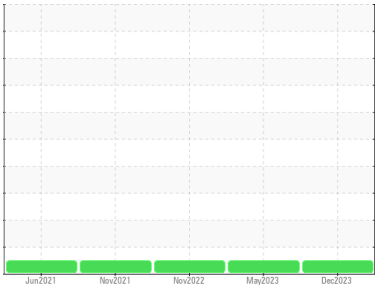
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Area
4000 Series
Machine Id
Navistar 4337
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 10W30 (12 LTR)

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor.

Wear
Metal levels are typical for a new component breaking in.

Contamination
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

Fluid Condition
The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0864533**	WC0817393	WC0750586
Sample Date		Client Info		**04 Dec 2023**	24 May 2023	12 Nov 2022
Machine Age	mls	Client Info		**73763**	523681	37387
Oil Age	mls	Client Info		**7989**	14981	7237
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**NORMAL**	NORMAL	NORMAL

CONTAMINATION		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 METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>130	**16**	38	22
Chromium	ppm	ASTM D5185(m)	>10	**<1**	<1	<1
Nickel	ppm	ASTM D5185(m)	>4	**0**	<1	0
Titanium	ppm	ASTM D5185(m)	>2	**0**	<1	<1
Silver	ppm	ASTM D5185(m)	>2	**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>20	**23**	26	15
Lead	ppm	ASTM D5185(m)	>20	**<1**	<1	<1
Copper	ppm	ASTM D5185(m)	>125	**1**	6	10
Tin	ppm	ASTM D5185(m)	>4	**0**	<1	<1
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)	250	**3**	2	2
Barium	ppm	ASTM D5185(m)	10	**<1**	0	0
Molybdenum	ppm	ASTM D5185(m)	100	**60**	62	59
Manganese	ppm	ASTM D5185(m)		**0**	<1	<1
Magnesium	ppm	ASTM D5185(m)	450	**971**	997	956
Calcium	ppm	ASTM D5185(m)	3000	**1066**	1128	1069
Phosphorus	ppm	ASTM D5185(m)	1150	**1016**	1108	1065
Zinc	ppm	ASTM D5185(m)	1350	**1200**	1228	1184
Sulfur	ppm	ASTM D5185(m)	4250	**2584**	2599	2569
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**6**	6	6
Sodium	ppm	ASTM D5185(m)		**2**	2	2
Potassium	ppm	ASTM D5185(m)	>20	**36**	45	30

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>6	**0.2**	0.6	0.2
Nitration	Abs/cm	ASTM D7624*	>20	**7.8**	10.8	8.3
Sulfation	Abs/.1mm	ASTM D7415*	>30	**19.1**	21.3	20.2

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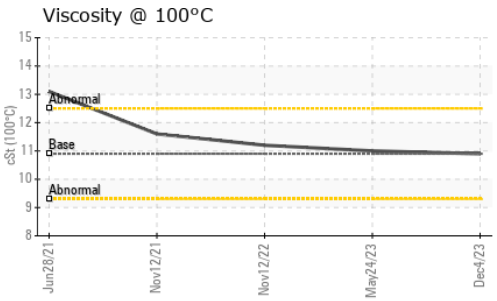
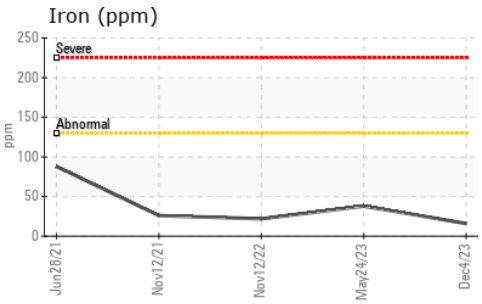


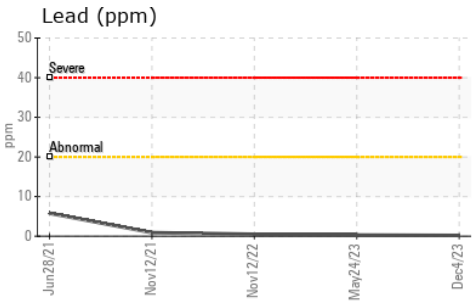
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**15.8**	18.5	16.1

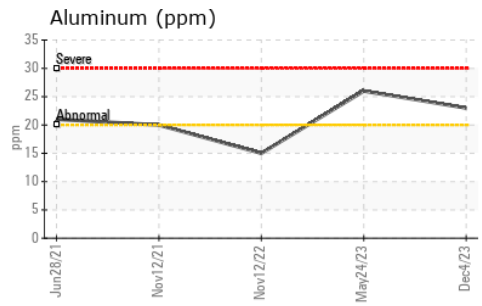
VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.2	**NEG**	NEG	NEG
Free Water	scalar	Visual*		**NEG**	NEG	NEG

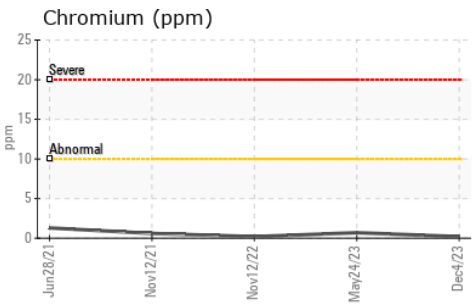
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	10.9	**10.9**	11.0	11.2

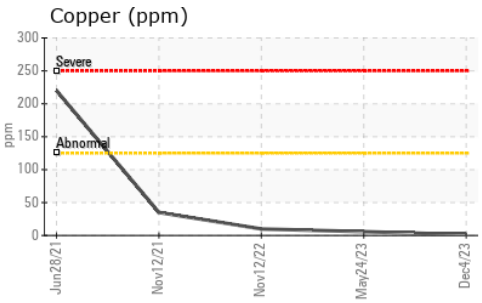
GRAPHS

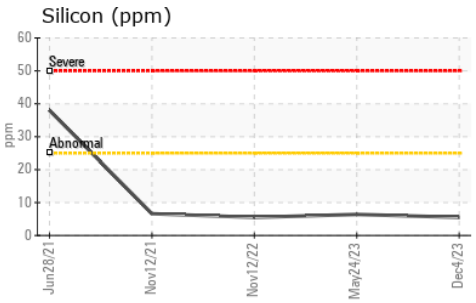


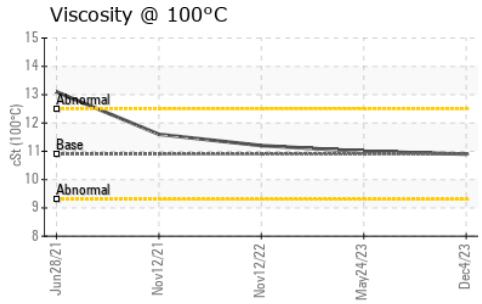


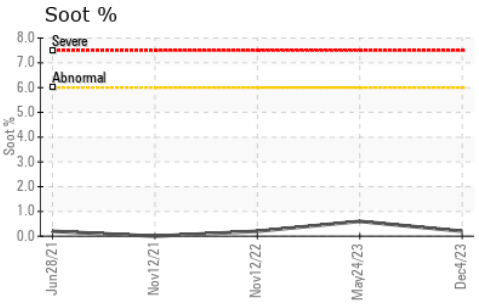












ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **MANITOULIN TRANSPORT (GARAGE)**
Sample No. : WC0864533 **Received** : 12 Dec 2023 1335 SHAWSON DRIVE
Lab Number : 02602484 **Diagnosed** : 12 Dec 2023 MISSISSAUGA, ON
Unique Number : 5695569 **Diagnostician** : Wes Davis CA L4W 1C4
Test Package : MOB 1 Contact: Travis Spence

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. T:
Validity of results and interpretation are based on the sample and information as supplied. F: (905)564-6361