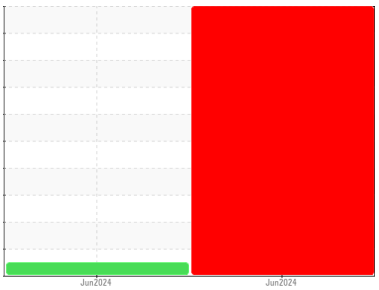
OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
2006014620
Component
Starboard Diesel Engine
Fluid
SAE 15W40 (--- GAL)

DIAGNOSIS

▲ Recommendation
We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition.

▲ Wear
Aluminum and iron ppm levels are severe. Cylinder, crank, or cam shaft wear is indicated. Piston wear is indicated.

Contamination
There is no indication of any contamination in the oil.

Fluid Condition
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		**WA0021666**	WA0021447	---
Sample Date		Client Info		**12 Jun 2024**	02 Jun 2024	---
Machine Age	hrs	Client Info		**0**	936	---
Oil Age	hrs	Client Info		**0**	0	---
Oil Changed		Client Info		**N/A**	Not Changd	---
Sample Status				**SEVERE**	NORMAL	---

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>4.0	**<1.0**	<1.0	---
Water		WC Method	>0.1	**NEG**	NEG	---

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**15**	---	---
Iron	ppm	ASTM D5185(m)	>80	▲ **197**	110	---
Chromium	ppm	ASTM D5185(m)	>6	**2**	1	---
Nickel	ppm	ASTM D5185(m)	>2	**1**	<1	---
Titanium	ppm	ASTM D5185(m)	>2	**0**	0	---
Silver	ppm	ASTM D5185(m)	>2	**0**	0	---
Aluminum	ppm	ASTM D5185(m)	>20	▲ **54**	30	---
Lead	ppm	ASTM D5185(m)	>95	**<1**	<1	---
Copper	ppm	ASTM D5185(m)	>85	**5**	4	---
Tin	ppm	ASTM D5185(m)	>9	**0**	0	---
Antimony	ppm	ASTM D5185(m)		**0**	0	---
Vanadium	ppm	ASTM D5185(m)		**0**	0	---
Beryllium	ppm	ASTM D5185(m)		**0**	0	---
Cadmium	ppm	ASTM D5185(m)		**0**	0	---

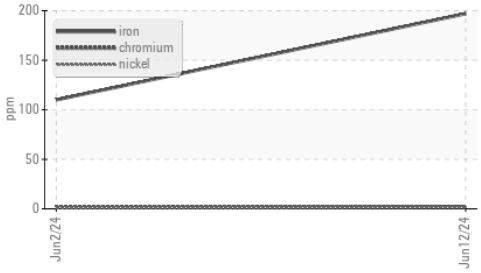
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**2**	2	---
Barium	ppm	ASTM D5185(m)		**0**	0	---
Molybdenum	ppm	ASTM D5185(m)		**58**	57	---
Manganese	ppm	ASTM D5185(m)		**<1**	<1	---
Magnesium	ppm	ASTM D5185(m)		**974**	961	---
Calcium	ppm	ASTM D5185(m)		**1018**	1017	---
Phosphorus	ppm	ASTM D5185(m)		**989**	983	---
Zinc	ppm	ASTM D5185(m)		**1138**	1124	---
Sulfur	ppm	ASTM D5185(m)		**2567**	2541	---
Lithium	ppm	ASTM D5185(m)		**<1**	<1	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**4**	3	---
Sodium	ppm	ASTM D5185(m)	>57	**109**	95	---
Potassium	ppm	ASTM D5185(m)	>20	**4**	4	---
Glycol	%	ASTM D7922*		**0.0**	0.0	---

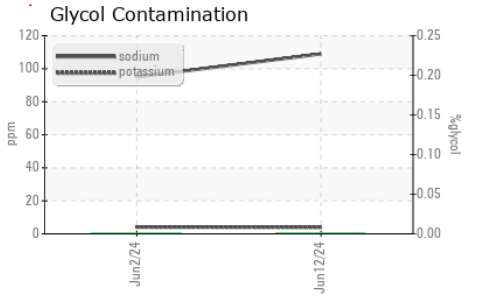
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		**0**	0	---
Nitration	Abs/cm	ASTM D7624*	>20	**4.5**	4.5	---
Sulfation	Abs/.1mm	ASTM D7415*	>30	**17.4**	17.3	---

OIL ANALYSIS REPORT

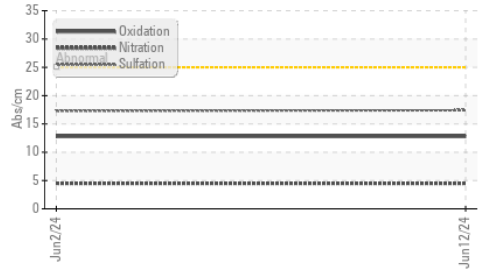
Ferrous Alloys



Glycol Contamination



FT-IR (Direct Trend)



Viscosity @ 40°C

PQ

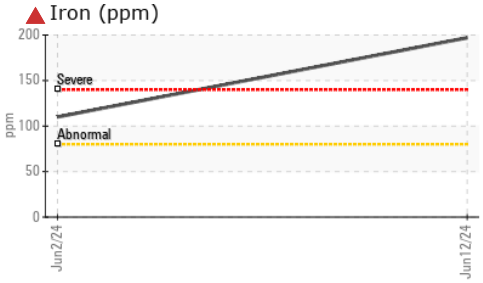
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**12.8**	12.8	---

VISUAL		method	limit/base	current	history1	history2
Emulsified Water	scalar	Visual*	>0.1	**NEG**	NEG	---
Free Water	scalar	Visual*		**NEG**	NEG	---

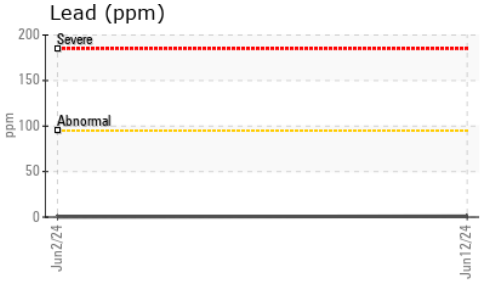
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	115	**108**	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	14.5	**14.6**	14.6	---
Viscosity Index (VI)	Scale	ASTM D2270*	128	**139**	---	---

GRAPHS

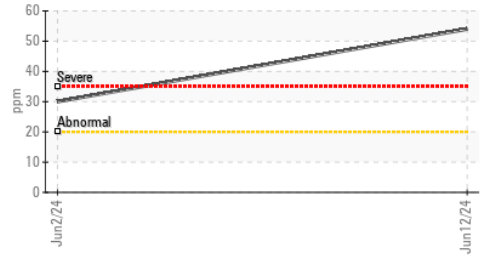
Iron (ppm)



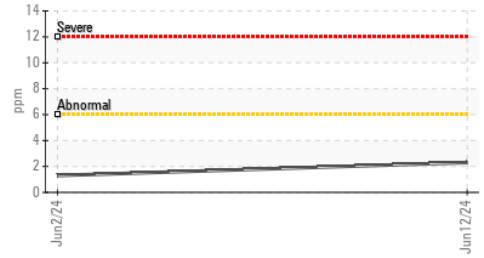
Lead (ppm)



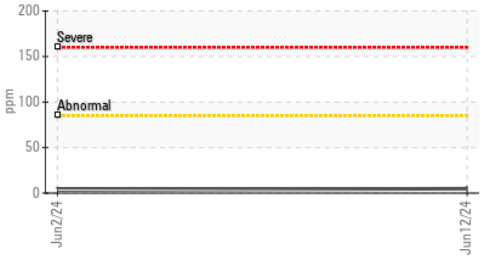
Aluminum (ppm)



Chromium (ppm)



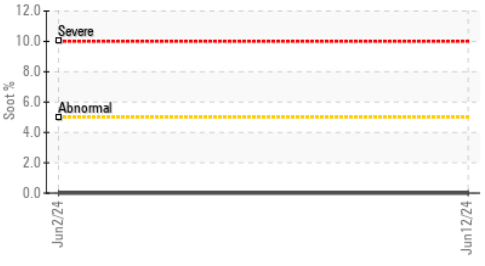
Copper (ppm)



Silicon (ppm)

Viscosity @ 100°C

Soot %



ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WA0021666 **Received** : 13 Jun 2024
Lab Number : 02641629 **Tested** : 17 Jun 2024
Unique Number : 5799168 **Diagnosed** : 17 Jun 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: Glycol, KV40, PQ, VI)

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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