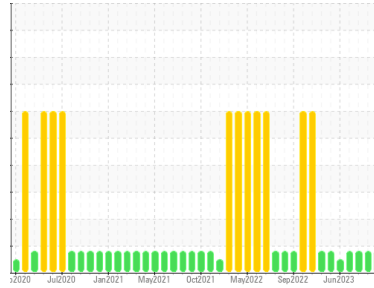




PROBLEM SUMMARY

Sample Rating Trend



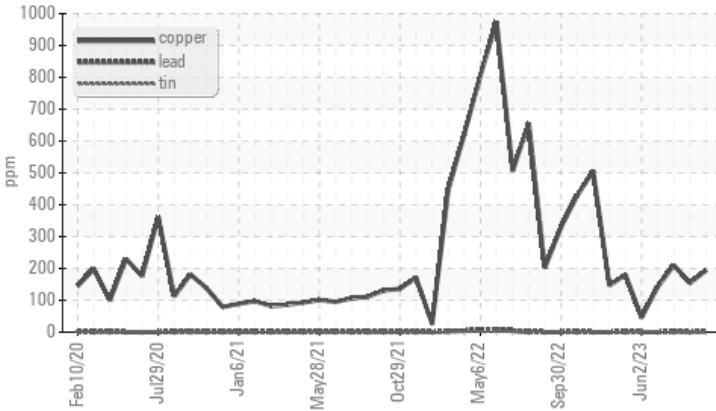
WEAR



Area
Map Runner
 Machine Id
[Map Runner] Oil - Starboard Reduction Gear
 Component
Starboard Reduction Gear
 Fluid
SAE 30W (10 GAL)

COMPONENT CONDITION SUMMARY

▲ Non-ferrous Metals



RECOMMENDATION

No corrective action is recommended at this time.
 Resample at the next service interval to monitor. (Customer Sample Comment: Scheduled to be changed 9-28-23)

PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	ABNORMAL	ABNORMAL
Copper	ppm	ASTM D5185m	>50	▲ 194	▲ 154	▲ 210

Customer Id: MARCAT
 Sample No.: WC0719208
 Lab Number: 05966431
 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Don Baldrige +1
don.b505@comcast.net

To change component or sample information:
 Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

30 Aug 2023 Diag: Don Baldrige

WEAR



No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



27 Jul 2023 Diag: Don Baldrige

WEAR



Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



30 Jun 2023 Diag: Don Baldrige

WEAR



No corrective action is recommended at this time. Resample at the next service interval to monitor. The copper level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

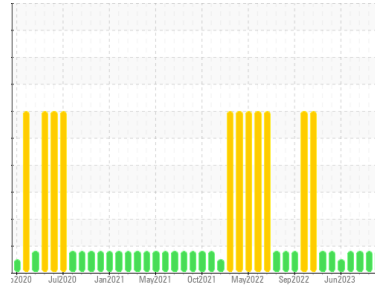
view report





OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Area
Map Runner
 Machine Id
[Map Runner] Oil - Starboard Reduction Gear
 Component
Starboard Reduction Gear
 Fluid
SAE 30W (10 GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor. (Customer Sample Comment: Scheduled to be changed 9-28-23)

Wear

The copper level is abnormal. All other component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0719208	WC0769267	WC0769273
Sample Date	Client Info		27 Sep 2023	30 Aug 2023	27 Jul 2023
Machine Age	hrs	Client Info	0	18036	0
Oil Age	hrs	Client Info	1313	713	1553
Oil Changed	Client Info		Not Chngd	Not Chngd	Changed
Sample Status			ABNORMAL	ABNORMAL	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >150	5	4	4
Chromium	ppm	ASTM D5185m >10	0	0	<1
Nickel	ppm	ASTM D5185m >10	0	0	0
Titanium	ppm	ASTM D5185m	<1	0	<1
Silver	ppm	ASTM D5185m	0	0	0
Aluminum	ppm	ASTM D5185m >25	<1	<1	0
Lead	ppm	ASTM D5185m >100	2	0	2
Copper	ppm	ASTM D5185m >50	▲ 194	▲ 154	▲ 210
Tin	ppm	ASTM D5185m >10	<1	<1	<1
Vanadium	ppm	ASTM D5185m	0	0	<1
Cadmium	ppm	ASTM D5185m	0	0	<1

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	<1	4	7
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	45	44	46
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m	733	739	714
Calcium	ppm	ASTM D5185m	783	794	789
Phosphorus	ppm	ASTM D5185m	760	769	757
Zinc	ppm	ASTM D5185m	886	890	869
Sulfur	ppm	ASTM D5185m	2340	2752	2698

CONTAMINANTS

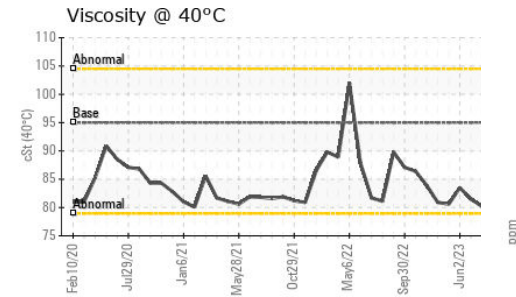
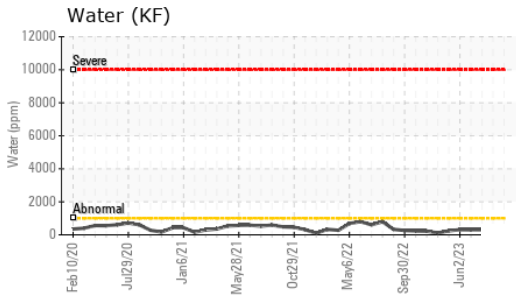
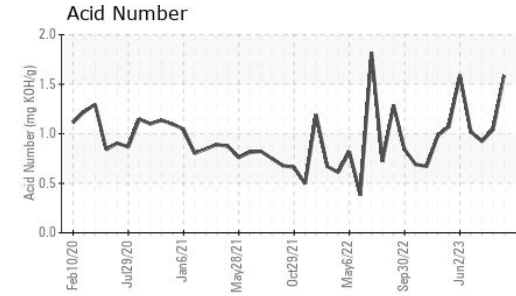
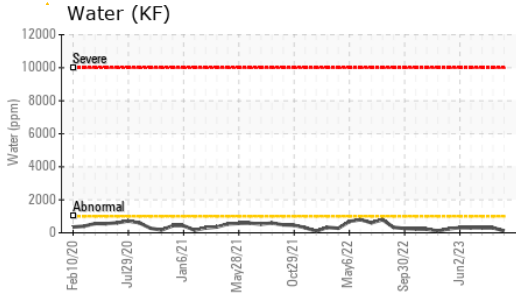
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >50	2	2	2
Sodium	ppm	ASTM D5185m	2	3	2
Potassium	ppm	ASTM D5185m >20	0	0	1
Water	%	ASTM D6304 >0.1	0.012	0.030	0.030
ppm Water	ppm	ASTM D6304 >1000	121.6	301.2	300.8

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.588	1.04	0.923



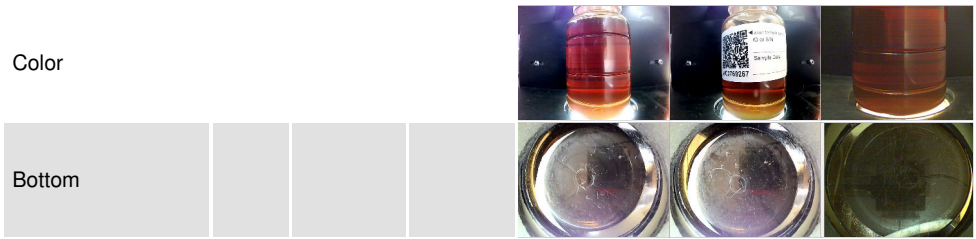
OIL ANALYSIS REPORT



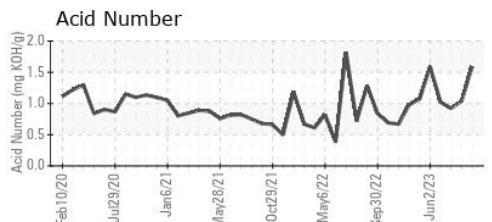
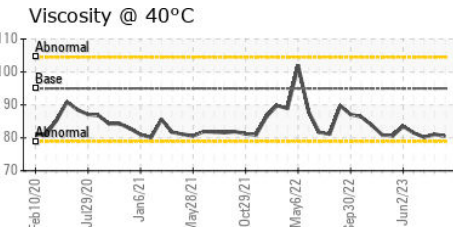
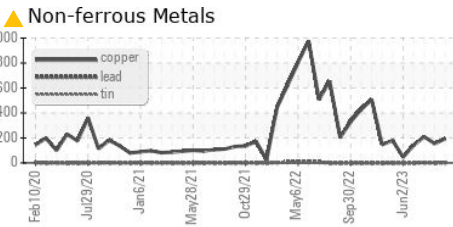
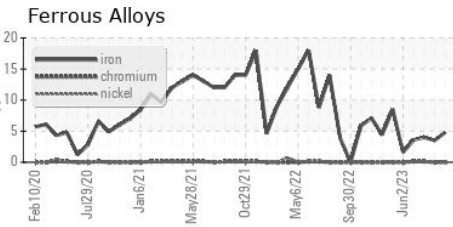
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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 @ 40°C	cSt	ASTM D445	95.0	80.5	81.1	80.2

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0719208 **Received** : 02 Oct 2023
Lab Number : 05966431 **Diagnosed** : 03 Oct 2023
Unique Number : 10672982 **Diagnostician** : Don Baldrige
Test Package : IND 2 (Additional Tests: KF)

MARATHON PETROLEUM CO.
 101 12TH ST
 CATLETTSBURG, KY
 US 41169
 Contact: CORY GUMBERT
 cagumbert@marathonpetroleum.com
 T: (606)585-3950
 F: x:

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)