	<1	1	2
Boron p Barium p Molybdenum p	ppm	ASTM D5185(m) ASTM D5185(m)	250 10	<1 <1	1 <1	2
Boron p Barium p Molybdenum p Manganese p	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10	<1 <1 152	1 <1 167	2 0 112
Boron p Barium p Molybdenum p Manganese p Magnesium p	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100	<1 <1 152 0	1 <1 167 0	2 0 112 <1
Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450	<1 <1 152 0 933	1 <1 167 0 893	2 0 112 <1 957
Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000	<1 <1 152 0 933 1017	1 <1 167 0 893 999	2 0 112 <1 957 1147
Boron p Barium p Molybdenum p Manganese p Magnesium p Calcium p Phosphorus p Zinc p	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150	<1 <1 152 0 933 1017 944	1 <1 167 0 893 999 893	2 0 112 <1 957 1147 1059
Boron parium parium parium parium panese page page page page page page page pag	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350	<1 <1 152 0 933 1017 944 1189	1 <1 167 0 893 999 893 1147	2 0 112 <1 957 1147 1059 1225
Boron parium parium parium parium panese page page page page page page page pag	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350	<1 <1 152 0 933 1017 944 1189 2578	1 <1 167 0 893 999 893 1147 2505	2 0 112 <1 957 1147 1059 1225 2672
Boron parine par	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250	<1 <1 152 0 933 1017 944 1189 2578 <1	1 <1 167 0 893 999 893 1147 2505 <1	2 0 112 <1 957 1147 1059 1225 2672 <1
Boron parine par	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250	<1 <ul> <li>&lt;1</li> <li>152</li> <li>0</li> <li>933</li> <li>1017</li> <li>944</li> <li>1189</li> <li>2578</li> <li>&lt;1</li> </ul>	1 <1 167 0 893 999 893 1147 2505 <1 history1	2 0 112 <1 957 1147 1059 1225 2672 <1 history2
Boron parine par	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250	<1 <ul> <li>&lt;1</li> <li>152</li> <li>0</li> <li>933</li> <li>1017</li> <li>944</li> <li>1189</li> <li>2578</li> <li>&lt;1</li> </ul> current	1 <1 167 0 893 999 893 1147 2505 <1 kistory1 17	2 0 112 <1 957 1147 1059 1225 2672 <1 kistory2 12
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Boron parium parium parium parium parium parium panese parium pagnesium pagn	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 Iimit/base >25	<1 <ul> <li>&lt;1</li> <li>&lt;1</li> <li>152</li> <li>0</li> <li>933</li> <li>1017</li> <li>944</li> <li>1189</li> <li>2578</li> <li>&lt;1</li> <li>current</li> <li>15</li> <li>▲ 1089</li> <li>▲ 197</li> </ul>	1 <1 167 0 893 999 893 1147 2505 <1 history1 17 ▲ 1192 ▲ 248	2 0 112 <1 957 1147 1059 1225 2672 <1 2672 <1 <b>history2</b> 12 12 363 ▲ 363 ▲ 158
Boron pariam pariam pariam panaganese panaganese panaganese panaganesium panaganesi	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 imit/base >25 >20	<1 <1 152 0 933 1017 944 1189 2578 <1 2578 <1 Uurrent 15 1089 ▲ 197 ▲ 0.018	1 <1 167 0 893 999 893 1147 2505 <1 history1 17 ▲ 1192 ▲ 248 0.0	2 0 112 <1 957 1147 1059 1225 2672 <1 2672 <1 ×1 history2 12 12 12 ×363 ×158 ×0.02
Boron particular for the second secon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >20	<1 <ul> <li>&lt;1</li> <li>&lt;1</li> <li>152</li> <li>0</li> <li>933</li> <li>1017</li> <li>944</li> <li>1189</li> <li>2578</li> <li>&lt;1</li> </ul> <ul> <li>current</li> <li>15</li> <ul> <li>1089</li> <li>197</li> <li>0.018</li> </ul> </ul>	1 <1 167 0 893 999 893 1147 2505 <1 1147 2505 <1 1192 ▲ 1192 ▲ 248 0.0 history1	2 0 112 <1 957 1147 1059 1225 2672 <1 bistory2 12 12 12 12 12 12 12 12 12 12 12 12
Boron particular program progr	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 imit/base >25 >20 imit/base >3	<1 <ul> <li>&lt;1</li> <li>&lt;1</li> <li>152</li> <li>0</li> <li>933</li> <li>1017</li> <li>944</li> <li>1189</li> <li>2578</li> <li>&lt;1</li> </ul> <i>current</i> <ul> <li>15</li> <ul> <li>1089</li> <li>197</li> <li>0.018</li> <li><i>current</i></li> </ul> 0</ul>	1 <167 0 893 999 893 1147 2505 <1 1147 2505 <1 1192 ▲ 1192 ▲ 1192 ▲ 248 0.0 history1 1.6	2 0 112 <1 957 1147 1059 1225 2672 <1 bistory2 12 12 363 ▲ 363 ▲ 158 ▲ 0.02 bistory2 1
Boron particular for the second secon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7922* Method ASTM D7844* ASTM D7624*	250 10 100 450 3000 1150 1350 4250 imit/base >25 >20 imit/base >3 >20	<1 <ul> <li>&lt;1</li> <li>&lt;1</li> <li>152</li> <li>0</li> <li>933</li> <li>1017</li> <li>944</li> <li>1189</li> <li>2578</li> <li>&lt;1</li> <li>current</li> <li>15</li> <li>▲ 1089</li> <li>▲ 197</li> <li>▲ 0.018</li> <li>current</li> <li>0</li> <li>2.9</li> </ul>	1 <1 167 0 893 999 893 1147 2505 <1 1147 2505 <1 1147 2505 <1 1147 2505 <1 1147 2505 <1 1147 2505 <1 1147 1192 ▲ 248 0.0 history1 1.6 13.3	2 0 112 <1 957 1147 1059 1225 2672 <1 12 <1 12 363 ↓158 ↓0.02 history2 1 158 ↓0.02
Boron FLUID DEGRADAT F	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7844* ASTM D7844*	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >20 <b>limit/base</b> >3 >20 >3 >20	<1 <ul> <li>&lt;1</li> <li>&lt;1</li> <li>152</li> <li>0</li> <li>933</li> <li>1017</li> <li>944</li> <li>1189</li> <li>2578</li> <li>&lt;1</li> </ul> <ul> <li>current</li> <li>1089</li> <li>197</li> <li>0.018</li> <li>current</li> <li>0</li> <li>2.9</li> <li>12.1</li> </ul>	1 <167 0 893 999 893 1147 2505 <1 1147 2505 <1 117 ▲ 1192 ▲ 248 0.0 100 1.6 1.3.3 23.5	2 0 112 957 1147 1059 1225 2672 <1 12 12 12 12 12 12 12 12 12 12 12 12 1

Report Id: MANMIS [WCAMIS] 02588154 (Generated: 10/11/2023 16:38:04) Rev: 1

Contact/Location: Travis Spence - MANMIS



# **OIL ANALYSIS REPORT**

method

en 1/2 CC/ Drel

lar4/77

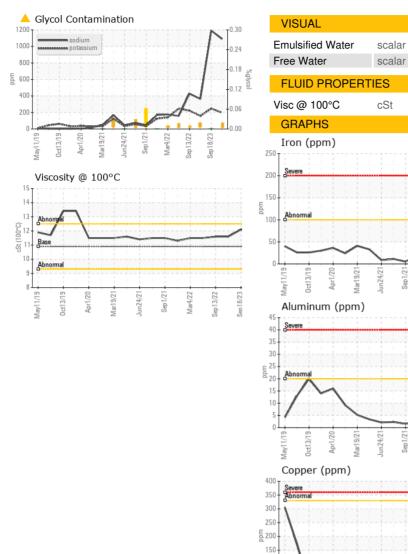
Sep 1/21. Mar4/22

Received

Diagnosed

limit/base

current



100

50

15

14

13

cSt (100°C)

Laboratory

Sample No.

Lab Number

0

May11/19

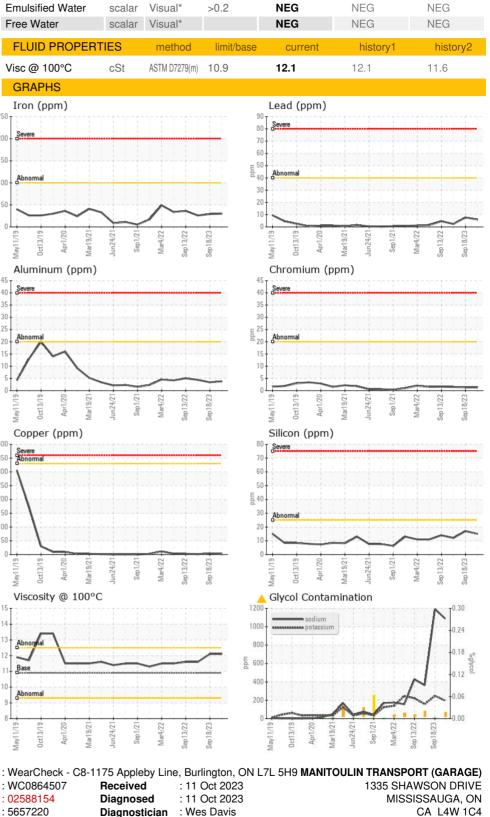
Base

May11/19

Abnorma

: WC0864507

: 02588154



history1

history2

Accredited Unique Number : 5657220 Diagnostician Laboratory Test Package : MOB 1 (Additional Tests: Glycol) To discuss this sample report, contact Customer Service at 1-800-268-2131. tspence@manitoulintransport.com 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.

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/ar19/21 un24/2

Aar19/2 Por Viscosity @ 100°C

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H

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