



OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	ATTENTION
FLUID CONDITION	NORMAL

Machine Id
ENDEAVOR - CLUTCH (S/N 983270)
 Component
Starboard Hydraulic System
 Fluid
SHELL TELLUS S2 MX 46 (10 GAL)

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0834567	WC0834563	---
Sample Date		Client Info		26 Apr 2024	06 Jul 2023	---
Machine Age	hrs	Client Info		15564	13850	---
Oil Age	hrs	Client Info		0	13850	---
Filter Age	hrs	Client Info		0	13850	---
Oil Changed		Client Info		Not Changd	Not Changd	---
Filter Changed		Client Info		Not Changd	Not Changd	---
Sample Status				ABNORMAL	ABNORMAL	---

WEAR

The copper level is abnormal. All other component wear rates are normal.

Iron	ppm	ASTM D5185m	>20	<1	1	---
Chromium	ppm	ASTM D5185m	>20	0	0	---
Nickel	ppm	ASTM D5185m	>20	0	0	---
Titanium	ppm	ASTM D5185m		0	0	---
Silver	ppm	ASTM D5185m		0	0	---
Aluminum	ppm	ASTM D5185m	>20	0	<1	---
Lead	ppm	ASTM D5185m	>20	<1	0	---
Copper	ppm	ASTM D5185m	>20	▲ 78	▲ 78	---
Tin	ppm	ASTM D5185m	>20	<1	0	---
Vanadium	ppm	ASTM D5185m		0	0	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

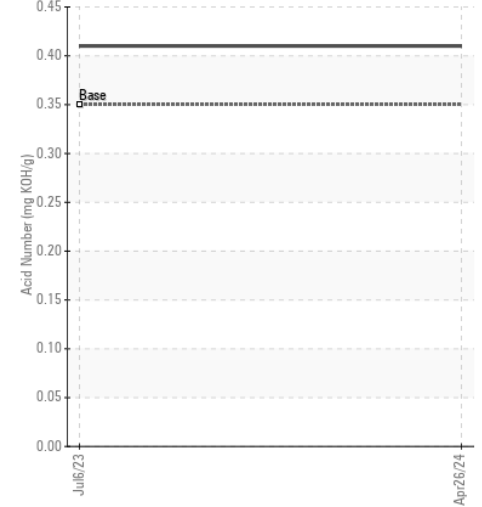
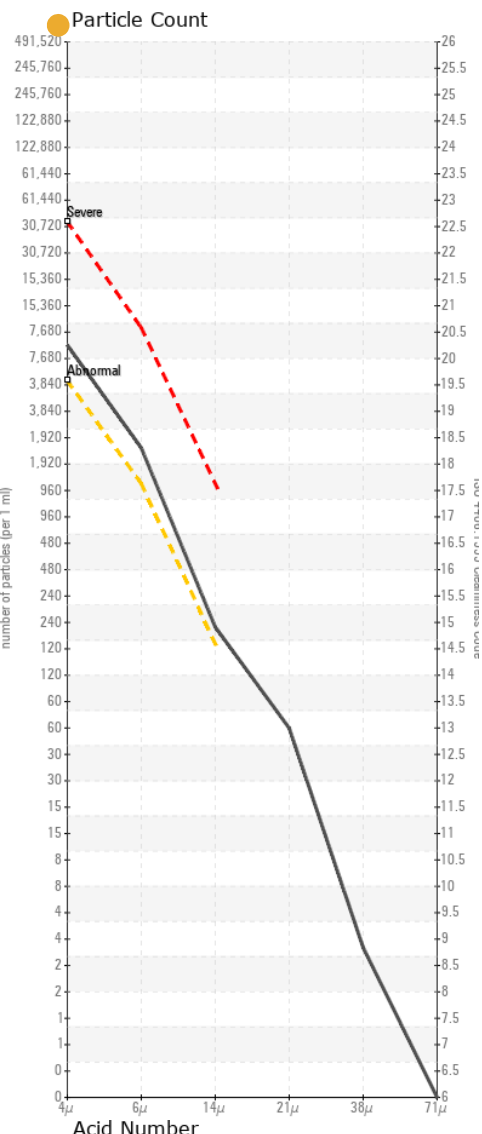
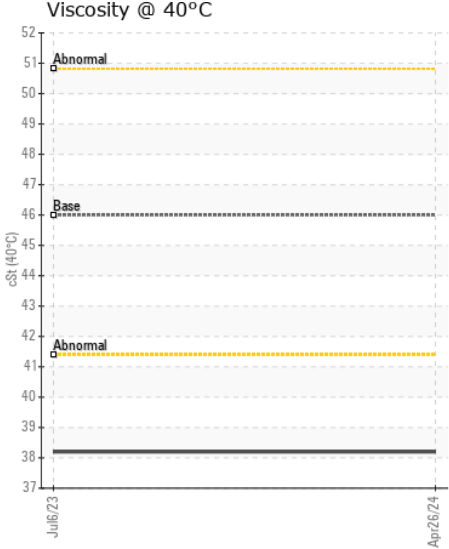
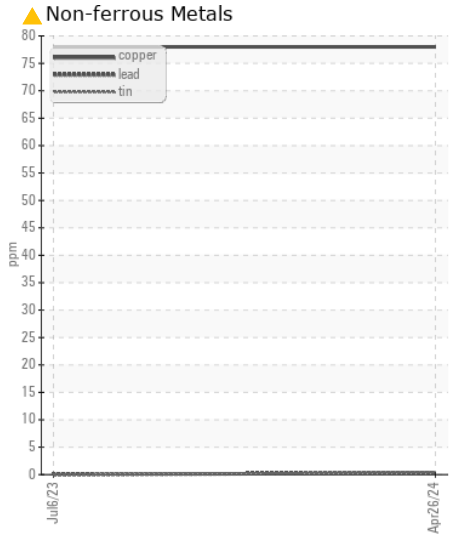
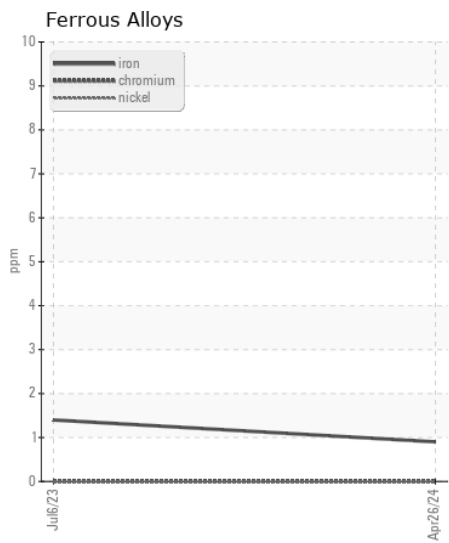
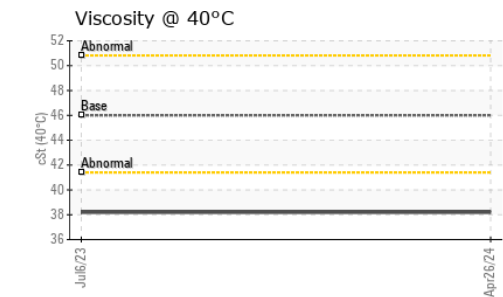
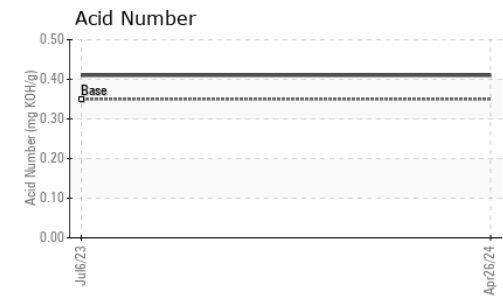
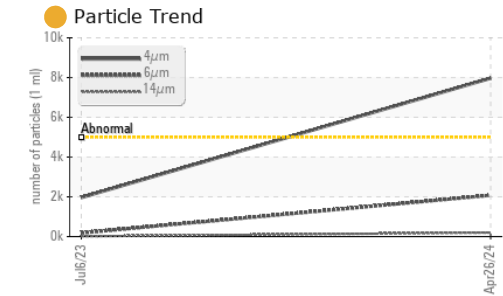
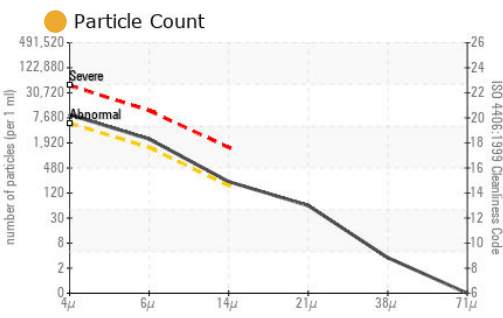
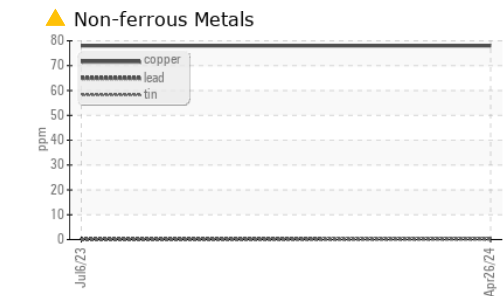
There is a moderate amount of particulates present in the oil.

Silicon	ppm	ASTM D5185m	>15	<1	<1	---
Potassium	ppm	ASTM D5185m	>20	0	0	---
Water		WC Method	>0.05	NEG	NEG	---
Particles >4µm		ASTM D7647	>5000	● 7972	1964	---
Particles >6µm		ASTM D7647	>1300	● 2075	183	---
Particles >14µm		ASTM D7647	>160	● 199	10	---
Particles >21µm		ASTM D7647	>40	● 53	3	---
Particles >38µm		ASTM D7647	>10	3	0	---
Particles >71µm		ASTM D7647	>3	0	0	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	● 20/18/15	18/15/10	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	LIGHT	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG	---

FLUID CONDITION

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		1	<1	---
Boron	ppm	ASTM D5185m	0	0	0	---
Barium	ppm	ASTM D5185m	0	0	0	---
Molybdenum	ppm	ASTM D5185m	0	0	<1	---
Manganese	ppm	ASTM D5185m	0	1	<1	---
Magnesium	ppm	ASTM D5185m	70	0	2	---
Calcium	ppm	ASTM D5185m	10	121	149	---
Phosphorus	ppm	ASTM D5185m	300	363	377	---
Zinc	ppm	ASTM D5185m	325	452	475	---
Sulfur	ppm	ASTM D5185m	665	1797	1968	---
Acid Number (AN)	mg KOH/g	ASTM D8045	0.35	0.41	0.41	---
Visc @ 40°C	cSt	ASTM D445	46.0	38.2	38.2	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0834567
Lab Number : 06177072
Unique Number : 11023125
Test Package : MAR 2
Received : 13 May 2024
Tested : 14 May 2024
Diagnosed : 17 May 2024 - Jonathan Hester

CITY EXPERIENCES - SEAWARD EXPLORER
 2825 5TH AVENUE
 SAN DIEGO, CA
 US 92103
 Contact: PETER CHARBONNET

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)

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