

### **OIL ANALYSIS REPORT**

# Martinsville [Martinsville] Oil - Port Genset

Component Port Genset Fluid

MOBIL 15W40 (7 GAL)

#### DIAGNOSIS

#### Recommendation

We advise that you check the fuel injection system. Resample at the next service interval to monitor. ( Customer Sample Comment: George willis )

#### Wear

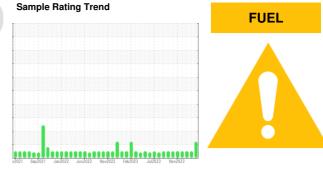
All component wear rates are normal.

#### Contamination

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

#### Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

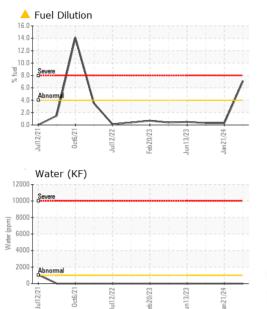


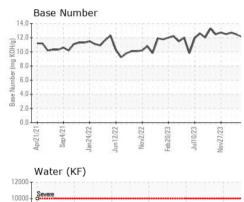
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0805454	WC0845819	WC0735537
Sample Date		Client Info		18 Mar 2024	15 Feb 2024	21 Jan 2024
Machine Age	hrs	Client Info		6973	6623	6442
Oil Age	hrs	Client Info		0	174	391
Oil Changed		Client Info		Changed	Filtered	Not Changd
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINATION	N	method	limit/base	current	history1	history2
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	6	2	4
Chromium	ppm	ASTM D5185m	>4	<1	0	0
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	0	<1
Silver	ppm	ASTM D5185m	>5	<1	0	0
Aluminum	ppm		>12	2	0	2
Lead	ppm	ASTM D5185m	>17	2	0	3
Copper	ppm		>70	-	0	2
Tin	ppm	ASTM D5185m	>15	<1	0	1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		24	26	33
Barium	ppm	ASTM D5185m		0	0	0
Maluhdan		AOTH DELOF		60	59	00
Molybdenum	ppm	ASTM D5185m		00	39	69
Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m		<1	0	2
-						
Manganese	ppm	ASTM D5185m		<1	0	2
Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m		<1 1326	0 1458	2 1446
Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m		<1 1326 1137	0 1458 1176	2 1446 1182
Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 1326 1137 985	0 1458 1176 947	2 1446 1182 1051
Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 1326 1137 985 1157	0 1458 1176 947 1159	2 1446 1182 1051 1264
Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		<1 1326 1137 985 1157 3168	0 1458 1176 947 1159 3661	2 1446 1182 1051 1264 3205
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	>25	<1 1326 1137 985 1157 3168 current	0 1458 1176 947 1159 3661 history1	2 1446 1182 1051 1264 3205 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m	>25 >118	<1 1326 1137 985 1157 3168 current 5	0 1458 1176 947 1159 3661 history1 2	2 1446 1182 1051 1264 3205 history2 4
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	>25 >118	<1 1326 1137 985 1157 3168 <u>current</u> 5 <	0 1458 1176 947 1159 3661 history1 2 0	2 1446 1182 1051 1264 3205 history2 4 4
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>25 >118 >20 >4.0	<1 1326 1137 985 1157 3168 <u>current</u> 5 <1 2	0 1458 1176 947 1159 3661 history1 2 0 0	2 1446 1182 1051 1264 3205 history2 4 4 3
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>25 >118 >20 >4.0	<1 1326 1137 985 1157 3168 <u>current</u> 5 <1 2 2 ▲ 7.1	0 1458 1176 947 1159 3661 history1 2 0 0 0 <1.0	2 1446 1182 1051 1264 3205 history2 4 4 3 0.3
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel Water	ppm ppm ppm ppm ppm ppm ppm ppm %	ASTM D5185m ASTM D3524 ASTM D6304	>25 >118 >20 >4.0 >0.1	<1 1326 1137 985 1157 3168 <u>current</u> 5 <1 2 2 ▲ 7.1 NEG	0 1458 1176 947 1159 3661 history1 2 0 0 0 <<1.0 NEG	2 1446 1182 1051 1264 3205 history2 4 4 3 0.3 NEG
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel Water INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm % %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 ASTM D3524 ASTM D6304	>25 >118 >20 >4.0 >0.1 limit/base	<1 1326 1137 985 1157 3168 current 5 <1 2 <1 2 7.1 NEG current	0 1458 1176 947 1159 3661 history1 2 0 0 0 <1.0 NEG history1	2 1446 1182 1051 1264 3205 history2 4 4 3 0.3 NEG history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel Water INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm % %	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D3524 ASTM D3524 ASTM D6304 *ASTM D7844	>25 >118 >20 >4.0 >0.1 limit/base >20	<1 1326 1137 985 1157 3168 <u>current</u> 5 <1 2 × 7.1 NEG <u>current</u> 0.2	0 1458 1176 947 1159 3661 history1 2 0 0 0 <1.0 NEG history1 0.1	2 1446 1182 1051 1264 3205 history2 4 4 4 3 0.3 NEG history2 0.1
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel Water INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm % % %	ASTM D5185m ASTM D5244 ASTM D6304 <b>method</b> *ASTM D7844	>25 >118 >20 >4.0 >0.1 limit/base >20	<1 1326 1137 985 1157 3168 current 5 <1 2 <♪ 7.1 NEG 0.2 9.0	0 1458 1176 947 1159 3661 history1 2 0 0 0 <1.0 NEG history1 0.1 7.1	2 1446 1182 1051 1264 3205 history2 4 4 4 3 0.3 NEG history2 0.1 8.1
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel Water INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm % % %	ASTM D5185m ASTM D5324 ASTM D6304 *ASTM D7844 *ASTM D7624 *ASTM D7624	>25 >118 >20 >4.0 >0.1 Iimit/base >20 >30 Iimit/base	<1 1326 1137 985 1157 3168 current 5 <1 2 <li>7.1 NEG current 0.2 9.0 19.6 current</li>	0 1458 1176 947 1159 3661 history1 2 0 0 <1.0 NEG istory1 0.1 7.1 19.0 history1	2 1446 1182 1051 1264 3205 history2 4 4 4 3 0.3 NEG history2 0.1 8.1 20.1 history2
Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel Water INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm % % %	ASTM D5185m ASTM D5324 ASTM D5324 ASTM D7844 *ASTM D7624 *ASTM D7415	>25 >118 >20 >4.0 >0.1 Iimit/base >20 >30 Iimit/base	<1 1326 1137 985 1157 3168 current 5 <11 2 <li>7.1 NEG current 0.2 9.0 19.6</li>	0 1458 1176 947 1159 3661 history1 2 0 0 <1.0 NEG history1 0.1 7.1 19.0	2 1446 1182 1051 1264 3205 history2 4 4 4 3 0.3 NEG history2 0.1 8.1 20.1

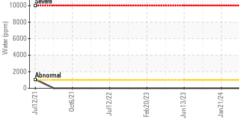
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## **OIL ANALYSIS REPORT**







VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
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
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	4	11.1	12.3	12.4
GRAPHS						

Ferrous Alloys

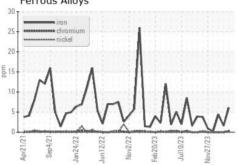
Non-ferrous Metals

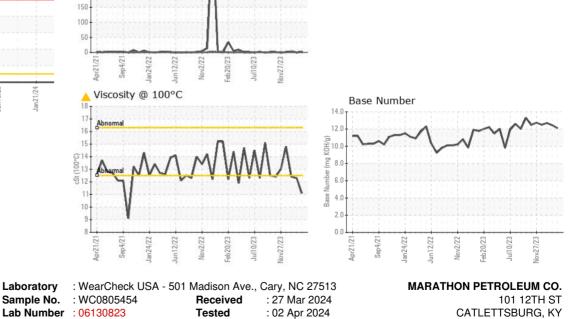
400

350 300

250

H 200





: 02 Apr 2024 - Jonathan Hester Diagnosed US 41169 Unique Number : 10950288 Test Package : IND 2 (Additional Tests: FuelDilution, KF, PercentFuel) Contact: CORY GUMBERT Certificate L2367 cagumbert@marathonpetroleum.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. T: (606)585-3950 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Submitted By: M/V MARTINSVILLE

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