



Machine Id
DETROIT MV PAUL T
Component
Starboard Genset
Fluid
DIESEL ENGINE OIL SAE 15W40 (4 GAL)

RECOMMENDATION

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

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0062746	MW0036751	MW0036750
Sample Date		Client Info		03 Jan 2024	14 Dec 2022	15 Jul 2022
Machine Age	hrs	Client Info		60381	500	35263
Oil Age	hrs	Client Info		1500	500	0
Filter Age	hrs	Client Info		1500	500	0
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	NORMAL

WEAR

Moderate concentration of visible metal present. All component wear rates are normal.

Iron	ppm	ASTM D5185m	>50	11	▲ 63	5
Chromium	ppm	ASTM D5185m	>4	0	1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>5	0	0	<1
Aluminum	ppm	ASTM D5185m	>12	3	4	3
Lead	ppm	ASTM D5185m	>17	2	▲ 90	1
Copper	ppm	ASTM D5185m	>70	20	2	2
Tin	ppm	ASTM D5185m	>15	<1	2	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	▲ MODER	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Fuel content negligible. There is no indication of any contamination in the oil.

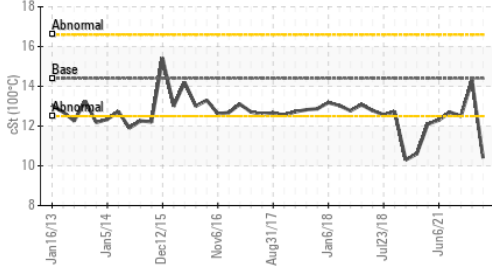
Silicon	ppm	ASTM D5185m	>25	6	6	3
Potassium	ppm	ASTM D5185m	>20	0	<1	0
Fuel	%	ASTM D3524	>4.0	0.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0	0.3	0.4
Nitration	Abs/cm	*ASTM D7624	>20	4.0	13.0	10.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.1	27.6	22.9
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	LIGHT
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

FLUID CONDITION

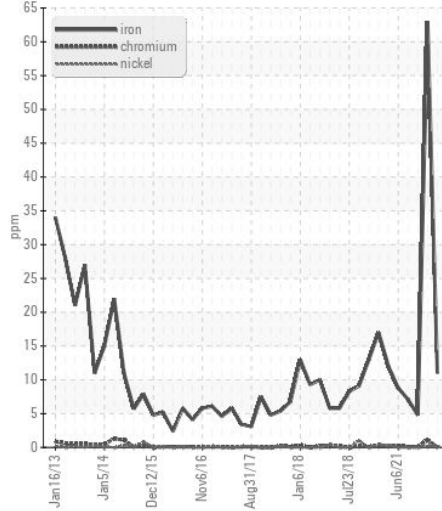
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Sodium	ppm	ASTM D5185m	>158	2	2	2
Boron	ppm	ASTM D5185m	250	301	202	376
Barium	ppm	ASTM D5185m	10	0	0	4
Molybdenum	ppm	ASTM D5185m	100	106	117	114
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	450	645	748	673
Calcium	ppm	ASTM D5185m	3000	1320	1568	1484
Phosphorus	ppm	ASTM D5185m	1150	766	730	683
Zinc	ppm	ASTM D5185m	1350	878	946	862
Sulfur	ppm	ASTM D5185m	4250	2528	2538	2879
Oxidation	Abs/.1mm	*ASTM D7414	>25	12.9	29.1	19.6
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	7.8	8.2	9.0
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 10.4	14.3	12.5

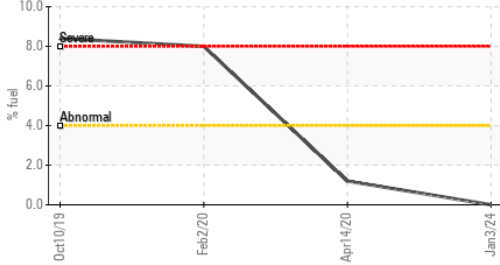
▲ Viscosity @ 100°C



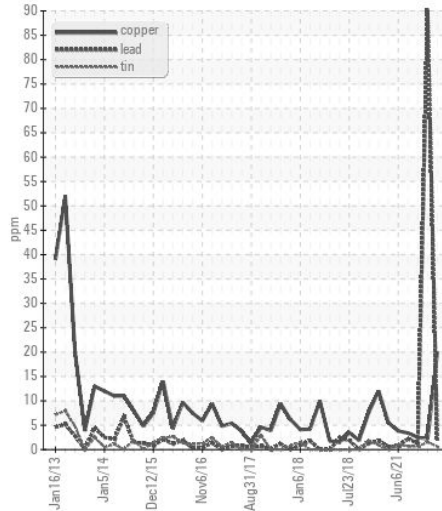
Ferrous Alloys



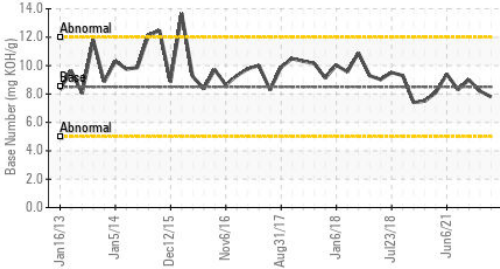
Fuel Dilution



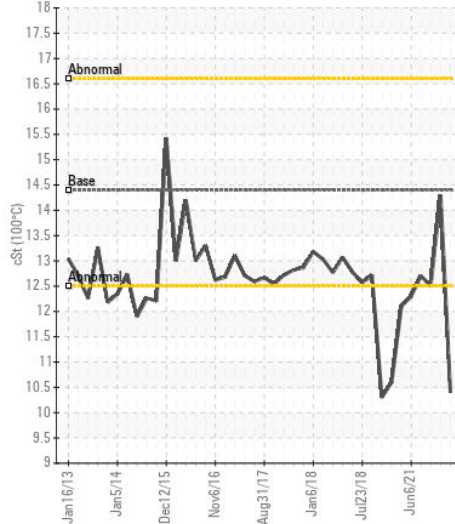
Non-ferrous Metals



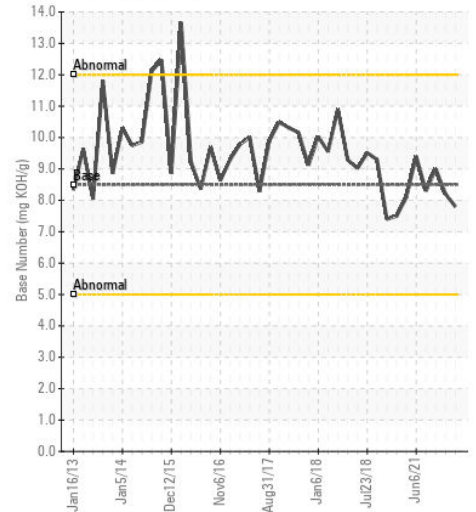
Base Number



▲ Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0062746 **Received** : 08 Jan 2024
Lab Number : 06054659 **Diagnosed** : 12 Jan 2024
Unique Number : 10820608 **Diagnostician** : Jonathan Hester
Test Package : MAR 2 (Additional Tests: FuelDilution, PercentFuel)

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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