



Machine Id  
**ARTCO MAIDEN**  
Component  
**Starboard Main Engine**  
Fluid  
**PETRO CANADA DURON MARINE SAE 40 (18 GAL)**

**RECOMMENDATION**

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>MWM695472</b>	MWM667216	MWM696515
Sample Date		Client Info		<b>22 Dec 2023</b>	06 Nov 2023	18 Aug 2023
Machine Age	hrs	Client Info		<b>0</b>	0	0
Oil Age	hrs	Client Info		<b>650</b>	800	700
Filter Age	hrs	Client Info		<b>0</b>	0	0
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>SEVERE</b>	SEVERE	SEVERE

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>120	<b>0</b>	1	<1
Chromium	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m	>5	<b>1</b>	<1	0
Titanium	ppm	ASTM D5185m		<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	0
Lead	ppm	ASTM D5185m	>40	<b>1</b>	0	0
Copper	ppm	ASTM D5185m	>300	<b>1</b>	1	<1
Tin	ppm	ASTM D5185m	>10	<b>0</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

**CONTAMINATION**

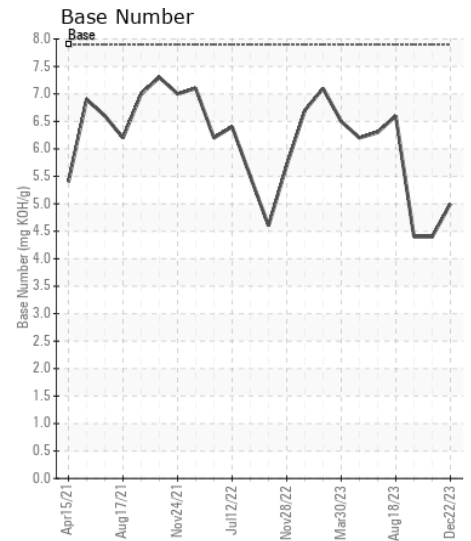
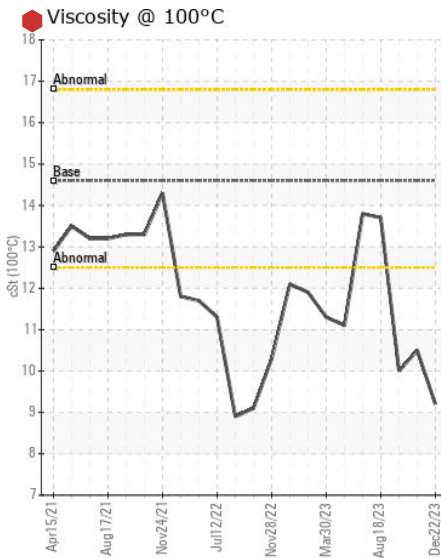
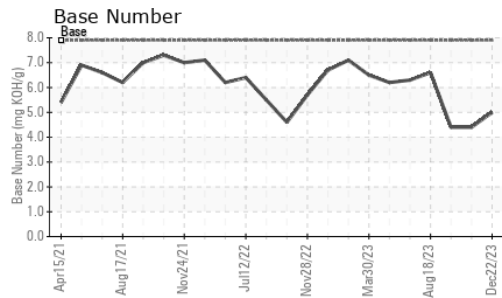
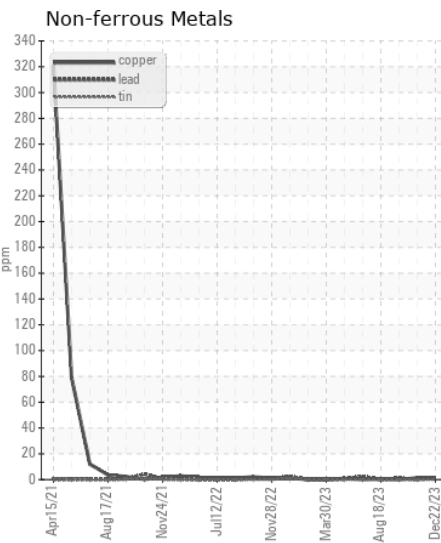
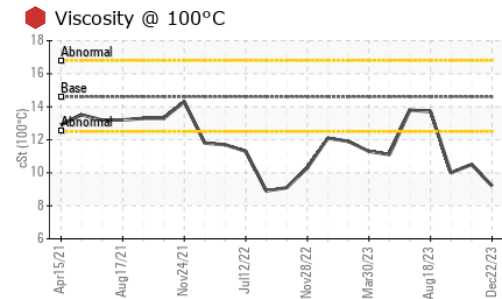
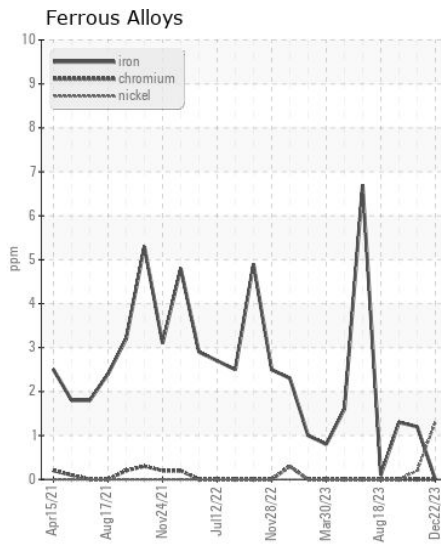
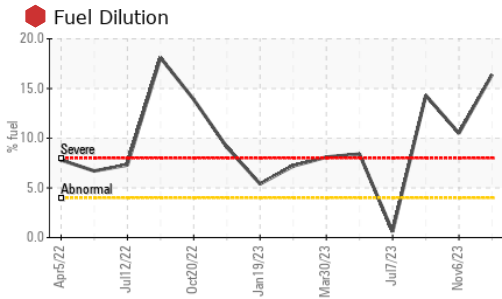
There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>1</b>	2	2
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	1	0
Fuel	%	ASTM D3524	>4.0	<b>16.4</b>	10.5	14.3
Water		WC Method	>0.1	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844		<b>0.1</b>	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	<b>5.4</b>	5.5	5.3
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>18.0</b>	20.3	19.2
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	<b>NEG</b>	NEG	NEG

**FLUID CONDITION**

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		<b>0</b>	1	<1
Boron	ppm	ASTM D5185m	1.0	<b>0</b>	3	3
Barium	ppm	ASTM D5185m	1.0	<b>0</b>	0	<1
Molybdenum	ppm	ASTM D5185m	1.0	<b>2</b>	2	<1
Manganese	ppm	ASTM D5185m	1	<b>&lt;1</b>	<1	0
Magnesium	ppm	ASTM D5185m	15	<b>780</b>	798	757
Calcium	ppm	ASTM D5185m	2540	<b>824</b>	891	836
Phosphorus	ppm	ASTM D5185m	1000	<b>926</b>	1033	951
Zinc	ppm	ASTM D5185m	1110	<b>1135</b>	1160	1100
Sulfur	ppm	ASTM D5185m	3700	<b>2728</b>	2813	2619
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.3</b>	20.6	19.6
Base Number (BN)	mg KOH/g	ASTM D2896	7.9	<b>5.0</b>	4.4	4.4
Visc @ 100°C	cSt	ASTM D445	14.6	<b>9.2</b>	10.5	10.0



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : MWM695472 **Received** : 12 Jan 2024  
**Lab Number** : 06059080 **Diagnosed** : 16 Jan 2024  
**Unique Number** : 10830462 **Diagnostician** : Wes Davis  
**Test Package** : MAR 2 ( Additional Tests: PercentFuel )

**AMERICAN RIVER TRANS. CO. PEORIA**  
 534 WESLEY RD  
 CREVECOEUR, IL  
 US 61610  
 Contact: STEVE BUCCO

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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