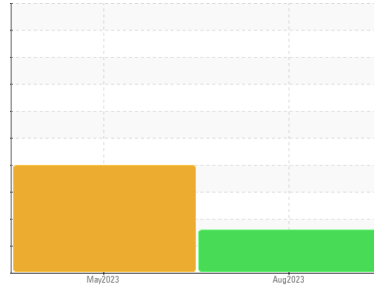


Area
PROPULSION EQUIPMENT
Machine Id
SIMPLEX STERN TUBE/ PROPELLER HUB (CAL012) (S/N CALVERT13)
Component
Stern tube
Fluid
VICKERS HYDROX BIO 100 (400 LTR)



DIAGNOSIS

Recommendation

We recommend an early resample to monitor this condition. Please contact your representative for information regarding the proper sampling kits for your service. NOTE: We recommend using MOB 3 test kits, this testkit includes Particle Count to determine the ISO cleanliness of the fluid. this testkit includes Analytical Ferrography which provides a detailed morphological analysis of wear particles present in the fluid. (Customer Sample Comment: CAL013)

Wear

Iron and titanium ppm levels are abnormal. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

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

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			PC0011627	PC0011816	---
Sample Date	Client Info			09 Aug 2023	03 May 2023	---
Machine Age	hrs	Client Info		20530	0	---
Oil Age	hrs	Client Info		2802	0	---
Oil Changed	Client Info			N/A	N/A	---
Sample Status				ABNORMAL	ABNORMAL	---

CONTAMINATION		method	limit/base	current	history1	history2
Water	WC Method		>0.1	NEG	NEG	---

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		0	0	---
Iron	ppm	ASTM D5185(m)	>15	▲ 17	▲ 16	---
Chromium	ppm	ASTM D5185(m)	>2	<1	<1	---
Nickel	ppm	ASTM D5185(m)	>2	<1	<1	---
Titanium	ppm	ASTM D5185(m)	>8	▲ 12	▲ 11	---
Silver	ppm	ASTM D5185(m)		<1	0	---
Aluminum	ppm	ASTM D5185(m)	>4	<1	<1	---
Lead	ppm	ASTM D5185(m)	>15	6	5	---
Copper	ppm	ASTM D5185(m)	>25	6	5	---
Tin	ppm	ASTM D5185(m)	>10	1	1	---
Antimony	ppm	ASTM D5185(m)		<1	0	---
Vanadium	ppm	ASTM D5185(m)		0	<1	---
Beryllium	ppm	ASTM D5185(m)		0	0	---
Cadmium	ppm	ASTM D5185(m)		0	<1	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		3	2	---
Barium	ppm	ASTM D5185(m)		<1	0	---
Molybdenum	ppm	ASTM D5185(m)		0	0	---
Manganese	ppm	ASTM D5185(m)		0	<1	---
Magnesium	ppm	ASTM D5185(m)		4	4	---
Calcium	ppm	ASTM D5185(m)		7	5	---
Phosphorus	ppm	ASTM D5185(m)		666	726	---
Zinc	ppm	ASTM D5185(m)		7	7	---
Sulfur	ppm	ASTM D5185(m)		1497	1645	---
Lithium	ppm	ASTM D5185(m)		<1	<1	---

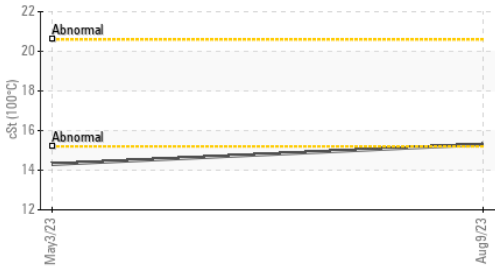
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	4	5	---
Sodium	ppm	ASTM D5185(m)		14	19	---
Potassium	ppm	ASTM D5185(m)	>20	<1	1	---

OIL ANALYSIS REPORT

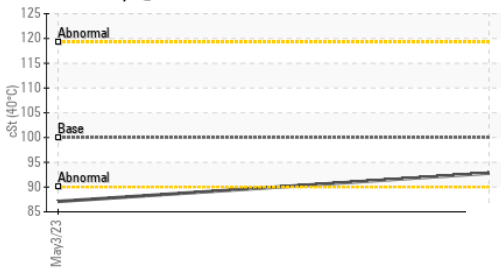
▲ Ferrous Alloys



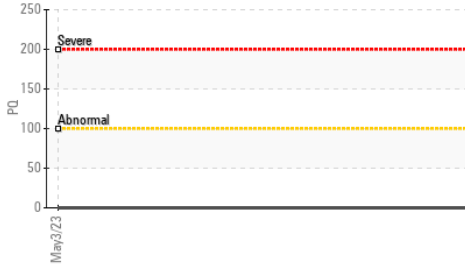
Viscosity @ 100°C



Viscosity @ 40°C



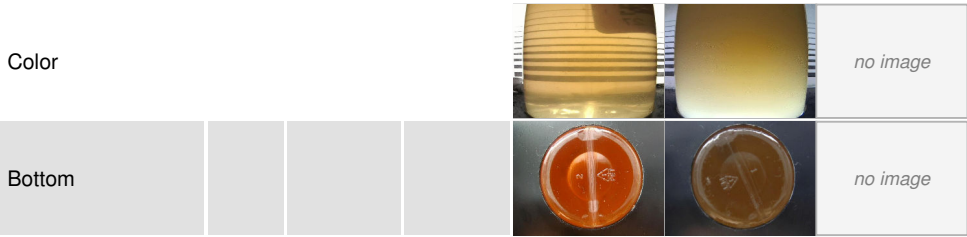
PQ



PARAMETER	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	▲ HAZY
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)	100	92.8	87.1
Visc @ 100°C	cSt	ASTM D7279(m)		15.3	14.3
Viscosity Index (VI)	Scale	ASTM D2270*	205	174	170

SAMPLE IMAGES



GRAPHS

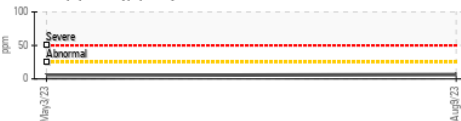
▲ Iron (ppm)



Aluminum (ppm)



Copper (ppm)



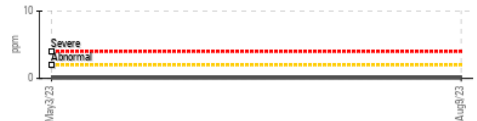
Viscosity @ 40°C



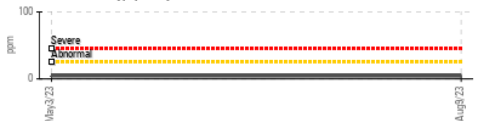
Lead (ppm)



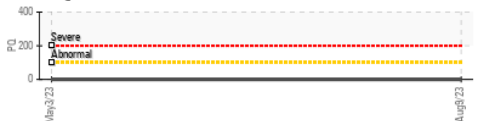
Chromium (ppm)



Silicon (ppm)



PQ



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 **Ocean Choice International - MV Calvert**
Sample No. : PC0011627 **Received** : 18 Dec 2023 1315 Topsail Rd, P.O. Box 8190
Lab Number : 02603887 **Diagnosed** : 19 Dec 2023 St. John's, NL
Unique Number : 5696972 **Diagnostician** : Kevin Marson CA A1B 3N4
Test Package : MOB 1 (Additional Tests: KV100, 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.

Contact: Calvert Engine Control Room
calvertengine@oceanchoice.com

T:
F: