



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
RICHARD RILEY (S/N G614110004)
Component
Starboard Main Engine
Fluid
CHEVRON DELO 710 LS (300 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0062190	MW0062202	MW0062118
Sample Date		Client Info		28 May 2024	27 Mar 2024	06 Mar 2024
Machine Age	hrs	Client Info		58092	56552	56107
Oil Age	hrs	Client Info		1000	1512	984
Filter Age	hrs	Client Info		0	1512	984
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		None	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

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

CONTAMINATION

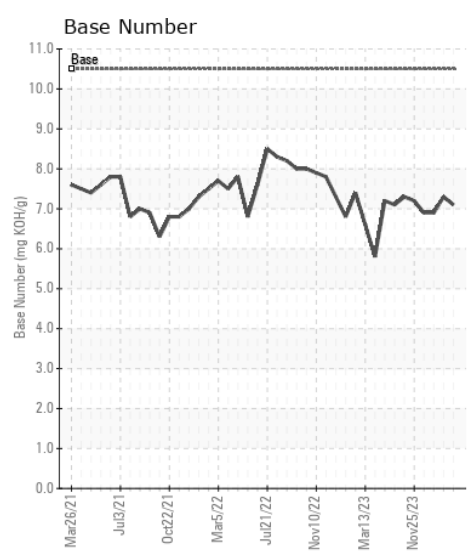
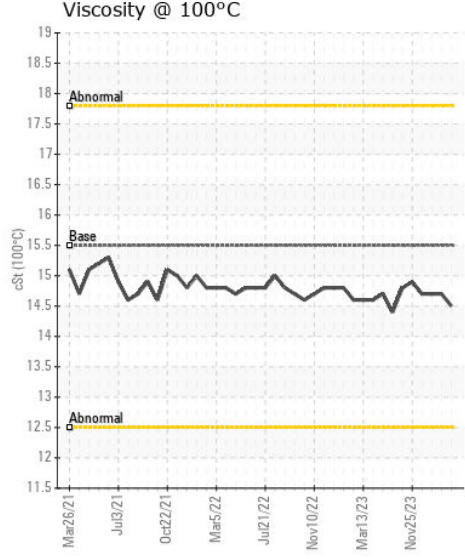
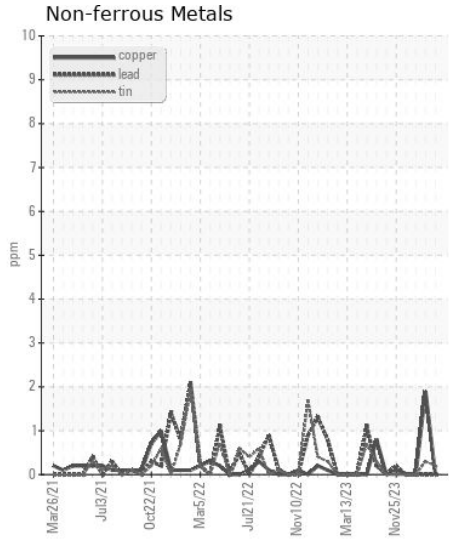
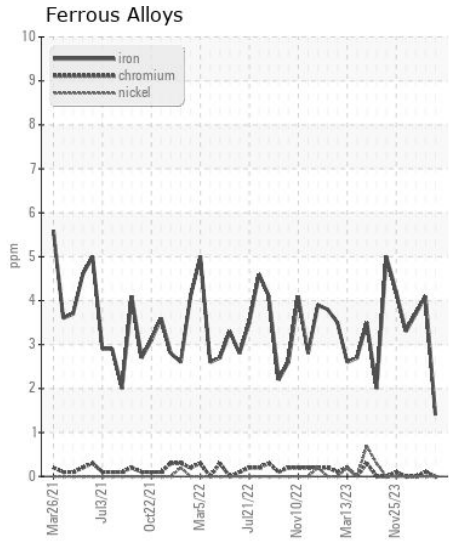
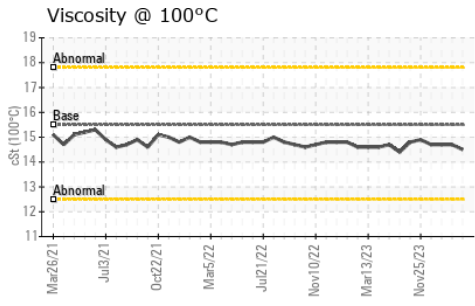
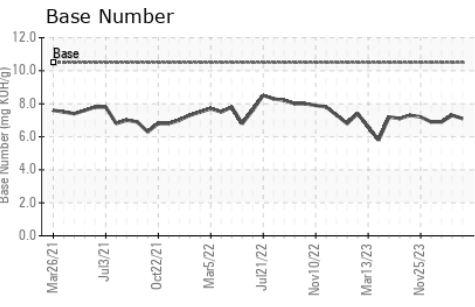
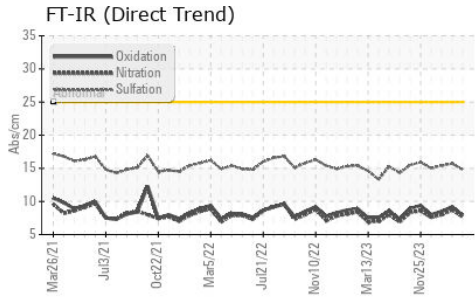
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>20	3	2	5
Potassium	ppm	ASTM D5185m	>20	3	<1	<1
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.4	0.5	0.4
Nitration	Abs/cm	*ASTM D7624	>20	7.7	8.7	8.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	14.8	15.7	15.4
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
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

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	1	2	<1
Boron	ppm	ASTM D5185m		41	44	39
Barium	ppm	ASTM D5185m		0	1	0
Molybdenum	ppm	ASTM D5185m		43	45	42
Manganese	ppm	ASTM D5185m		<1	1	0
Magnesium	ppm	ASTM D5185m		15	17	13
Calcium	ppm	ASTM D5185m		3457	3521	3346
Phosphorus	ppm	ASTM D5185m		8	4	5
Zinc	ppm	ASTM D5185m		10	4	3
Sulfur	ppm	ASTM D5185m		2513	2531	2381
Oxidation	Abs/.1mm	*ASTM D7414	>25	7.9	9.2	8.5
Base Number (BN)	mg KOH/g	ASTM D2896	10.5	7.1	7.3	6.9
Visc @ 100°C	cSt	ASTM D445	15.5	14.5	14.7	14.7



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0062190
Lab Number : 06216655
Unique Number : 11089519
Test Package : MAR 2

Received : 21 Jun 2024
Tested : 24 Jun 2024
Diagnosed : 24 Jun 2024 - Wes Davis

AMERICAN COMMERCIAL LINES
 PO BOX 610, 1701 E. MARKET STREET
 JEFFERSONVILLE, IN
 US 47130
 Contact: RONALD SCHNEIDER
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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) F: (812)288-1644