



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
KAREN MICHELLE

Component
Starboard Main Engine

Fluid
CHEVRON DELO 400 MULTIGRADE 15W40 (35 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0059502	MWM07597	---
Sample Date		Client Info		09 Feb 2024	04 Jun 2010	---
Machine Age	hrs	Client Info		0	0	---
Oil Age	hrs	Client Info		0	400	---
Filter Age	hrs	Client Info		0	0	---
Oil Changed		Client Info		N/A	Changed	---
Filter Changed		Client Info		N/A	Changed	---
Sample Status				NORMAL	NORMAL	---

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	17	20	---
Chromium	ppm	ASTM D5185m	>8	2	<1	---
Nickel	ppm	ASTM D5185m	>2	0	0	---
Titanium	ppm	ASTM D5185m	>3	5	<1	---
Silver	ppm	ASTM D5185m	>2	0	0	---
Aluminum	ppm	ASTM D5185m	>15	1	2	---
Lead	ppm	ASTM D5185m	>18	1	4	---
Copper	ppm	ASTM D5185m	>80	4	5	---
Tin	ppm	ASTM D5185m	>14	<1	4	---
Vanadium	ppm	ASTM D5185m		<1	0	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

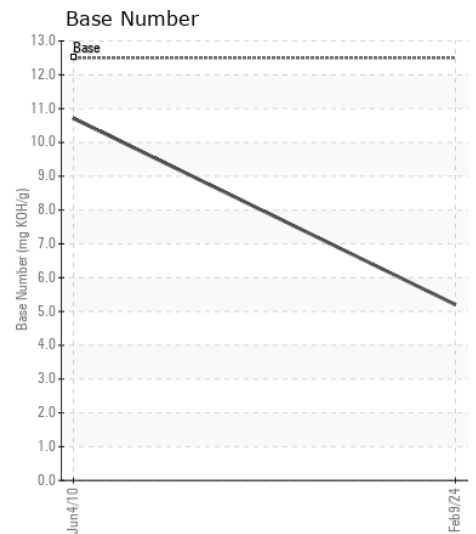
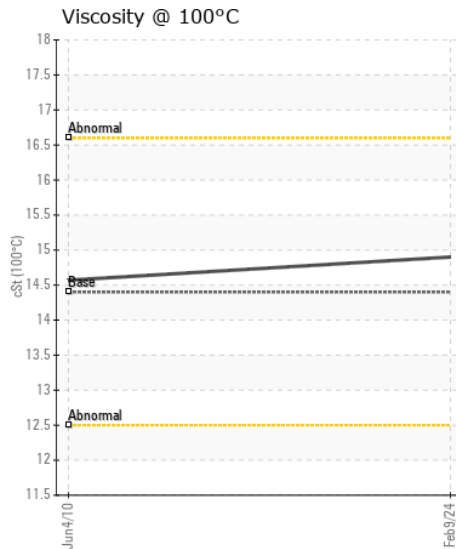
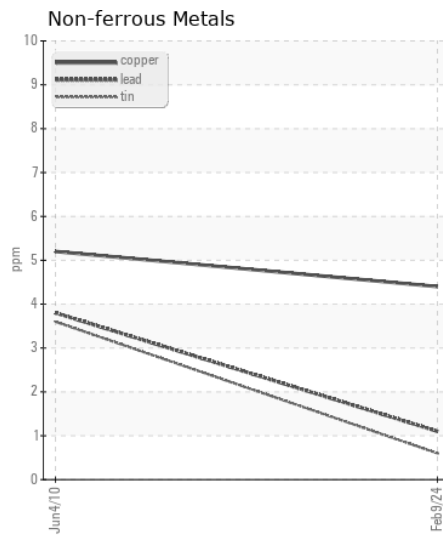
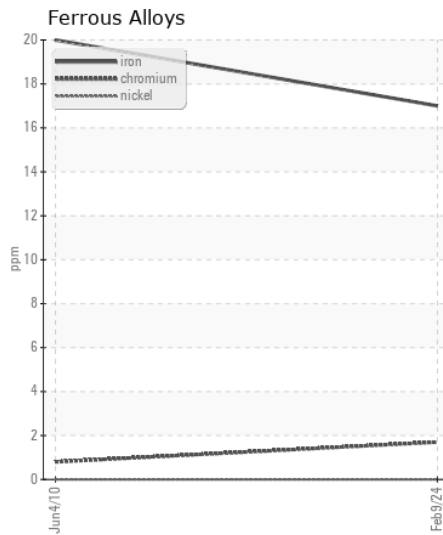
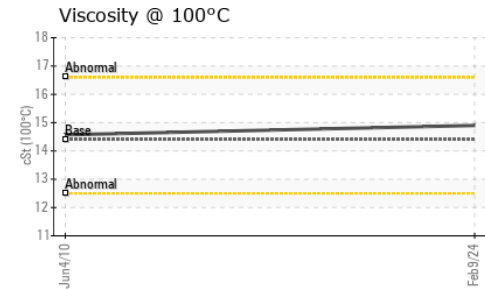
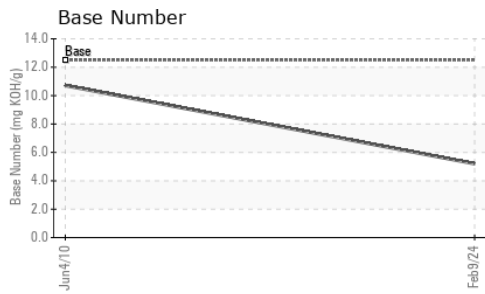
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	6	4	---
Potassium	ppm	ASTM D5185m	>20	<1	5	---
Fuel		WC Method	>4.0	<1.0	<1.0	---
Water		WC Method	>0.1	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844		3.1	0.1	---
Nitration	Abs/cm	*ASTM D7624	>20	11.3	6.	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	29.8	14.	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	---

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.

Sodium	ppm	ASTM D5185m	>75	3	5	---
Boron	ppm	ASTM D5185m	151	29	1	---
Barium	ppm	ASTM D5185m	0.4	0	0	---
Molybdenum	ppm	ASTM D5185m	250	14	45	---
Manganese	ppm	ASTM D5185m		2	<1	---
Magnesium	ppm	ASTM D5185m	0	736	30	---
Calcium	ppm	ASTM D5185m	2046	1658	3422	---
Phosphorus	ppm	ASTM D5185m	1043	1101	56	---
Zinc	ppm	ASTM D5185m	943	1220	29	---
Sulfur	ppm	ASTM D5185m	5012	4055	3938	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.2	7.	---
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	5.2	10.71	---
Visc @ 100°C	cSt	ASTM D445	14.4	14.9	14.57	---



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0059502
Lab Number : 06086943
Unique Number : 10874388
Test Package : MAR 2

Received : 13 Feb 2024
Tested : 13 Feb 2024
Diagnosed : 14 Feb 2024 - Jonathan Hester

AMERICAN RIVER TRANSPORTATION CO.
 P.O. BOX 2889
 ST. LOUIS, MO
 US 63111
 Contact: JASON PORTER
 j_porter@admworld.com

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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