



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
NORTHERN LIGHTS X6
Component
Starboard Genset
Fluid
CHEVRON DELO 400 MULTIGRADE 15W40 (5 QTS)

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		KL0013497	KL0013493	KL0008982
Sample Date		Client Info		27 May 2024	30 Apr 2024	20 Apr 2023
Machine Age	hrs	Client Info		15067	13668	11827
Oil Age	hrs	Client Info		250	270	448
Filter Age	hrs	Client Info		0	0	448
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ATTENTION	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>50	5	9	14
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	<1	0
Aluminum	ppm	ASTM D5185m	>12	2	2	2
Lead	ppm	ASTM D5185m	>17	0	<1	0
Copper	ppm	ASTM D5185m	>70	<1	4	<1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

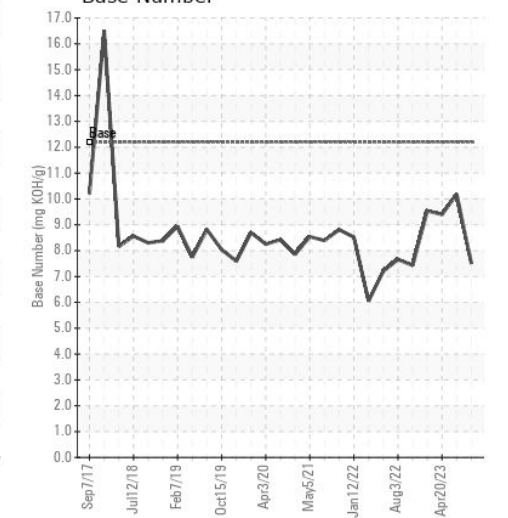
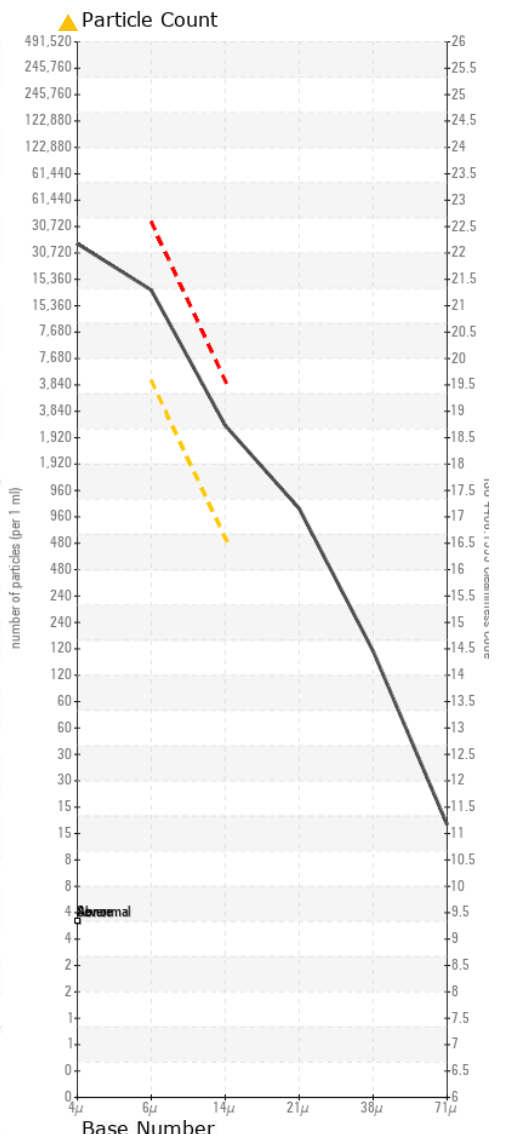
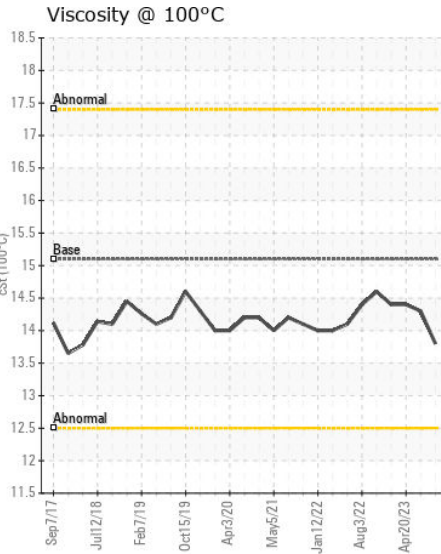
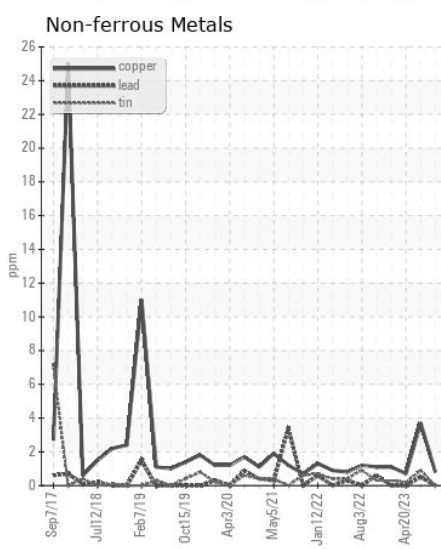
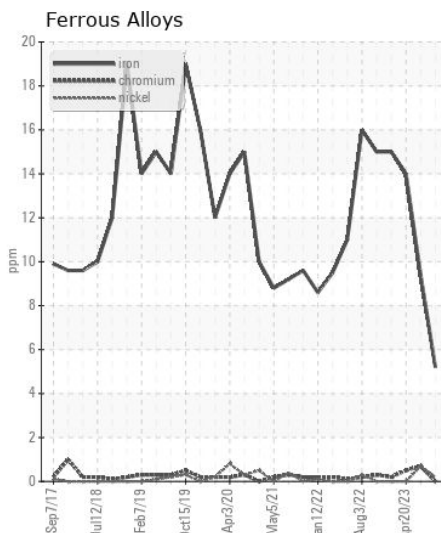
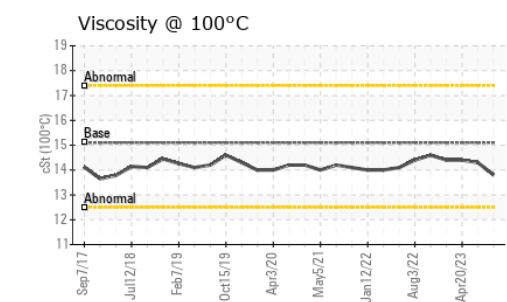
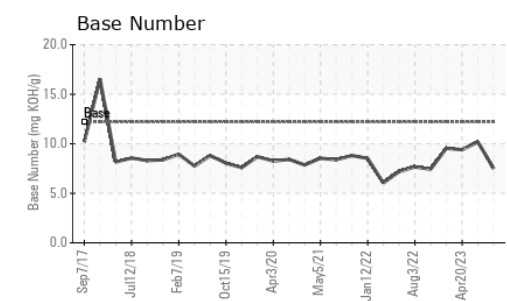
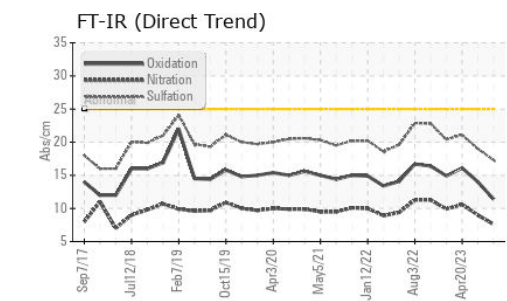
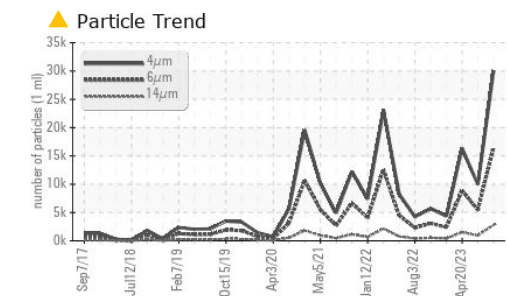
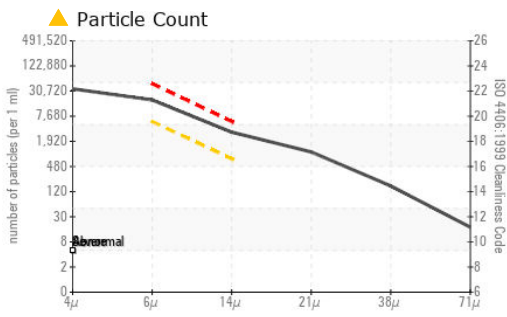
There is a high amount of particulates present in the oil.

Silicon	ppm	ASTM D5185m	>25	4	6	6
Potassium	ppm	ASTM D5185m	>20	4	5	3
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.3	0.5	0.9
Nitration	Abs/cm	*ASTM D7624	>20	7.6	9.0	10.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.3	19.0	21.1
Particles >4µm		ASTM D7647		30040	9978	16321
Particles >6µm		ASTM D7647	>5000	▲ 16365	● 5436	▲ 8891
Particles >14µm		ASTM D7647	>640	▲ 2785	● 925	▲ 1513
Particles >21µm		ASTM D7647	>160	▲ 938	● 312	▲ 510
Particles >38µm		ASTM D7647	>40	▲ 145	● 48	▲ 79
Particles >71µm		ASTM D7647	>10	● 15	5	8
Oil Cleanliness		ISO 4406 (c)	>19/16	▲ 21/19	● 20/17	▲ 20/18
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

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.

Sodium	ppm	ASTM D5185m		2	2	3
Boron	ppm	ASTM D5185m		20	63	33
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		2	6	<1
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		320	792	819
Calcium	ppm	ASTM D5185m		2050	1397	1474
Phosphorus	ppm	ASTM D5185m	1360	880	781	745
Zinc	ppm	ASTM D5185m	1480	1027	911	911
Sulfur	ppm	ASTM D5185m		4031	3389	3648
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.4	14.0	16.1
Base Number (BN)	mg KOH/g	ASTM D2896	12.2	7.5	10.18	9.40
Visc @ 100°C	cSt	ASTM D445	15.1	13.8	14.3	14.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0013497 **Received** : 17 Jun 2024
Lab Number : 06212762 **Tested** : 19 Jun 2024
Unique Number : 11085626 **Diagnosed** : 19 Jun 2024 - Angela Borella
Test Package : MOB 2 (Additional Tests: 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)

EXPEDITIONS
 658 FRONT ST, SUITE 127
 LAHAINA, HI
 US 96761
 Contact: BILL CALDWELL
 bill@go-lanai.com
 T: (800)695-2624
 F: (808)661-0544