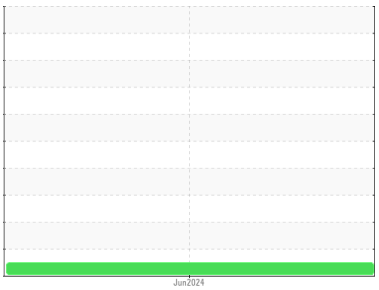
OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL

Machine Id
LMA104486 (S/N MPTGM1741506)
Component
Starboard Diesel Engine
Fluid
SHELL ROTELLA T4 15W40 (13 LTR)

DIAGNOSIS

Recommendation
Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

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 condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PP**	---	---
Sample Date		Client Info		**14 Jun 2024**	---	---
Machine Age	hrs	Client Info		**1875**	---	---
Oil Age	hrs	Client Info		**110**	---	---
Oil Changed		Client Info		**N/A**	---	---
Sample Status				**NORMAL**	---	---

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

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

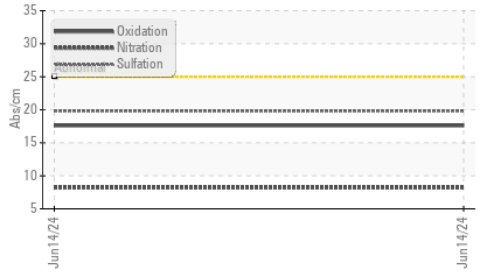
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**50**	---	---
Barium	ppm	ASTM D5185(m)		**0**	---	---
Molybdenum	ppm	ASTM D5185(m)		**40**	---	---
Manganese	ppm	ASTM D5185(m)		**<1**	---	---
Magnesium	ppm	ASTM D5185(m)		**456**	---	---
Calcium	ppm	ASTM D5185(m)		**1639**	---	---
Phosphorus	ppm	ASTM D5185(m)		**1007**	---	---
Zinc	ppm	ASTM D5185(m)		**1176**	---	---
Sulfur	ppm	ASTM D5185(m)		**2664**	---	---
Lithium	ppm	ASTM D5185(m)		**<1**	---	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	**3**	---	---
Sodium	ppm	ASTM D5185(m)		**3**	---	---
Potassium	ppm	ASTM D5185(m)	>20	**<1**	---	---

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		**0**	---	---
Nitration	Abs/cm	ASTM D7624*	>20	**8.2**	---	---
Sulfation	Abs/.1mm	ASTM D7415*	>30	**19.8**	---	---

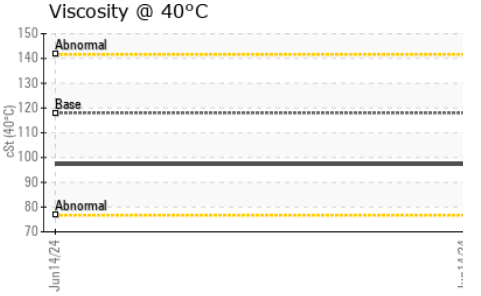
OIL ANALYSIS REPORT

FT-IR (Direct Trend)



Viscosity @ 40°C

Viscosity @ 40°C



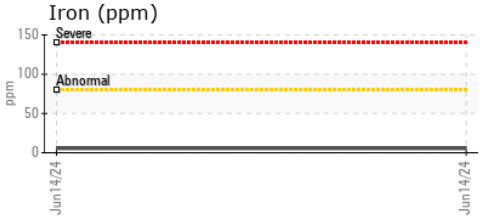
FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*	>25	**17.6**	---	---

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

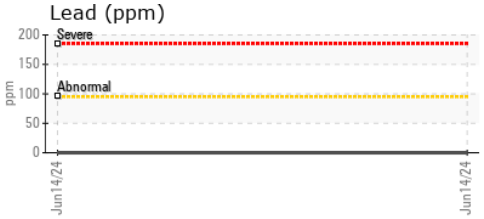
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	118	**97.3**	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	15	**13.2**	---	---
Viscosity Index (VI)	Scale	ASTM D2270*	133	**134**	---	---

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. : PP
Lab Number : 02642620
Unique Number : 5800159
Test Package : MOB 1 (Additional Tests: KV40, VI, Visual)
Received : 18 Jun 2024
Tested : 18 Jun 2024
Diagnosed : 18 Jun 2024 - Wes Davis

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.

Marine Surveys Canada
165 Terraview Cres, Unit 54
Guelph, ON
CA N1G 5GY
Contact: Tim Martin
tim@marinesurveyscanada.com
T: (705)816-2950
F: