

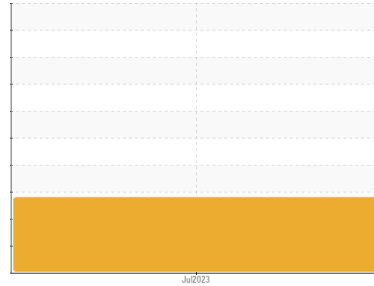


PROBLEM SUMMARY

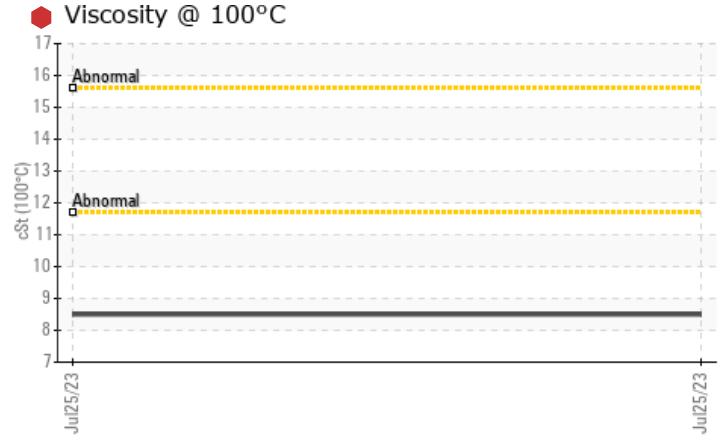
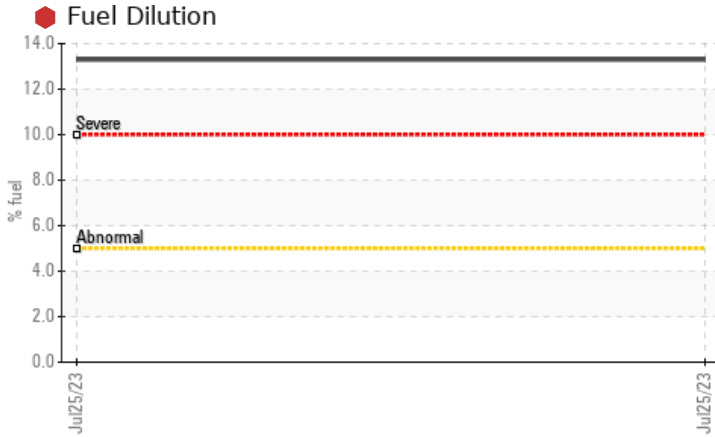


Area
SEAWARD EXPLORER
 Machine Id
Explorer Engine
 Component
Bow Thruster
 Fluid
{not provided} (--- GAL)

Sample Rating Trend



COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check the fuel injection system. 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. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

PROBLEMATIC TEST RESULTS

Sample Status			SEVERE	---	---
Fuel	%	ASTM D3524	13.3	---	---
Visc @ 100°C	cSt	ASTM D445	8.5	---	---

Customer Id: SEANEW
 Sample No.: WC0818082
 Lab Number: 05935930
 Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Doug Bogart +1 (800)237-1369 x4016
dougb@wearcheckusa.com

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	MISSED	Oct 05 2023	?	We recommend that you drain the oil from the component if this has not already been done.
Resample	MISSED	Oct 05 2023	?	We recommend an early resample to monitor this condition.
Information Required	MISSED	Oct 05 2023	?	Please specify the brand, type, and viscosity of the oil on your next sample. Please specify the component make and model with your next sample.
Check Fuel/injector System	MISSED	Oct 05 2023	?	We advise that you check the fuel injection system.

HISTORICAL DIAGNOSIS



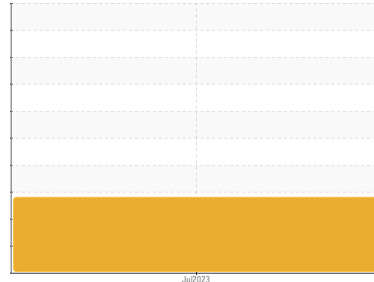
OIL ANALYSIS REPORT

Sample Rating Trend

FUEL



Area
SEAWARD EXPLORER
 Machine Id
Explorer Engine
 Component
Bow Thruster
 Fluid
{not provided} (--- GAL)



DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. 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. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

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		WC0818082	---	---
Sample Date	Client Info		25 Jul 2023	---	---
Machine Age	hrs	Client Info	3114	---	---
Oil Age	hrs	Client Info	0	---	---
Oil Changed	Client Info		Not Chngd	---	---
Sample Status			SEVERE	---	---

CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.2	NEG	---	---

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >90	8	---	---
Chromium	ppm	ASTM D5185m >10	<1	---	---
Nickel	ppm	ASTM D5185m >10	0	---	---
Titanium	ppm	ASTM D5185m	0	---	---
Silver	ppm	ASTM D5185m	0	---	---
Aluminum	ppm	ASTM D5185m >10	0	---	---
Lead	ppm	ASTM D5185m >20	0	---	---
Copper	ppm	ASTM D5185m >20	6	---	---
Tin	ppm	ASTM D5185m >15	0	---	---
Vanadium	ppm	ASTM D5185m	0	---	---
Cadmium	ppm	ASTM D5185m	<1	---	---

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	7	---	---
Barium	ppm	ASTM D5185m	0	---	---
Molybdenum	ppm	ASTM D5185m	101	---	---
Manganese	ppm	ASTM D5185m	<1	---	---
Magnesium	ppm	ASTM D5185m	61	---	---
Calcium	ppm	ASTM D5185m	2526	---	---
Phosphorus	ppm	ASTM D5185m	976	---	---
Zinc	ppm	ASTM D5185m	1096	---	---
Sulfur	ppm	ASTM D5185m	3627	---	---

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >7	3	---	---
Sodium	ppm	ASTM D5185m	3	---	---
Potassium	ppm	ASTM D5185m >20	0	---	---
Fuel	%	ASTM D3524	13.3	---	---

INFRA-RED

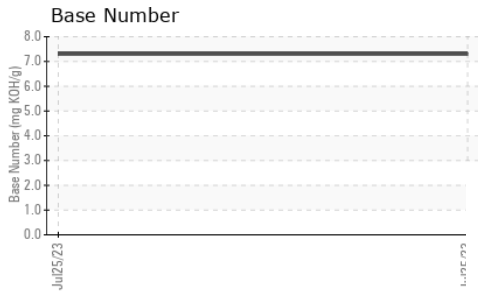
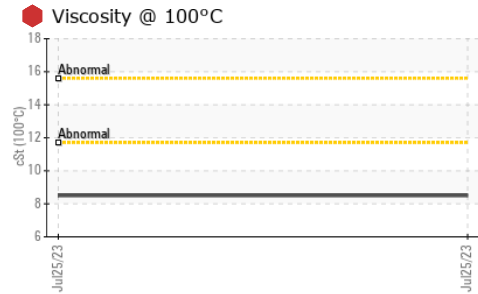
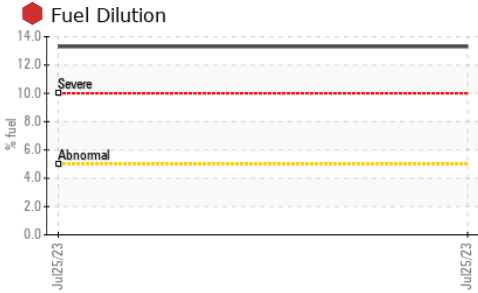
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0.1	---	---
Nitration	Abs/cm	*ASTM D7624	5.3	---	---
Sulfation	Abs/.1mm	*ASTM D7415	14.7	---	---

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	8.6	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	7.3	---	---



OIL ANALYSIS REPORT



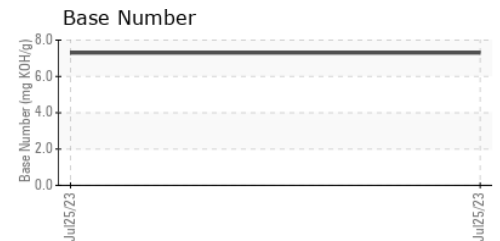
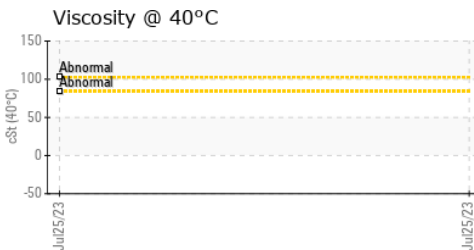
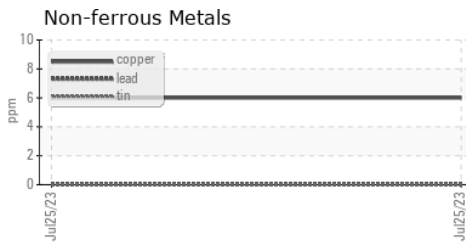
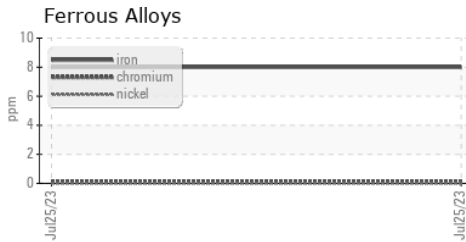
VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---
Precipitate	scalar	*Visual	NONE	NONE	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.2	NEG	---	---
Free Water	scalar	*Visual		NEG	---	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	8.5	---	---

SAMPLE IMAGES	method	limit/base	current	history1	history2
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Color				no image	no image	no image
Bottom				no image	no image	no image

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0818082 **Received** : 28 Aug 2023
Lab Number : 05935930 **Tested** : 30 Aug 2023
Unique Number : 10621201 **Diagnosed** : 12 Feb 2024 - Doug Bogart
Test Package : MAR 2 (Additional Tests: FT-IR, FuelDilution, KV100, PercentFuel, TBN)

SEAWARD SERVICES
 222 PEARL ST
 NEW ALBANY, IN
 US 47150

To discuss this sample report, contact Customer Service at 1-800-237-1369. Contact: PETER CHARBONNET
 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. PCHARBONNET@HMS-SEAWARD.COM
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) T:
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