



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Area
LES GRIMM
Machine Id
[LES GRIMM] 003 569145-3
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LE (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0059882	MW0059878	MW0059874
Sample Date		Client Info		01 Feb 2024	01 Jan 2024	01 Dec 2023
Machine Age	hrs	Client Info		34027	33274	32537
Oil Age	hrs	Client Info		34027	33274	32537
Filter Age	hrs	Client Info		450	1115	367
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	11	9	8
Chromium	ppm	ASTM D5185m	>8	<1	1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>3	<1	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	1	2	2
Lead	ppm	ASTM D5185m	>18	14	▲ 18	▲ 19
Copper	ppm	ASTM D5185m	>80	33	32	36
Tin	ppm	ASTM D5185m	>14	4	5	4
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

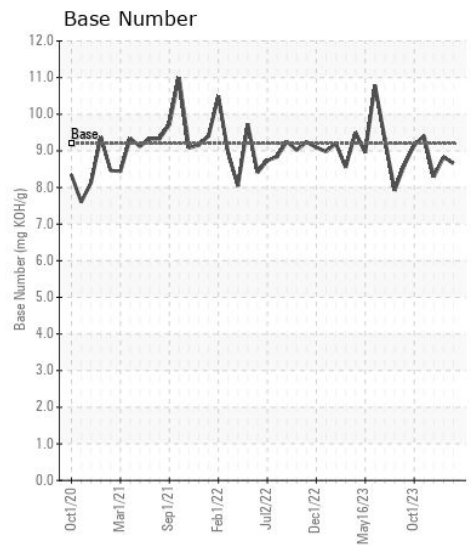
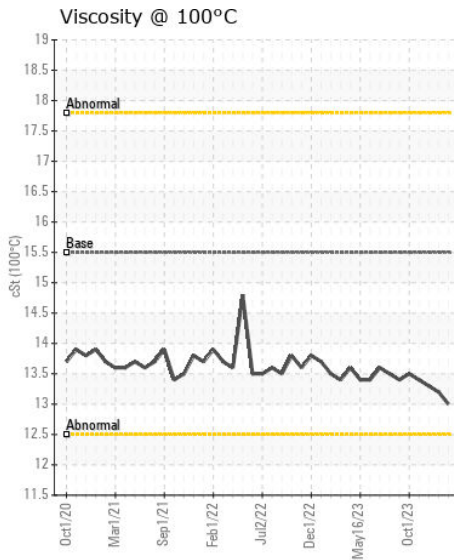
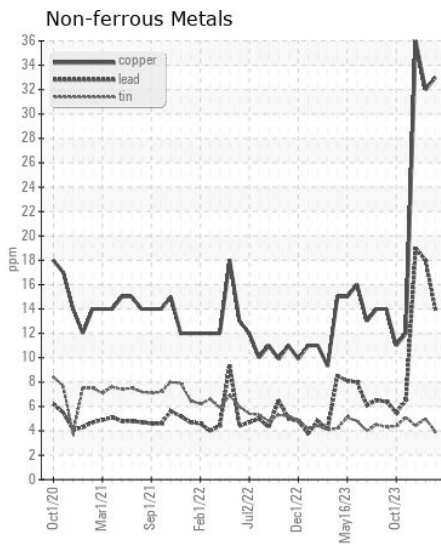
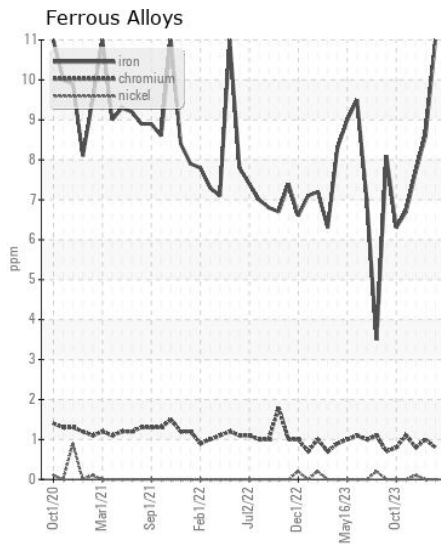
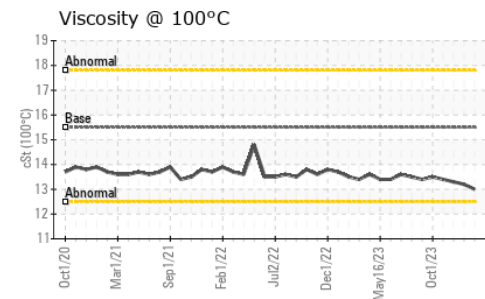
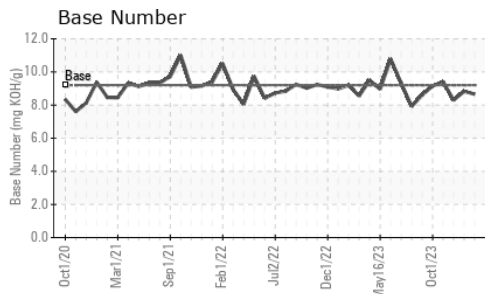
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	6	6	6
Potassium	ppm	ASTM D5185m	>20	2	<1	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		0.8	0.8	0.8
Nitration	Abs/cm	*ASTM D7624	>20	8.7	8.5	8.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.2	17.1	17.4
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 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	>75	35	41	52
Boron	ppm	ASTM D5185m		30	27	30
Barium	ppm	ASTM D5185m		11	0	0
Molybdenum	ppm	ASTM D5185m		43	44	42
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m		12	15	16
Calcium	ppm	ASTM D5185m		2924	3219	3158
Phosphorus	ppm	ASTM D5185m		32	6	4
Zinc	ppm	ASTM D5185m	10	16	12	5
Sulfur	ppm	ASTM D5185m		2255	2279	2155
Oxidation	Abs/.1mm	*ASTM D7414	>25	8.5	8.1	8.3
Base Number (BN)	mg KOH/g	ASTM D2896	9.2	8.66	8.83	8.29
Visc @ 100°C	cSt	ASTM D445	15.5	13.0	13.2	13.3



Certificate L2367

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

Sample No. : MW0059882

Lab Number : 06089655

Unique Number : 10877100

Test Package : MAR 2

Received : 14 Feb 2024

Tested : 16 Feb 2024

Diagnosed : 16 Feb 2024 - Wes Davis

INGRAM BARGE

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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)