



Machine Id
PAUL F BROTZGE

Component
Starboard Genset

Fluid
CHEVRON DELO 710 LS (5 GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0066350	MW0053156	MW0069286
Sample Date		Client Info		08 Jul 2024	29 May 2024	14 Apr 2024
Machine Age	hrs	Client Info		26551	26229	26092
Oil Age	hrs	Client Info		97	147	276
Filter Age	hrs	Client Info		97	147	276
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	SEVERE	SEVERE

WEAR

Cylinder, crank, or cam shaft wear is indicated. Bearing and/or bushing wear is indicated.

Iron	ppm	ASTM D5185m	>50	▲ 101	▲ 93	35
Chromium	ppm	ASTM D5185m	>4	<1	1	▲ 7
Nickel	ppm	ASTM D5185m	>2	<1	<1	1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>5	1	<1	<1
Aluminum	ppm	ASTM D5185m	>12	4	2	4
Lead	ppm	ASTM D5185m	>17	▲ 16	▲ 30	▲ 49
Copper	ppm	ASTM D5185m	>70	▲ 87	▲ 126	▲ 223
Tin	ppm	ASTM D5185m	>15	2	2	3
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

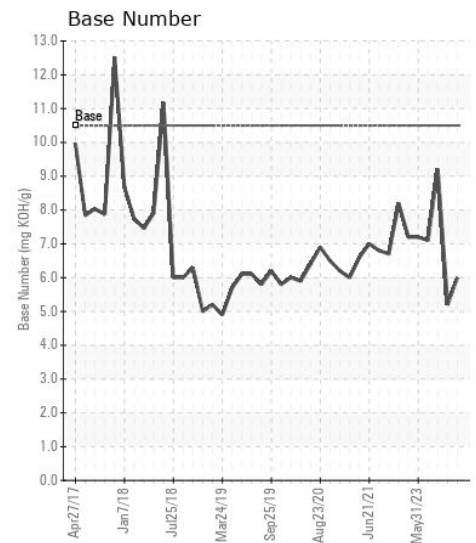
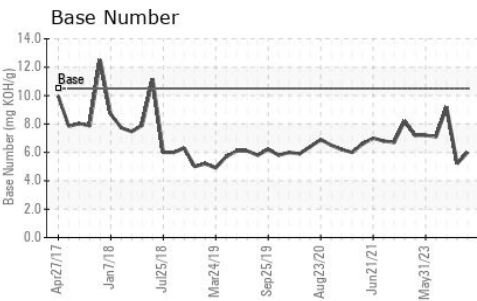
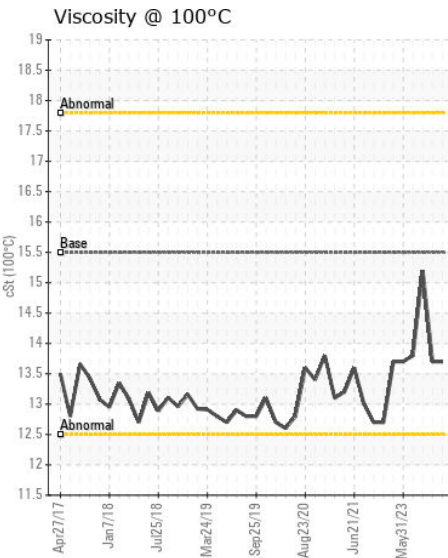
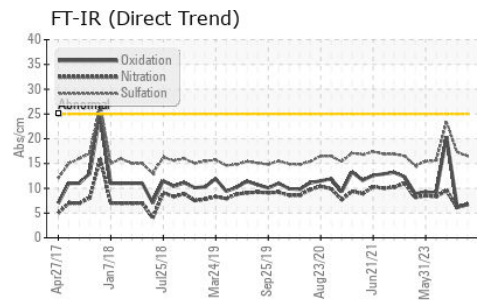
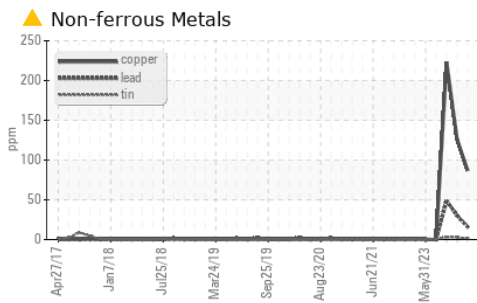
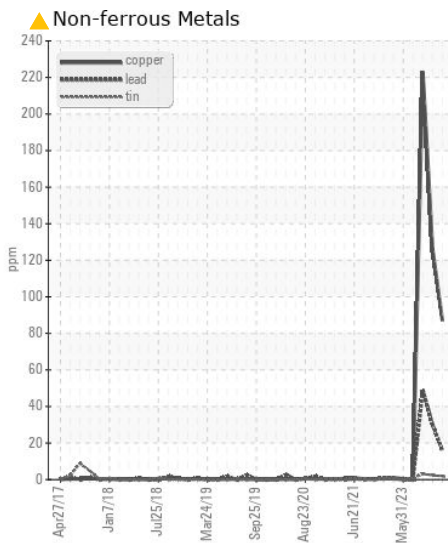
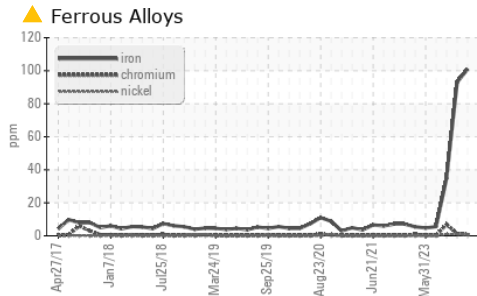
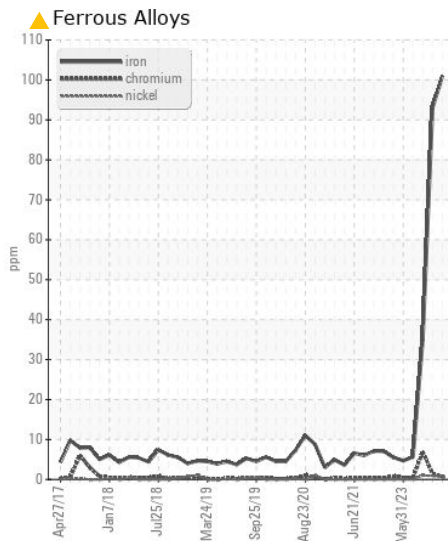
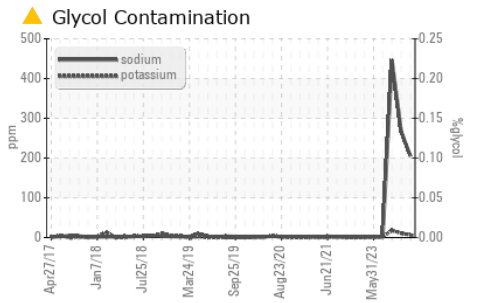
Sodium and/or potassium levels are high. Test for glycol is negative. No other contaminants were detected in the oil.

Silicon	ppm	ASTM D5185m	>25	3	3	5
Potassium	ppm	ASTM D5185m	>20	6	11	18
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		0.1	0	1.1
Nitration	Abs/cm	*ASTM D7624	>20	6.8	6.1	9.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.5	17.3	23.4
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 oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185m		▲ 205	▲ 267	▲ 447
Boron	ppm	ASTM D5185m		32	25	16
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		42	35	41
Manganese	ppm	ASTM D5185m		3	3	3
Magnesium	ppm	ASTM D5185m		10	10	15
Calcium	ppm	ASTM D5185m		2510	2246	1997
Phosphorus	ppm	ASTM D5185m		48	11	21
Zinc	ppm	ASTM D5185m		169	102	73
Sulfur	ppm	ASTM D5185m		2554	3156	3674
Oxidation	Abs/.1mm	*ASTM D7414	>25	6.7	6.3	20.4
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	6.0	5.2	9.2
Visc @ 100°C	cSt	ASTM D445	15.5	13.7	13.7	15.2



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : MW0066350

Lab Number : 06239827

Unique Number : 11128661

Test Package : MAR 2

Received : 18 Jul 2024

Tested : 18 Jul 2024

Diagnosed : 19 Jul 2024 - Doug Bogart

AMERICAN COMMERCIAL LINES

PO BOX 610, 1701 E. MARKET STREET

JEFFERSONVILLE, IN

US 47130

Contact: RONALD SCHNEIDER

ronald.schneider@bargaeacbl.com

T:

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)

F: (812)288-1644