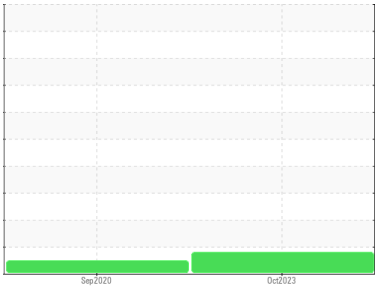
PROBLEM SUMMARY

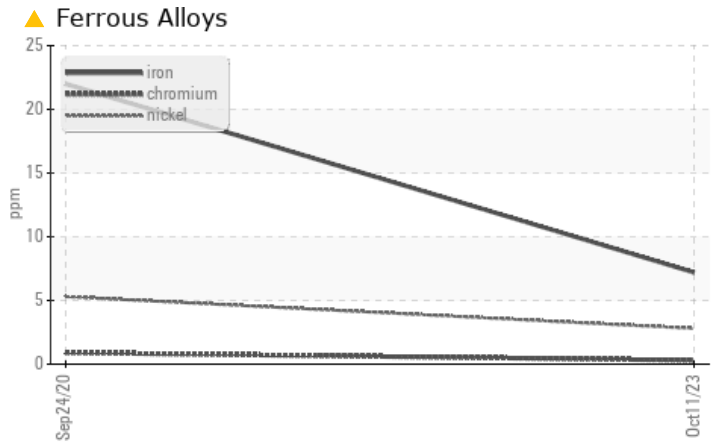
Sample Rating Trend

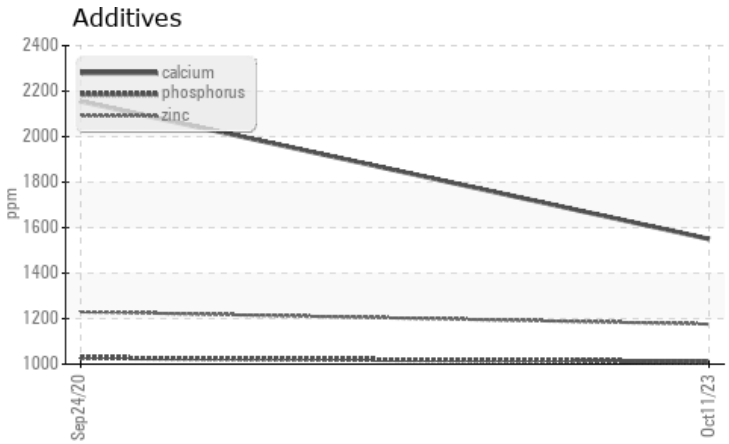


WEAR

Machine Id
CALL ME CURLY
Component
Starboard Main Engine
Fluid
SHELL ROTELLA T4 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

We recommend that you change the oil at the next available stoppage or outage. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	NORMAL	---
Nickel	ppm	ASTM D5185(m)	>2	▲ **3**	5	---

Customer Id: GRACAN
Sample No.: WC0870442
Lab Number: 02589122
Test Package: MAR 1

To manage this report scan the QR code

To discuss the diagnosis or test data:
Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@wearcheck.com

To change component or sample information:
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@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 Fluid Source	---	---	?	Confirm the source of the lubricant being utilized for top-up/fill.

HISTORICAL DIAGNOSIS

24 Sep 2020 Diag: Wes Davis

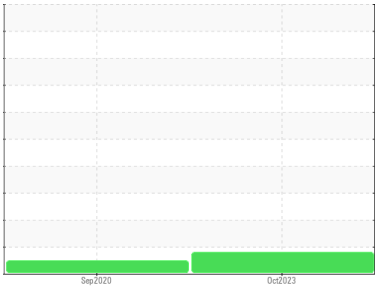
NORMAL

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
CALL ME CURLY
Component
Starboard Main Engine
Fluid
SHELL ROTELLA T4 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We recommend that you change the oil at the next available stoppage or outage. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

Wear

Nickel ppm levels are abnormal. Exhaust valve wear is indicated.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0870442**	WC0510800	---
Sample Date		Client Info		**11 Oct 2023**	24 Sep 2020	---
Machine Age	hrs	Client Info		**1671**	671	---
Oil Age	hrs	Client Info		**186**	140	---
Oil Changed		Client Info		**Not Changd**	Not Changd	---
Sample Status				**ABNORMAL**	NORMAL	---

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	**<1.0**	<1.0	---
Glycol		WC Method		**NEG**	NEG	---

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>75	**7**	22	---
Chromium	ppm	ASTM D5185(m)	>8	**<1**	<1	---
Nickel	ppm	ASTM D5185(m)	>2	▲ **3**	5	---
Titanium	ppm	ASTM D5185(m)	>3	**0**	<1	---
Silver	ppm	ASTM D5185(m)	>2	**<1**	0	---
Aluminum	ppm	ASTM D5185(m)	>15	**1**	1	---
Lead	ppm	ASTM D5185(m)	>18	**2**	5	---
Copper	ppm	ASTM D5185(m)	>80	**13**	34	---
Tin	ppm	ASTM D5185(m)	>14	**<1**	1	---
Antimony	ppm	ASTM D5185(m)		**0**	<1	---
Vanadium	ppm	ASTM D5185(m)		**0**	<1	---
Beryllium	ppm	ASTM D5185(m)		**0**	0	---
Cadmium	ppm	ASTM D5185(m)		**0**	0	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**36**	119	---
Barium	ppm	ASTM D5185(m)		**<1**	<1	---
Molybdenum	ppm	ASTM D5185(m)		**45**	13	---
Manganese	ppm	ASTM D5185(m)		**0**	<1	---
Magnesium	ppm	ASTM D5185(m)		**515**	171	---
Calcium	ppm	ASTM D5185(m)		**1550**	2155	---
Phosphorus	ppm	ASTM D5185(m)		**1011**	1028	---
Zinc	ppm	ASTM D5185(m)		**1176**	1230	---
Sulfur	ppm	ASTM D5185(m)		**2545**	2907	---
Lithium	ppm	ASTM D5185(m)		**<1**	<1	---

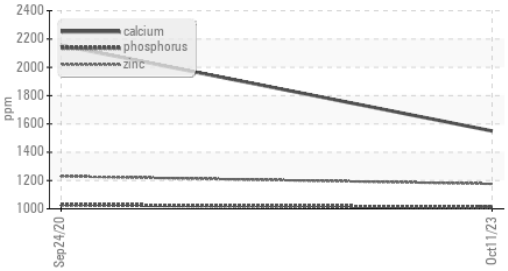
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	**5**	4	---
Sodium	ppm	ASTM D5185(m)	>75	**4**	1	---
Potassium	ppm	ASTM D5185(m)	>20	**0**	6	---

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		**0.2**	0.5	---
Nitration	Abs/cm	ASTM D7624*	>20	**7.6**	8.6	---
Sulfation	Abs/.1mm	ASTM D7415*	>30	**20.0**	22.7	---

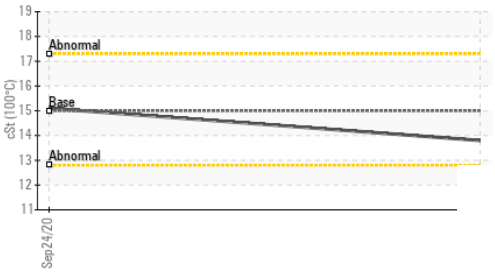
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**16.0**	18.2	---

OIL ANALYSIS REPORT

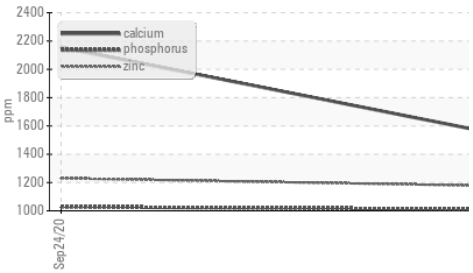
Additives



Viscosity @ 100°C



Additives

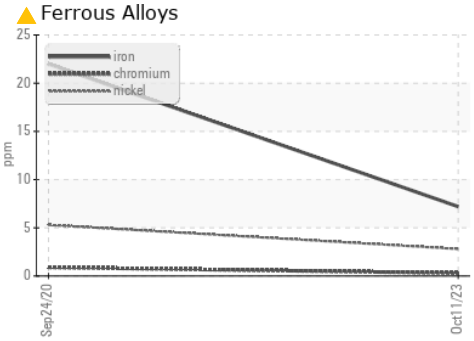


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**VLITE**	VLITE	---
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	---
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	---
Silt	scalar	Visual*	NONE	**NONE**	NONE	---
Debris	scalar	Visual*	NONE	**NONE**	NONE	---
Sand/Dirt	scalar	Visual*	NONE	**NONE**	NONE	---
Appearance	scalar	Visual*	NORML	**NORML**	NORML	---
Odor	scalar	Visual*	NORML	**NORML**	NORML	---
Emulsified Water	scalar	Visual*	>0.1	**NEG**	NEG	---
Free Water	scalar	Visual*		**NEG**	NEG	---

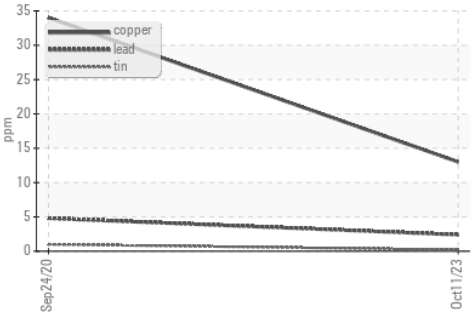
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D7279(m)	15	**13.8**	15.1	---

GRAPHS

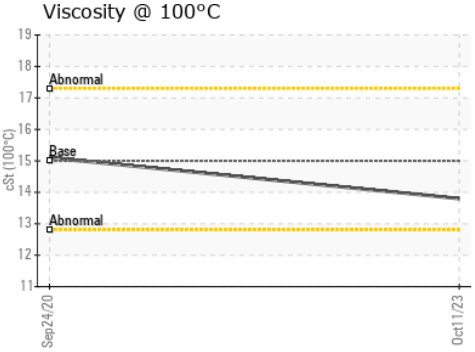
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0870442
Lab Number : 02589122
Unique Number : 5658188
Test Package : MAR 1

Received : 16 Oct 2023
Diagnosed : 16 Oct 2023
Diagnostician : Kevin Marson

To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

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