



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
CHUCK B
Component
Starboard Main Engine
Fluid
PETRO CANADA DURON MARINE SAE 40 (19 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0066777	MW0036042	MW0035992
Sample Date		Client Info		15 Feb 2024	29 Nov 2023	14 Sep 2023
Machine Age	hrs	Client Info		4229	3207	2568
Oil Age	hrs	Client Info		1022	639	480
Filter Age	hrs	Client Info		1022	639	480
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	6	2	5
Chromium	ppm	ASTM D5185m	>10	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	0	0
Titanium	ppm	ASTM D5185m		5	2	4
Silver	ppm	ASTM D5185m	>5	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	<1	<1
Lead	ppm	ASTM D5185m	>40	1	<1	<1
Copper	ppm	ASTM D5185m	>300	2	3	2
Tin	ppm	ASTM D5185m	>10	<1	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

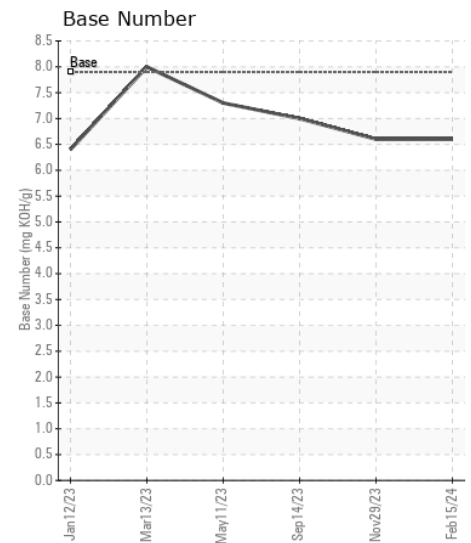
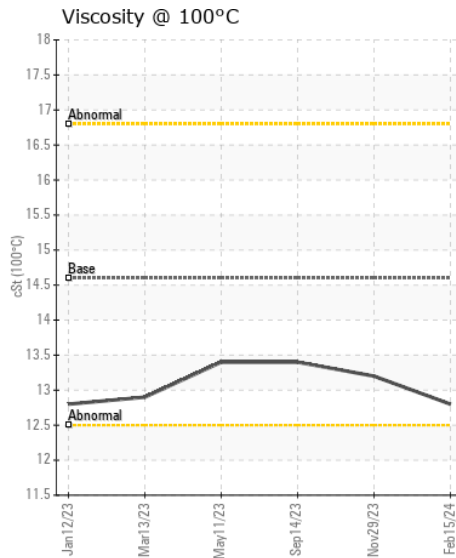
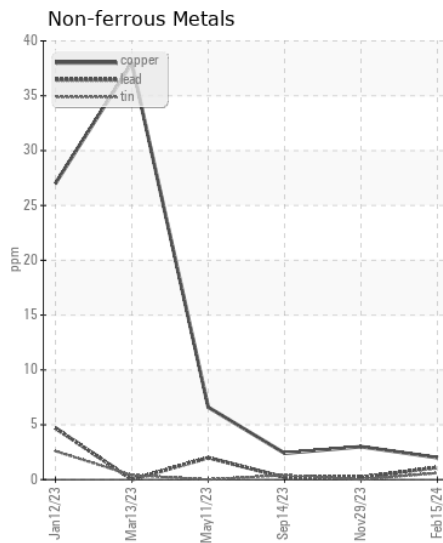
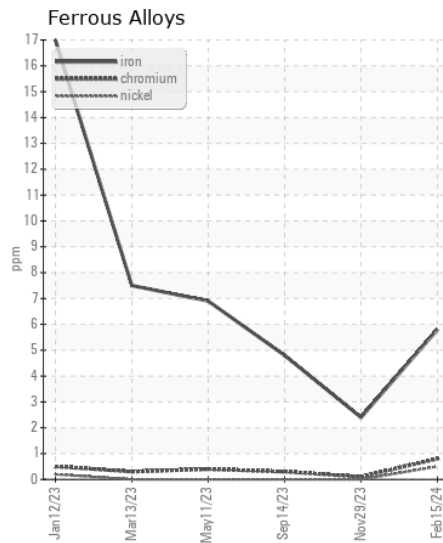
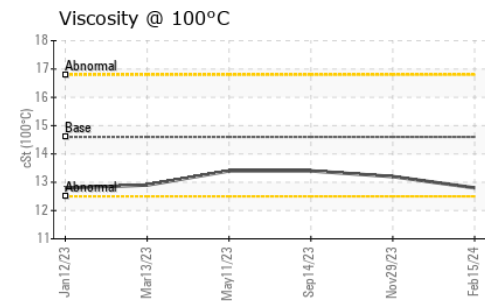
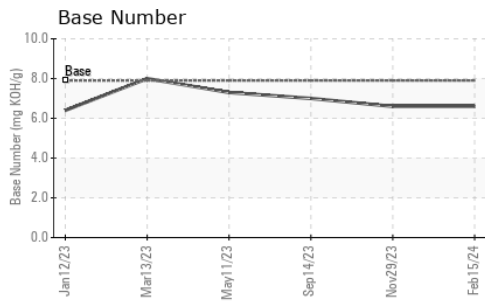
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	4	2	3
Potassium	ppm	ASTM D5185m	>20	2	0	2
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		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	6.7	6.8	7.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	17.2	17.2	16.5
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		2	3	3
Boron	ppm	ASTM D5185m	1.0	23	12	19
Barium	ppm	ASTM D5185m	1.0	34	0	0
Molybdenum	ppm	ASTM D5185m	1.0	10	4	8
Manganese	ppm	ASTM D5185m	1	<1	<1	<1
Magnesium	ppm	ASTM D5185m	15	821	888	887
Calcium	ppm	ASTM D5185m	2540	1114	1108	1198
Phosphorus	ppm	ASTM D5185m	1000	903	1098	1030
Zinc	ppm	ASTM D5185m	1110	1142	1286	1216
Sulfur	ppm	ASTM D5185m	3700	3228	3196	3743
Oxidation	Abs/.1mm	*ASTM D7414	>25	11.4	12.4	11.1
Base Number (BN)	mg KOH/g	ASTM D2896	7.9	6.6	6.6	7.0
Visc @ 100°C	cSt	ASTM D445	14.6	12.8	13.2	13.4



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : MW0066777

Lab Number : 06099908

Unique Number : 10898138

Test Package : MAR 2

Received : 26 Feb 2024

Tested : 27 Feb 2024

Diagnosed : 27 Feb 2024 - Don Baldrige

AMERICAN RIVER TRANSPORTATION

1495 EAST ILLINOIS RT 71

OTTAWA, IL

US 61350

Contact: Jackson Hayes

jackson.hayes@adm.com

T:

F: (815)434-5571

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)