



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		MW0059948	MW0059964	MW0059958
Sample Date		Client Info		01 Nov 2023	01 Oct 2023	01 Sep 2023
Machine Age	hrs	Client Info		32019	31294	30609
Oil Age	hrs	Client Info		32019	31294	30609
Filter Age	hrs	Client Info		1251	515	1233
Oil Changed		Client Info		Not Changed	Changed	Not Changed
Filter Changed		Client Info		Changed	N/A	Not Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	7	6	8
Chromium	ppm	ASTM D5185m	>8	1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	5
Lead	ppm	ASTM D5185m	>18	6	6	6
Copper	ppm	ASTM D5185m	>80	12	11	14
Tin	ppm	ASTM D5185m	>14	5	4	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

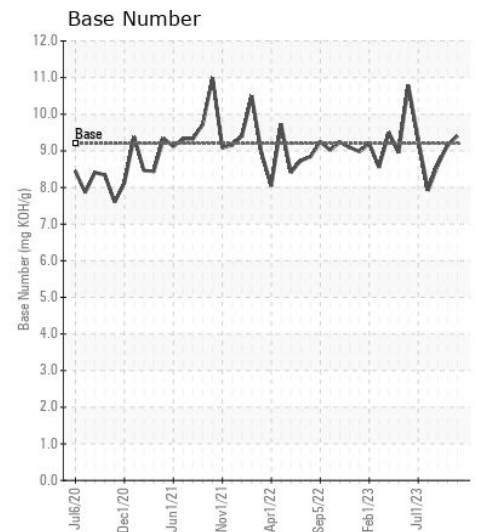
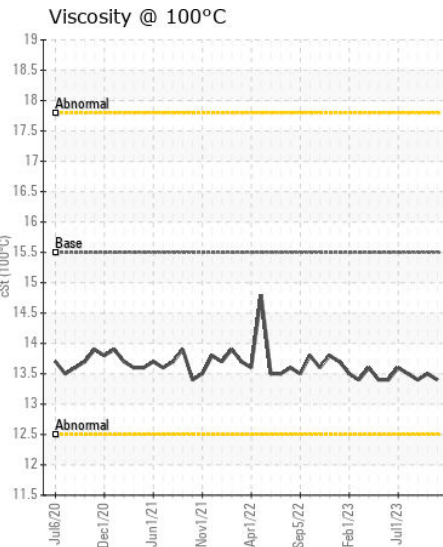
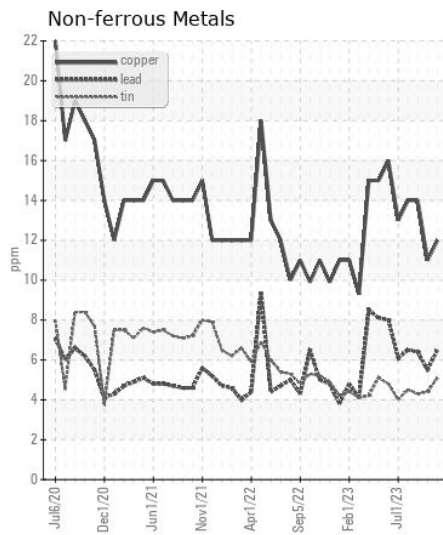
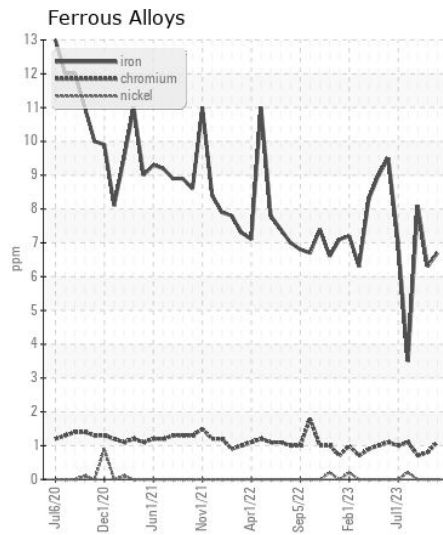
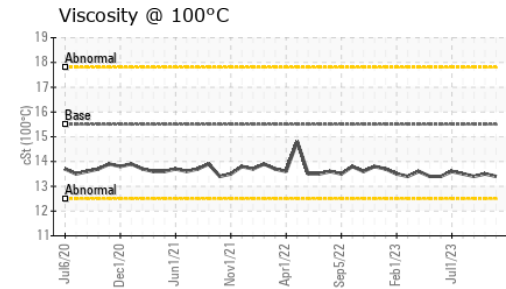
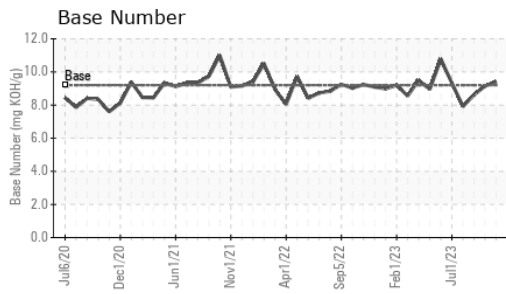
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	4	4	5
Potassium	ppm	ASTM D5185m	>20	0	0	0
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		0.9	0.8	0.3
Nitration	Abs/cm	*ASTM D7624	>20	8.7	8.5	9.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.4	16.7	20.1
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	4	2	9
Boron	ppm	ASTM D5185m		30	34	33
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		44	43	46
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		14	15	16
Calcium	ppm	ASTM D5185m		3366	3389	3565
Phosphorus	ppm	ASTM D5185m		6	9	9
Zinc	ppm	ASTM D5185m	10	<1	0	0
Sulfur	ppm	ASTM D5185m		2305	2140	2616
Oxidation	Abs/.1mm	*ASTM D7414	>25	8.5	8.4	9.9
Base Number (BN)	mg KOH/g	ASTM D2896	9.2	9.41	9.15	8.61
Visc @ 100°C	cSt	ASTM D445	15.5	13.4	13.5	13.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0059948 **Recieved** : 08 Jan 2024
Lab Number : 06054095 **Diagnosed** : 09 Jan 2024
Unique Number : 10820044 **Diagnostician** : Wes Davis
Test Package : MAR 2

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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