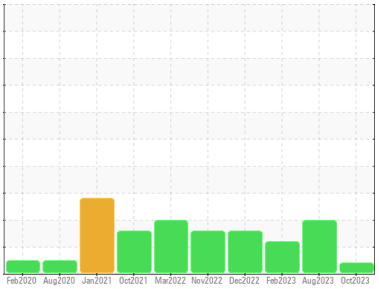
OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Area
GUAY SON [CONHER]
Machine Id
BM NAUTICO I IBACO BM NAUTICO I AUX-2
Component
Diesel Engine
Fluid
XTRA REV 15W40 (160 LTR)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

The amount and size of particulates present in the system are acceptable. There is no indication of any contamination in the oil.

Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**KL0013328**	KL0012270	KL0010223
Sample Date		Client Info		**25 Oct 2023**	26 Aug 2023	17 Feb 2023
Machine Age	hrs	Client Info		**3845**	21964	2184
Oil Age	hrs	Client Info		**150**	293	50
Oil Changed		Client Info		**Changed**	Not Changd	Not Changd
Sample Status				**ATTENTION**	ATTENTION	ATTENTION

CONTAMINATION		method	limit/base	current	history1	history2
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**58**	81	66
Chromium	ppm	ASTM D5185m	>20	**2**	2	2
Nickel	ppm	ASTM D5185m	>4	**0**	0	<1
Titanium	ppm	ASTM D5185m		**0**	<1	<1
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**3**	<1	<1
Lead	ppm	ASTM D5185m	>40	**2**	2	2
Copper	ppm	ASTM D5185m	>330	**6**	163	153
Tin	ppm	ASTM D5185m	>15	**0**	<1	<1
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

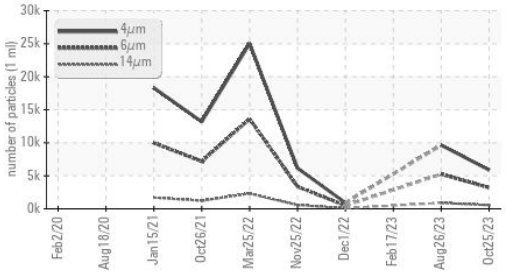
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	0
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**0**	<1	<1
Manganese	ppm	ASTM D5185m		**<1**	2	1
Magnesium	ppm	ASTM D5185m		**9**	19	17
Calcium	ppm	ASTM D5185m		**3632**	4148	3879
Phosphorus	ppm	ASTM D5185m		**1225**	1166	1120
Zinc	ppm	ASTM D5185m		**1583**	1515	1426
Sulfur	ppm	ASTM D5185m		**3292**	3530	3801

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**17**	18	16
Sodium	ppm	ASTM D5185m		**12**	3	3
Potassium	ppm	ASTM D5185m	>20	**2**	2	0
Fuel	%	ASTM D3524	>5	**<1.0**	<1.0	▲ 2.3

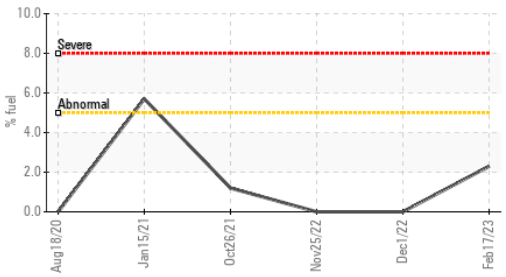
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0.1**	0	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**5.5**	16.3	9.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	**14.2**	26.1	19.2

OIL ANALYSIS REPORT

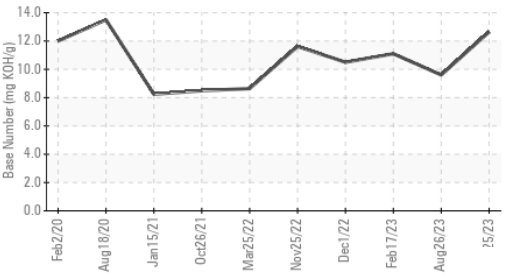
Particle Trend



Fuel Dilution



Base Number



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**5881**	9639	---
Particles >6µm		ASTM D7647	>5000	**3204**	▲ 5251	---
Particles >14µm		ASTM D7647	>640	**545**	▲ 894	---
Particles >21µm		ASTM D7647	>160	**184**	▲ 301	---
Particles >38µm		ASTM D7647	>40	**28**	46	---
Particles >71µm		ASTM D7647	>10	**3**	5	---
Oil Cleanliness		ISO 4406 (c)	>19/16	**19/16**	▲ 20/17	---

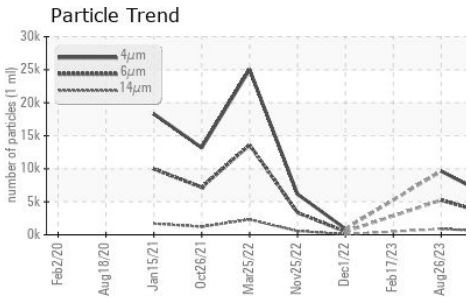
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**7.8**	24.3	14.1
Base Number (BN)	mg KOH/g	ASTM D2896		**12.64**	9.60	11.1

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	>0.2	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

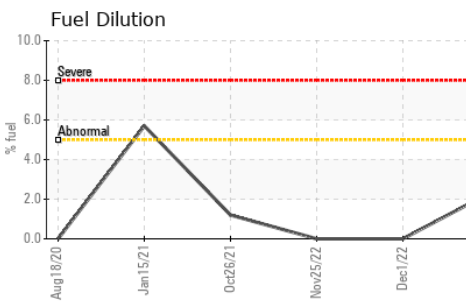
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		▲ **11.1**	▲ 12.3	▲ 12.2

GRAPHS

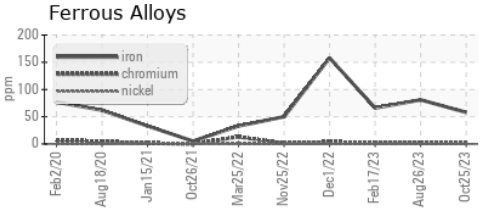
Particle Trend



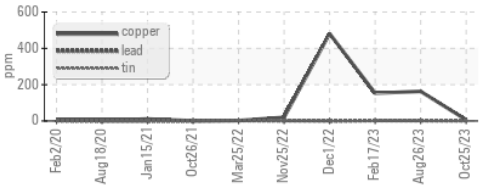
Fuel Dilution



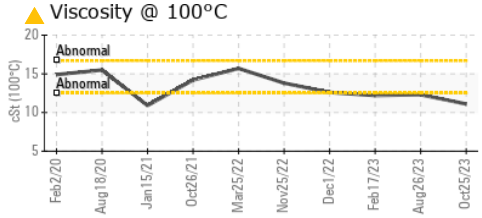
Ferrous Alloys



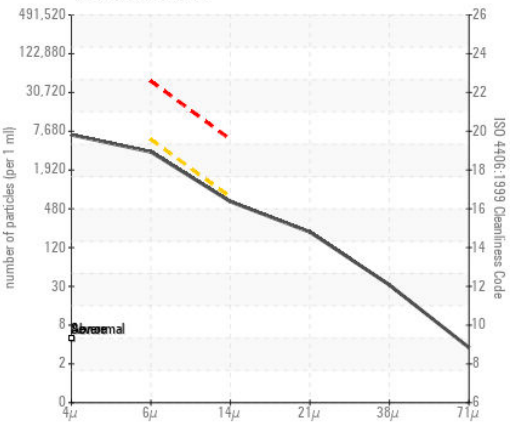
Non-ferrous Metals



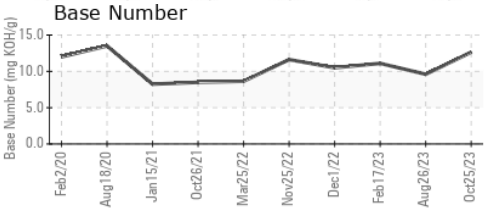
▲ Viscosity @ 100°C



Particle Count



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0013328 **Received** : 01 Nov 2023
Lab Number : 05996372 **Diagnosed** : 03 Nov 2023
Unique Number : 10724732 **Diagnostician** : Don Baldridge
Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel, PrtCount)

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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