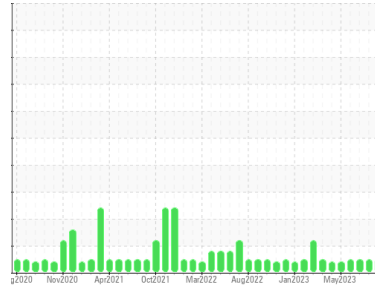




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Area
Detroit
 Machine Id
[Detroit] Oil - Starboard Genset
 Component
Starboard Genset
 Fluid
MOBIL 15W40 (35 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

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.

SAMPLE INFORMATION

method	limit/base	current	history1	history2	
Sample Number	Client Info	WC0769338	WC0769396	WC0769391	
Sample Date	Client Info	11 Sep 2023	14 Aug 2023	17 Jul 2023	
Machine Age	hrs	Client Info	7023	6738	6237
Oil Age	hrs	Client Info	4	501	1
Oil Changed	Client Info	N/A	Not Changd	Diff Oil	
Sample Status		NORMAL	NORMAL	NORMAL	

CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >4.0	<1.0	<1.0	<1.0
Glycol	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m >50	4	15	2
Chromium	ppm	ASTM D5185m >4	0	<1	<1
Nickel	ppm	ASTM D5185m >2	<1	0	<1
Titanium	ppm	ASTM D5185m	<1	0	0
Silver	ppm	ASTM D5185m >5	0	0	0
Aluminum	ppm	ASTM D5185m >12	<1	4	3
Lead	ppm	ASTM D5185m >17	<1	<1	<1
Copper	ppm	ASTM D5185m >70	<1	1	<1
Tin	ppm	ASTM D5185m >15	<1	<1	0
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m	105	82	102
Barium	ppm	ASTM D5185m	0	0	2
Molybdenum	ppm	ASTM D5185m	23	25	24
Manganese	ppm	ASTM D5185m	<1	<1	0
Magnesium	ppm	ASTM D5185m	283	304	263
Calcium	ppm	ASTM D5185m	2377	2601	2336
Phosphorus	ppm	ASTM D5185m	487	500	455
Zinc	ppm	ASTM D5185m	569	619	554
Sulfur	ppm	ASTM D5185m	4243	4913	4152

CONTAMINANTS

method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m >25	6	2	13
Sodium	ppm	ASTM D5185m >118	1	2	0
Potassium	ppm	ASTM D5185m >20	<1	<1	2

INFRA-RED

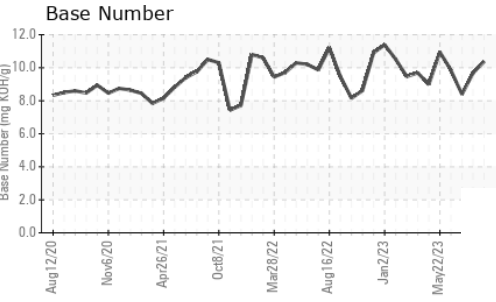
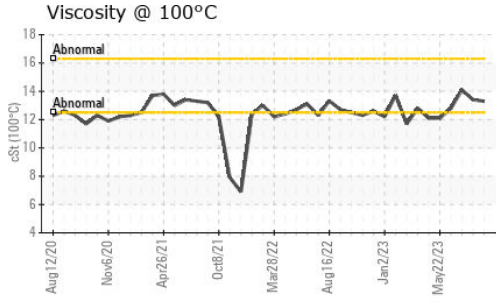
method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	0.1	0.4	0.1
Nitration	Abs/cm	*ASTM D7624 >20	7.4	10.7	6.7
Sulfation	Abs/.1mm	*ASTM D7415 >30	20.2	21.9	20.1

FLUID DEGRADATION

method	limit/base	current	history1	history2	
Oxidation	Abs/.1mm	*ASTM D7414 >25	14.5	18.6	13.6
Base Number (BN)	mg KOH/g	ASTM D2896	10.38	9.68	8.39



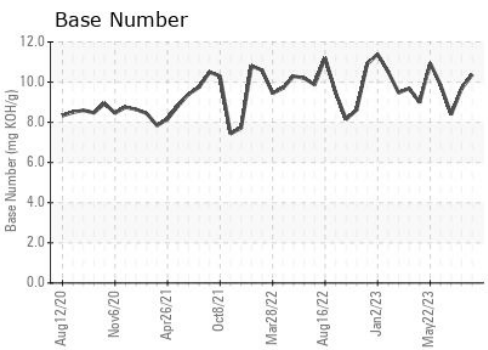
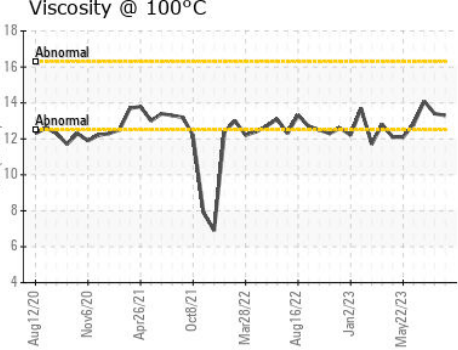
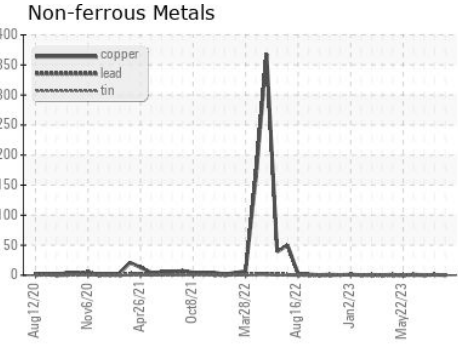
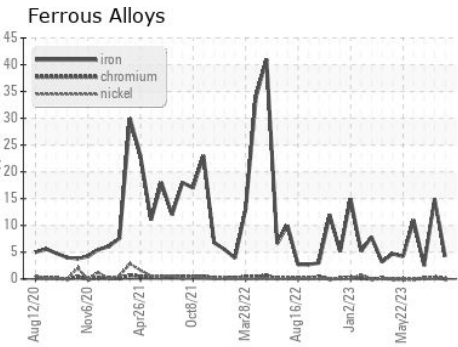
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	LIGHT
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
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
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.3	13.4	14.1

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : WC0769338 Received : 02 Oct 2023
 Lab Number : **05966532** Diagnosed : 03 Oct 2023
 Unique Number : 10673083 Diagnostician : Sean Felton
 Test Package : IND 2

MARATHON PETROLEUM CO.
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 US 41169
 Contact: SHAWN MCCLASKEY
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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)