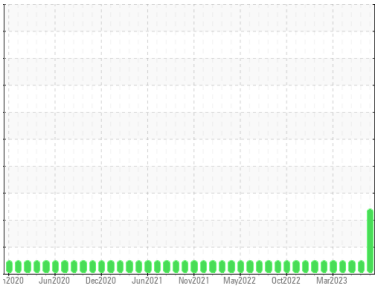
PROBLEM SUMMARY

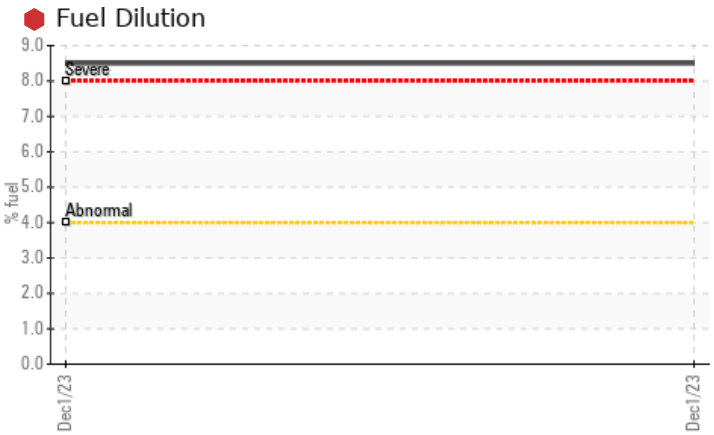
Sample Rating Trend

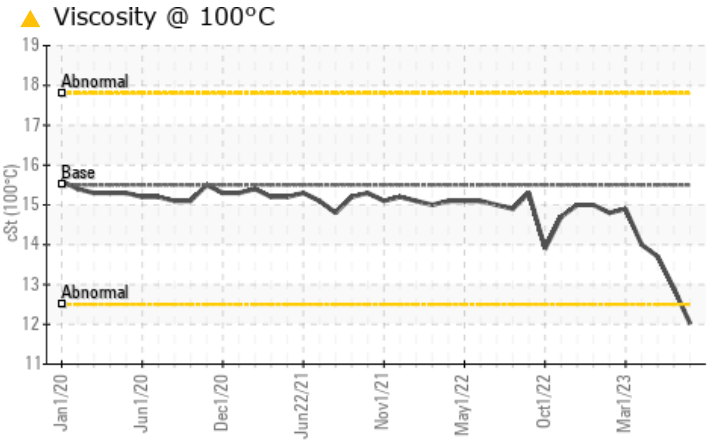


FUEL

Area
ELIZABETH R CHASE
Machine Id
[ELIZABETH R CHASE] 003 663777-3
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LE (400 GAL)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

We advise that you check the fuel injection system. We recommend that you change the oil at the next available stoppage or outage. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	NORMAL	NORMAL
Fuel	%	ASTM D3524	>4.0	**8.5**	<1.0	<1.0
Visc @ 100°C	cSt	ASTM D445	15.5	**12.02**	12.9	13.7

Customer Id: INGPAD
Sample No.: MW0048803
Lab Number: 06054119
Test Package: MAR 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

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	---	---	?	We recommend that you change the oil at the next available stoppage or outage.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Check Fuel/injector System	---	---	?	We advise that you check the fuel injection system.

HISTORICAL DIAGNOSIS

01 Nov 2023 Diag: Wes Davis

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

01 Sep 2023 Diag: Don Baldridge

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

01 Aug 2023 Diag: Jonathan Hester

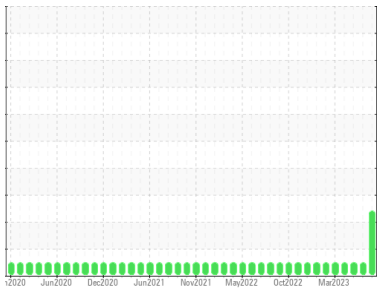
NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



FUEL

Area
ELIZABETH R CHASE
Machine Id
[ELIZABETH R CHASE] 003 663777-3
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LE (400 GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. We recommend that you change the oil at the next available stoppage or outage. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**MW0048803**	MW0049703	MW0049696
Sample Date		Client Info		**01 Dec 2023**	01 Nov 2023	01 Sep 2023
Machine Age	hrs	Client Info		**3538**	41416	1389
Oil Age	hrs	Client Info		**3538**	2849	1389
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**SEVERE**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.1	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	**12**	13	16
Chromium	ppm	ASTM D5185m	>8	**<1**	1	2
Nickel	ppm	ASTM D5185m	>2	**0**	0	<1
Titanium	ppm	ASTM D5185m	>3	**0**	0	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>15	**<1**	1	2
Lead	ppm	ASTM D5185m	>18	**9**	11	10
Copper	ppm	ASTM D5185m	>80	**13**	15	18
Tin	ppm	ASTM D5185m	>14	**6**	7	9
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		**32**	38	37
Barium	ppm	ASTM D5185m		**0**	0	2
Molybdenum	ppm	ASTM D5185m		**38**	41	42
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**11**	14	12
Calcium	ppm	ASTM D5185m		**2908**	3258	3310
Phosphorus	ppm	ASTM D5185m		**4**	6	7
Zinc	ppm	ASTM D5185m	10	**0**	0	6
Sulfur	ppm	ASTM D5185m		**2004**	2090	2404

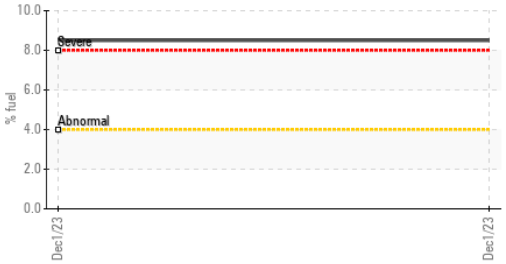
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	**3**	4	6
Sodium	ppm	ASTM D5185m	>75	**<1**	0	0
Potassium	ppm	ASTM D5185m	>20	**<1**	0	2
Fuel	%	ASTM D3524	>4.0	**8.5**	<1.0	<1.0

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0.2**	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	**8.6**	8.7	8.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	**16.2**	16.8	16.2

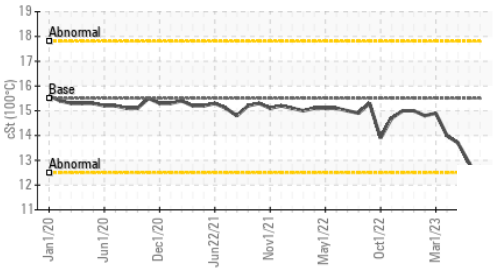
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**9.5**	9.6	9.3
Base Number (BN)	mg KOH/g	ASTM D2896	9.2	**8.43**	8.58	8.86

OIL ANALYSIS REPORT

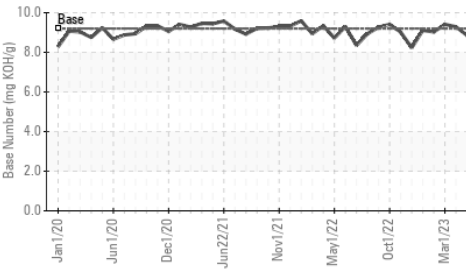
Fuel Dilution



Viscosity @ 100°C



Base Number

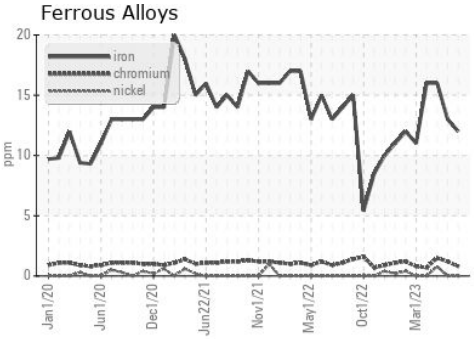


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt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

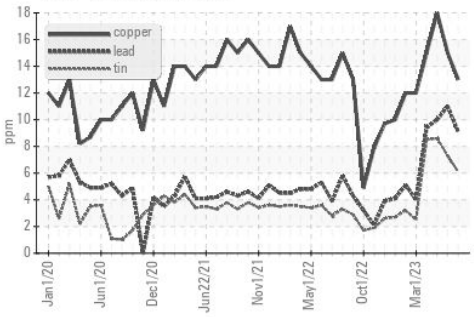
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.5	▲ **12.02**	12.9	13.7

GRAPHS

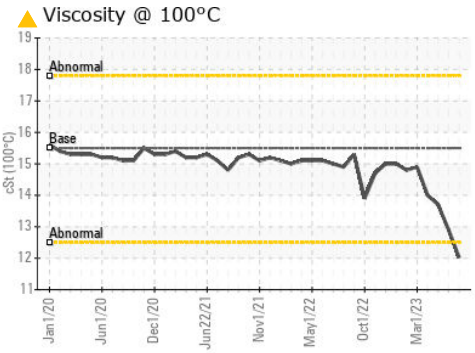
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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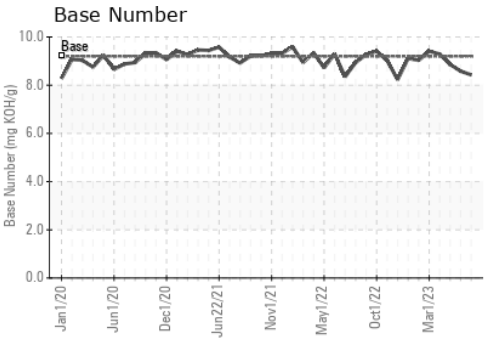

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0048803 **Recieved** : 08 Jan 2024
Lab Number : 06054119 **Diagnosed** : 12 Jan 2024
Unique Number : 10820068 **Diagnostician** : Wes Davis
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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