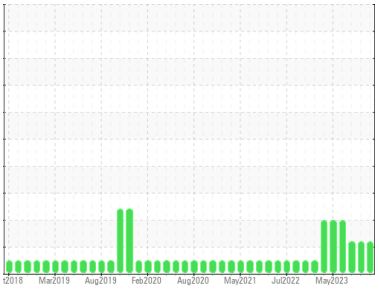
PROBLEM SUMMARY

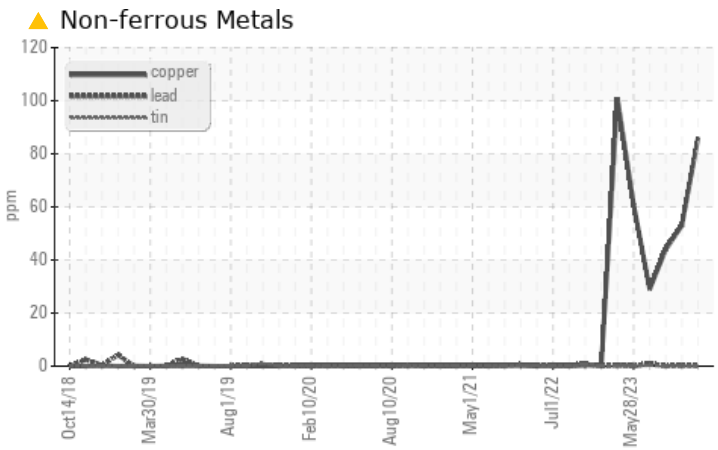
Sample Rating Trend

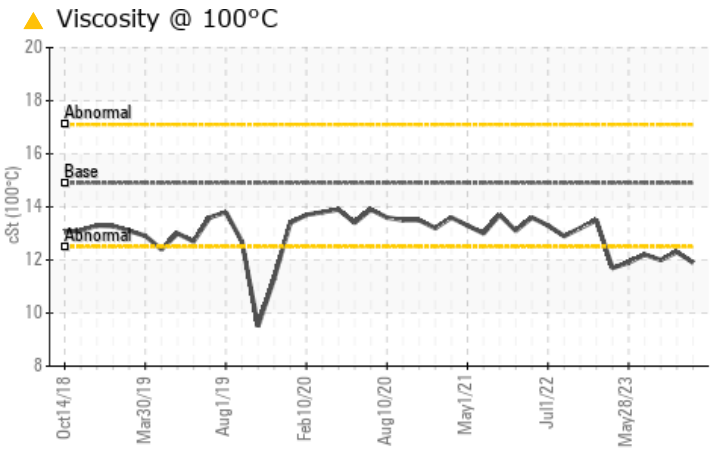


WEAR

Area
NEIL N DIEHL
Machine Id
[NEIL N DIEHL] 008 639030-8
Component
Starboard Genset
Fluid
CHEVRON DELO 400 XLE 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL
Copper	ppm	ASTM D5185m	>70	▲ **86**	▲ 53	▲ 44
Visc @ 100°C	cSt	ASTM D445	14.9	▲ **11.9**	▲ 12.3	▲ 12.0

Customer Id: INGPAD
Sample No.: MW0058475
Lab Number: 06008839
Test Package: MAR 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Sean Felton +1 919-379-4092
sfelton@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	Oil and filter change at the time of sampling has been noted.
Change Filter	---	---	?	Oil and filter change at the time of sampling has been noted.

HISTORICAL DIAGNOSIS

09 Sep 2023 Diag: Don Baldridge

WEAR

view report

11 Aug 2023 Diag: Jonathan Hester

WEAR

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.The copper level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

view report

08 Jul 2023 Diag: Sean Felton

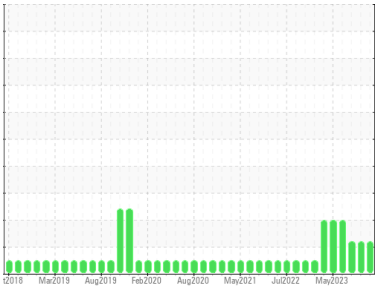
WEAR

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.The copper level has decreased, but is still abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal. Light fuel dilution occurring. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
NEIL N DIEHL
Machine Id
[NEIL N DIEHL] 008 639030-8
Component
Starboard Genset
Fluid
CHEVRON DELO 400 XLE 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal.

Contamination

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		**MW0058475**	MW0059905	MW0059896
Sample Date		Client Info		**13 Oct 2023**	09 Sep 2023	11 Aug 2023
Machine Age	hrs	Client Info		**2805**	2423	2063
Oil Age	hrs	Client Info		**382**	354	427
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

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	>50	**4**	7	5
Chromium	ppm	ASTM D5185m	>4	**0**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**0**	<1	0
Titanium	ppm	ASTM D5185m		**0**	<1	<1
Silver	ppm	ASTM D5185m	>5	**0**	0	0
Aluminum	ppm	ASTM D5185m	>12	**3**	3	0
Lead	ppm	ASTM D5185m	>17	**0**	<1	0
Copper	ppm	ASTM D5185m	>70	▲ **86**	▲ 53	▲ 44
Tin	ppm	ASTM D5185m	>15	**<1**	<1	0
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	<1	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**260**	330	280
Barium	ppm	ASTM D5185m		**0**	4	0
Molybdenum	ppm	ASTM D5185m		**109**	114	115
Manganese	ppm	ASTM D5185m		**1**	1	1
Magnesium	ppm	ASTM D5185m		**594**	565	665
Calcium	ppm	ASTM D5185m		**1454**	1519	1665
Phosphorus	ppm	ASTM D5185m	760	**556**	622	660
Zinc	ppm	ASTM D5185m	830	**738**	724	801
Sulfur	ppm	ASTM D5185m	2770	**2320**	2255	2980

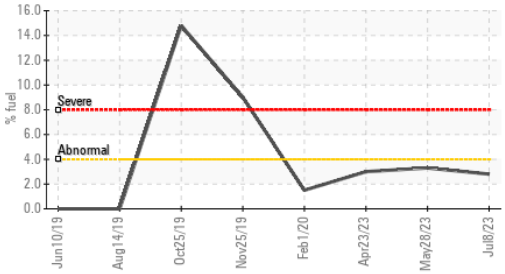
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**6**	7	6
Sodium	ppm	ASTM D5185m		**<1**	2	1
Potassium	ppm	ASTM D5185m	>20	**0**	<1	0
Fuel	%	ASTM D3524	>4.0	**<1.0**	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.1**	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	**7.4**	6.8	7.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	**22.7**	21.9	22.4

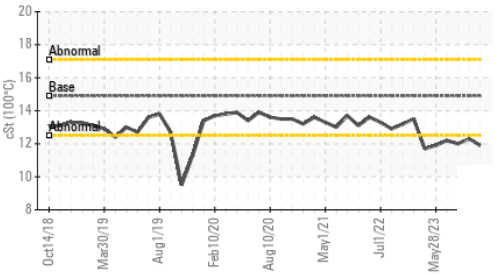
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**16.8**	15.7	16.7
Base Number (BN)	mg KOH/g	ASTM D2896	10.7	**8.4**	8.4	8.7

OIL ANALYSIS REPORT

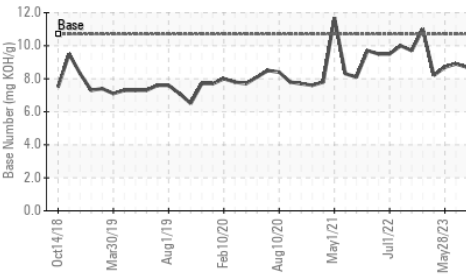
Fuel Dilution



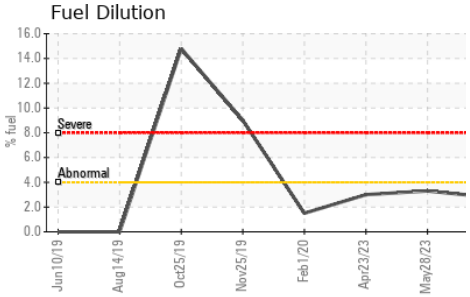
Viscosity @ 100°C



Base Number



Fuel Dilution

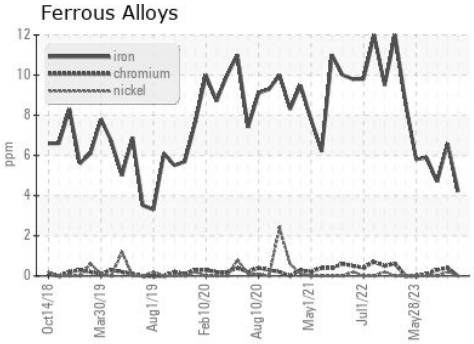


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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

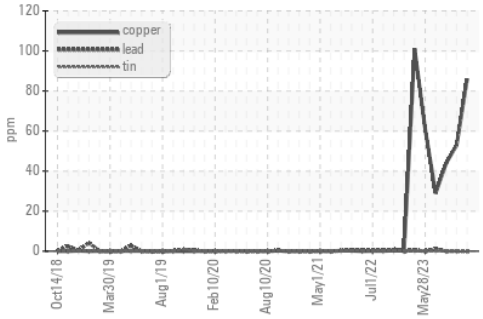
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.9	▲ **11.9**	▲ 12.3	▲ 12.0

GRAPHS

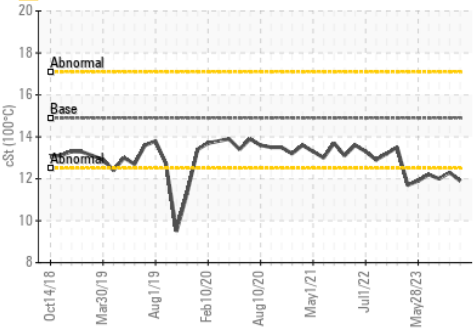
Ferrous Alloys



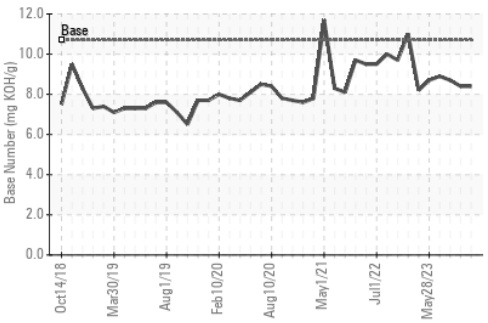
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0058475 **Received** : 15 Nov 2023
Lab Number : 06008839 **Diagnosed** : 16 Nov 2023
Unique Number : 10742601 **Diagnostician** : Sean Felton
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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