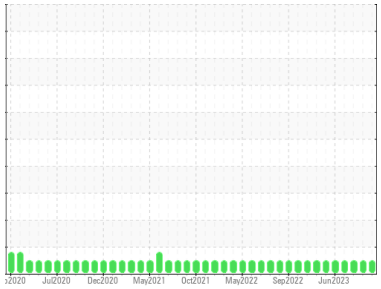
OIL ANALYSIS REPORT

Area
Map Runner
Machine Id
[Map Runner] Oil - Port Main Engine
Component
Port Main Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (37 GAL)

Sample Rating Trend



NORMAL

DIAGNOSIS

Recommendation
Resample at the next service interval to monitor. (Customer Sample Comment: Scheduled to be changed 9-28-23)

Wear
All component wear rates are normal.

Contamination
There is no indication of any contamination in the oil.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0719210**	WC0769062	WC0735721
Sample Date		Client Info		**27 Sep 2023**	30 Aug 2023	27 Jul 2023
Machine Age	hrs	Client Info		**18286**	17687	16973
Oil Age	hrs	Client Info		**1312**	713	1096
Oil Changed		Client Info		**Not Changd**	Oil Added	Changed
Sample Status				**NORMAL**	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	>75	**24**	10	20
Chromium	ppm	ASTM D5185m	>8	**<1**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**0**	0	0
Titanium	ppm	ASTM D5185m	>3	**<1**	<1	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>15	**<1**	<1	<1
Lead	ppm	ASTM D5185m	>18	**2**	<1	2
Copper	ppm	ASTM D5185m	>80	**2**	1	3
Tin	ppm	ASTM D5185m	>14	**<1**	<1	<1
Vanadium	ppm	ASTM D5185m		**0**	<1	<1
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	**2**	3	18
Barium	ppm	ASTM D5185m	10	**0**	0	0
Molybdenum	ppm	ASTM D5185m	100	**67**	64	68
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m	450	**1572**	1513	1544
Calcium	ppm	ASTM D5185m	3000	**1220**	1197	1169
Phosphorus	ppm	ASTM D5185m	1150	**1117**	1085	993
Zinc	ppm	ASTM D5185m	1350	**1422**	1325	1237
Sulfur	ppm	ASTM D5185m	4250	**3719**	4243	3926

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	**3**	3	3
Sodium	ppm	ASTM D5185m	>158	**2**	2	4
Potassium	ppm	ASTM D5185m	>20	**<1**	0	1

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.3**	0.2	0.4
Nitration	Abs/cm	*ASTM D7624	>20	**10.5**	8.4	9.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	**21.6**	20.4	19.9

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**19.2**	16.7	15.6
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	**11.38**	12.55	10.21

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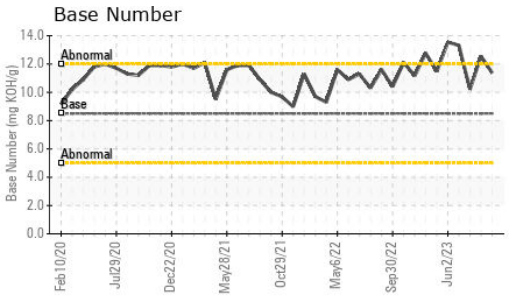
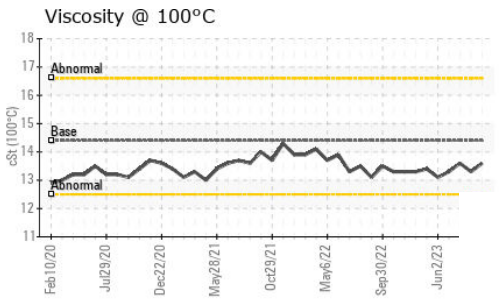
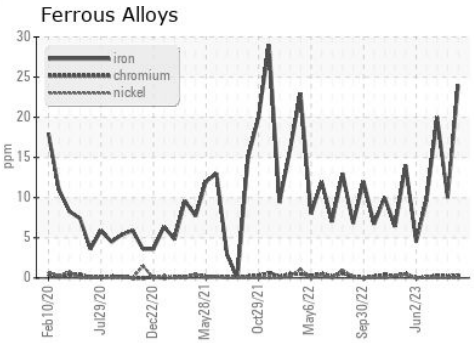


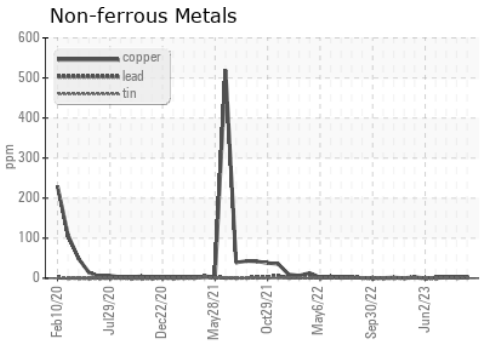


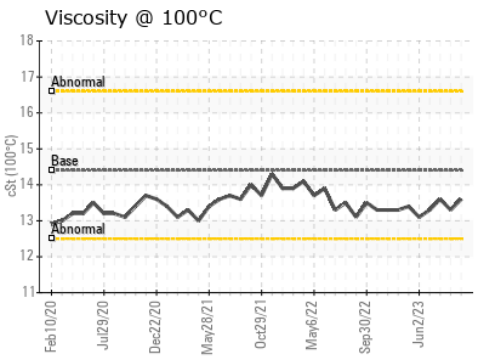
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

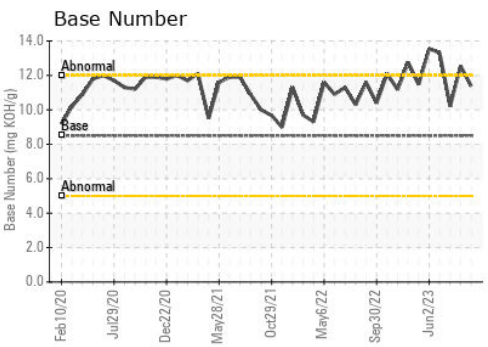
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	**13.6**	13.3	13.6

GRAPHS









Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0719210
Lab Number : 05966525
Unique Number : 10673076
Test Package : IND 2

Received : 02 Oct 2023
Diagnosed : 03 Oct 2023
Diagnostician : Sean Felton

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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