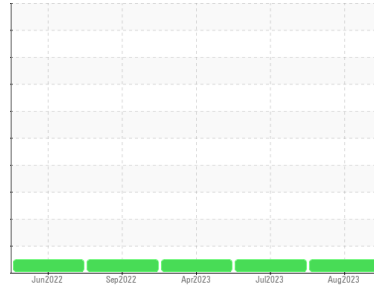




OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Area
OCEAN NAVIGATOR
 Machine Id
[OCEAN NAVIGATOR] OCEAN NAVIGATOR MENG PT
 Component
Port Main Engine
 Fluid
FUCHS 15W40 (--- LTR)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.
 NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the component make and model with your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

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.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			WC0824511	WC0824523	WC0633848
Sample Date	Client Info			15 Aug 2023	24 Jul 2023	14 Apr 2023
Machine Age	hrs	Client Info		0	0	1216
Oil Age	hrs	Client Info		0	0	0
Oil Changed	Client Info			N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL

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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	28	27	18
Chromium	ppm	ASTM D5185m	>8	1	<1	1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m	>3	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	2	<1
Lead	ppm	ASTM D5185m	>18	7	8	2
Copper	ppm	ASTM D5185m	>80	29	31	23
Tin	ppm	ASTM D5185m	>14	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		68	68	102
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		11	12	11
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		14	16	16
Calcium	ppm	ASTM D5185m		3262	3463	3487
Phosphorus	ppm	ASTM D5185m		920	958	949
Zinc	ppm	ASTM D5185m		1169	1221	1183
Sulfur	ppm	ASTM D5185m		3893	4513	3598

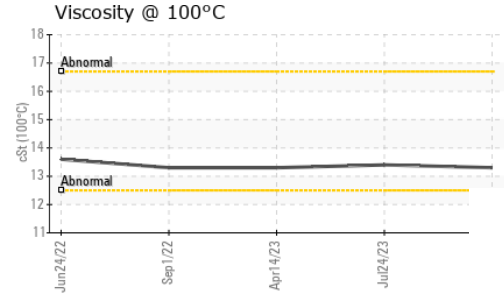
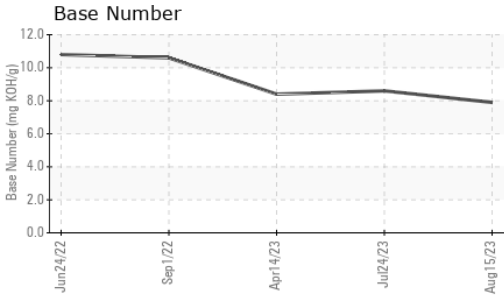
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>20	7	7	7
Sodium	ppm	ASTM D5185m	>75	30	34	2
Potassium	ppm	ASTM D5185m	>20	4	2	3

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		0.3	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	8.9	9.0	6.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.7	21.6	18.8

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.4	14.9	13.0
Base Number (BN)	mg KOH/g	ASTM D2896		7.9	8.6	8.4



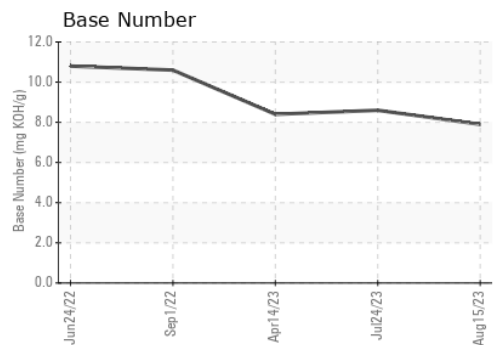
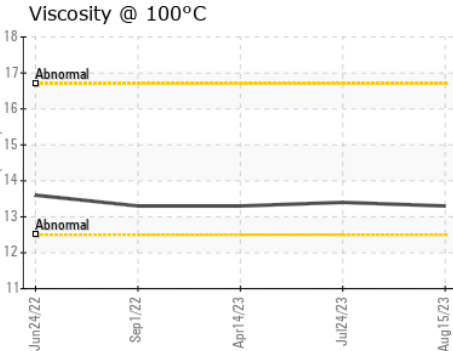
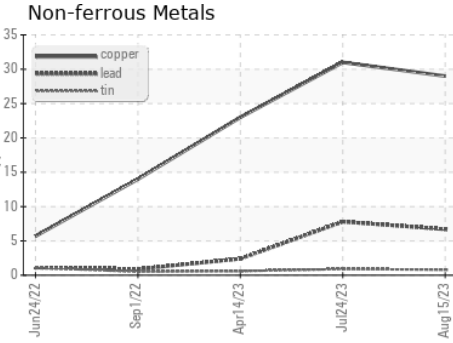
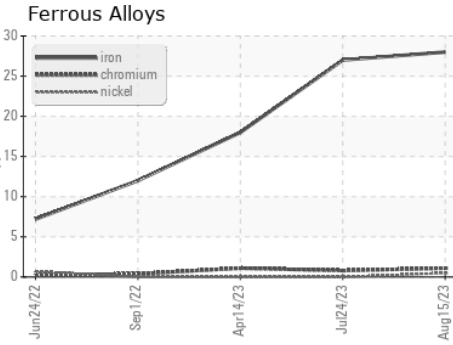
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	*Visual	NONE	NONE	NONE	LIGHT
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	LIGHT
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	13.3	13.4	13.3

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0824511 **Received** : 16 Aug 2023
Lab Number : **05926650** **Diagnosed** : 17 Aug 2023
Unique Number : 10606597 **Diagnostician** : Wes Davis
Test Package : MAR 2

American Queen Voyages - Oceans
 1201 Bridgeport Drive
 Jeffersonville, IN
 US 47130
 Contact: Dietrich Giles
 DIETRICH.GILES@AQVOYAGES.COM
 T: (228)591-6239
 F:

Certificate L2367
 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)