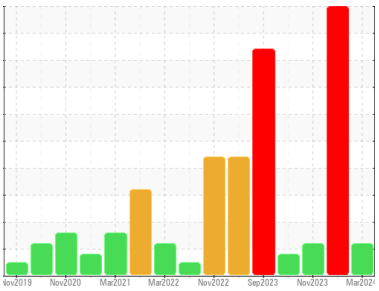
OIL ANALYSIS REPORT

Area
GUAY SON [CONHER]
Machine Id
BM Luis II
Component
Bottom Marine Diesel
Fluid
RALOY 15W40 (8 LTR)

Sample Rating Trend



FUEL

DIAGNOSIS

Recommendation
We advise that you check the fuel injection system. Resample at the next service interval to monitor. (Customer Sample Comment: Fluid: Raloy 15W40)

Wear
All component wear rates are normal.

Contamination
There is a moderate amount of fuel present in the oil. The amount and size of particulates present in the system are acceptable.

Fluid Condition
Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**KL0014522**	KL0013471	KL0013418
Sample Date		Client Info		**20 Mar 2024**	20 Jan 2024	14 Nov 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**150**	200	476
Oil Changed		Client Info		**Not Changd**	Changed	Changed
Sample Status				**ABNORMAL**	SEVERE	ATTENTION

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.1	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	**28**	80	45
Chromium	ppm	ASTM D5185m	>14	**<1**	2	2
Nickel	ppm	ASTM D5185m	>3	**0**	0	<1
Titanium	ppm	ASTM D5185m	>2	**0**	<1	<1
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>10	**4**	10	2
Lead	ppm	ASTM D5185m	>11	**<1**	<1	<1
Copper	ppm	ASTM D5185m	>25	**2**	4	1
Tin	ppm	ASTM D5185m	>2	**1**	0	<1
Vanadium	ppm	ASTM D5185m		**<1**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	<1

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**0**	0	2
Barium	ppm	ASTM D5185m		**0**	1	<1
Molybdenum	ppm	ASTM D5185m		**<1**	0	3
Manganese	ppm	ASTM D5185m		**<1**	0	<1
Magnesium	ppm	ASTM D5185m		**6**	71	14
Calcium	ppm	ASTM D5185m		**2552**	2512	2825
Phosphorus	ppm	ASTM D5185m		**1016**	1089	1113
Zinc	ppm	ASTM D5185m		**1201**	1273	1303
Sulfur	ppm	ASTM D5185m		**3308**	3342	3673

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**9**	▲ 25	15
Sodium	ppm	ASTM D5185m	>40	**16**	▲ 485	4
Potassium	ppm	ASTM D5185m	>20	**2**	▲ 24	5
Fuel	%	ASTM D3524	>5	▲ **7.8**	▲ 5.5	▲ 4.0
Glycol	%	*ASTM D2982		**NEG**	▲ 0.10	NEG

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.6**	0.4	0.9
Nitration	Abs/cm	*ASTM D7624	>20	**10.3**	8.1	8.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	**17.4**	15.6	16.9

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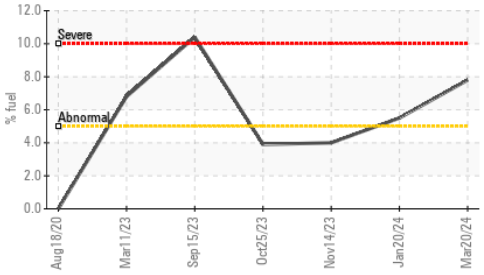
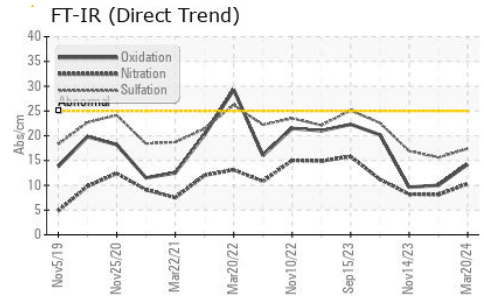
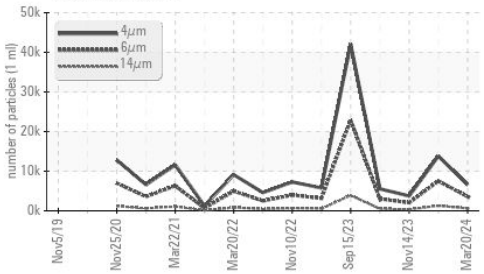
Fuel Dilution



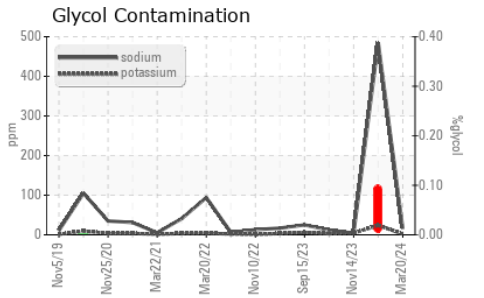
FT-IR (Direct Trend)



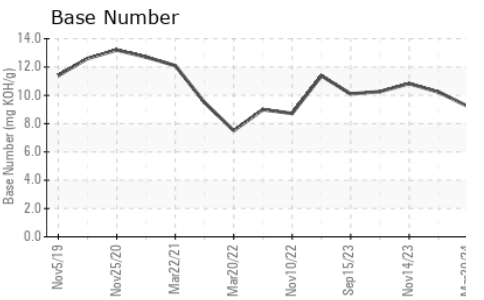
Particle Trend



Glycol Contamination



Base Number



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647		**6577**	13807	3724
Particles >6µm		ASTM D7647	>5000	**3583**	7521	2028
Particles >14µm		ASTM D7647	>640	**610**	1280	345
Particles >21µm		ASTM D7647	>160	**205**	431	116
Particles >38µm		ASTM D7647	>40	**32**	67	18
Particles >71µm		ASTM D7647	>10	**3**	7	2
Oil Cleanliness		ISO 4406 (c)	>19/16	**19/16**	20/17	18/16

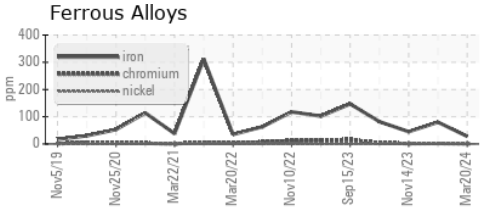
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**14.2**	10.0	9.6
Base Number (BN)	mg KOH/g	ASTM D2896		**9.23**	10.23	10.83

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

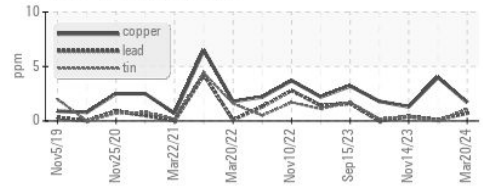
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		▲ **10.5**	▲ 10.7	11.4

GRAPHS

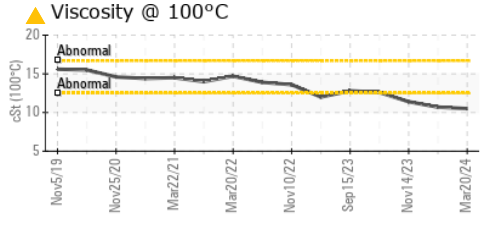
Ferrous Alloys



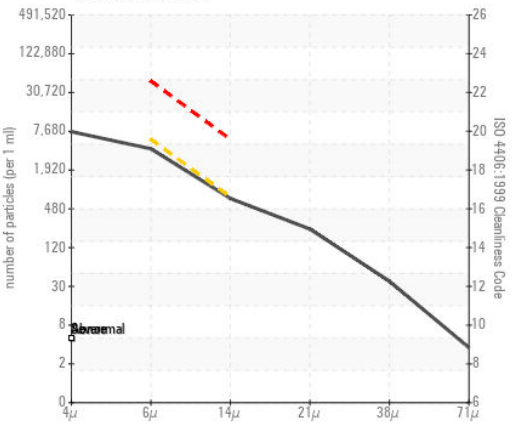
Non-ferrous Metals



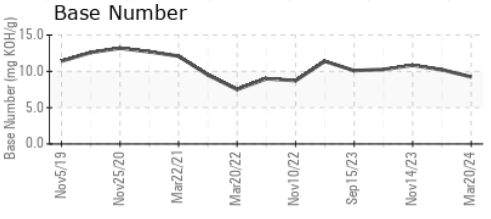
Viscosity @ 100°C



Particle Count



Base Number



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0014522 **Received** : 18 Apr 2024
Lab Number : 06153304 **Tested** : 23 Apr 2024
Unique Number : 10983382 **Diagnosed** : 23 Apr 2024 - Jonathan Hester
Test Package : MOB 2 (Additional Tests: PercentFuel, PrtCount)

Certificate L2367

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: CONHERKL [WUSCAR] 06153304 (Generated: 04/23/2024 16:15:35) Rev: 1

Submitted By: EDUARDO GARCIA