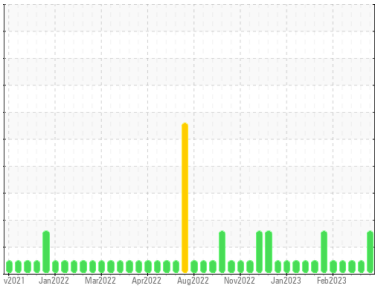
OIL ANALYSIS REPORT

Sample Rating Trend



DIRT

Machine Id
MTNM01BE
Component
Biogas Engine
Fluid
SHELL SHELL MYSELLA S3 N 40 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter 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

Elemental level of silicon (Si) above normal.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0770244**	WC0770223	WC0770159
Sample Date		Client Info		**07 Apr 2023**	30 Mar 2023	22 Mar 2023
Machine Age	hrs	Client Info		**37826**	75785	37688
Oil Age	hrs	Client Info		**528**	19	390
Oil Changed		Client Info		**Changed**	N/A	Changed
Sample Status				**ABNORMAL**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	**<1.0**	<1.0	<1.0
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>15	**7**	1	6
Chromium	ppm	ASTM D5185m	>4	**0**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**0**	<1	<1
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m	>5	**0**	0	0
Aluminum	ppm	ASTM D5185m	>6	**<1**	2	3
Lead	ppm	ASTM D5185m	>9	**<1**	0	<1
Copper	ppm	ASTM D5185m	>6	**1**	<1	1
Tin	ppm	ASTM D5185m	>4	**4**	<1	3
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**3**	4	4
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**2**	5	2
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**17**	22	17
Calcium	ppm	ASTM D5185m		**1732**	1346	1611
Phosphorus	ppm	ASTM D5185m		**350**	299	324
Zinc	ppm	ASTM D5185m		**449**	351	429
Sulfur	ppm	ASTM D5185m		**3269**	3191	2915

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>181	▲ **182**	22	149
Sodium	ppm	ASTM D5185m		**0**	2	0
Potassium	ppm	ASTM D5185m	>20	**2**	<1	2

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**5.7**	3.3	5.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	**23.1**	16.6	23.2

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**16.9**	10.1	16.7
Acid Number (AN)	mg KOH/g	ASTM D8045		**1.28**	0.62	1.23
Base Number (BN)	mg KOH/g	ASTM D2896	5	**4.09**	4.88	3.73

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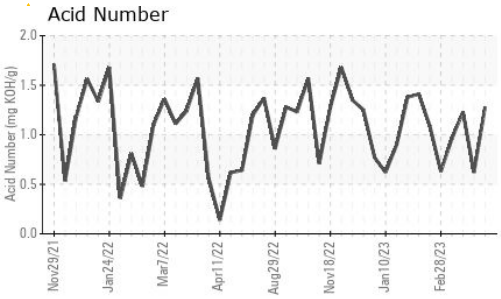
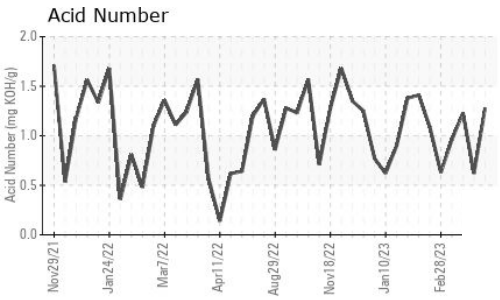
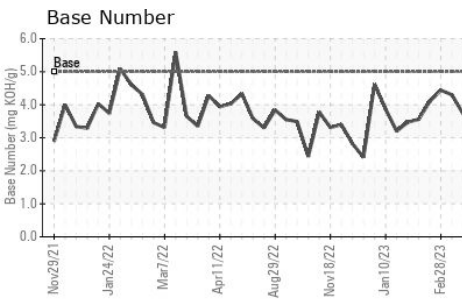
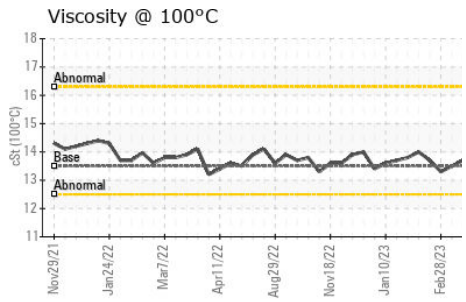




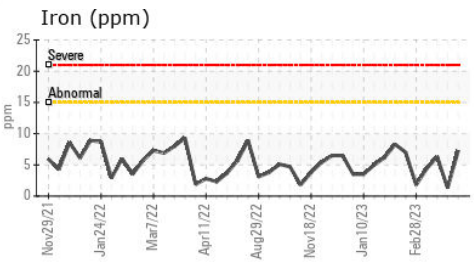


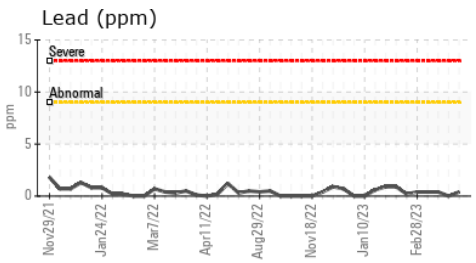


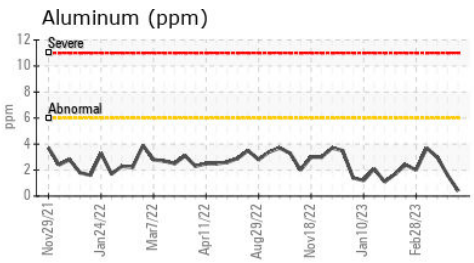
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

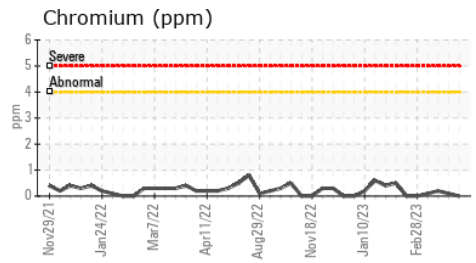
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.5	**13.7**	13.1	13.7

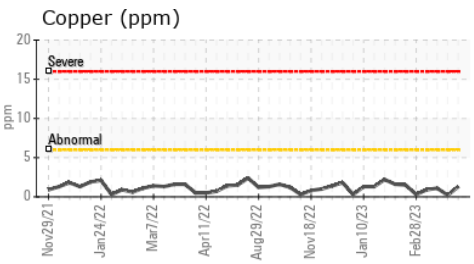
GRAPHS

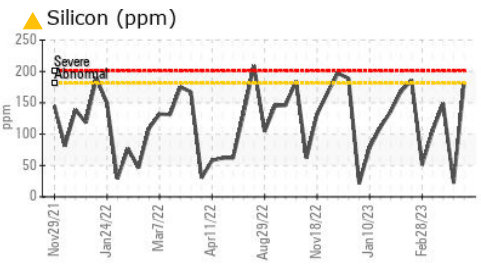


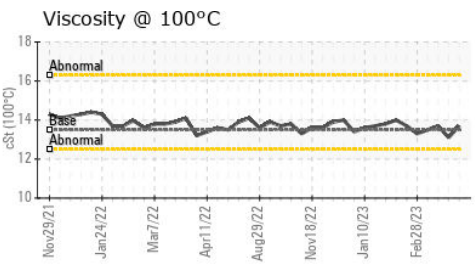


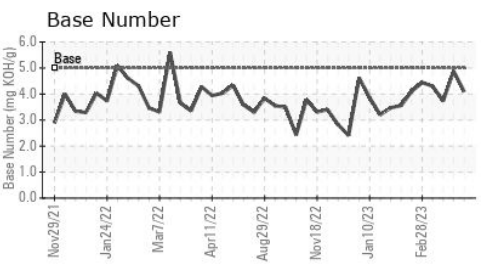












Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0770244 **Received** : 11 Apr 2023
Lab Number : 05816651 **Diagnosed** : 13 Apr 2023
Unique Number : 10419443 **Diagnostician** : Angela Borella
Test Package : MOB 2

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)

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Report Id: EDLMOR [WUSCAR] 05816651 (Generated: 07/24/2023 09:17:34) Rev: 1

Submitted By: Danny Hernandez