

Area Speedway [Speedway] Oil - Port Main Engine

Port Main Engine Fluid SAE 40W (270 GAL)

Recommendation

Resample at the next service interval to monitor. (Customer Sample Comment: Jd Ridout)

Wear

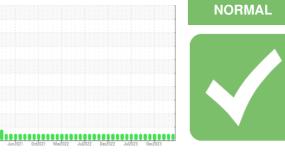
All component wear rates are normal.

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.

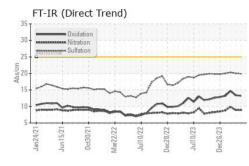


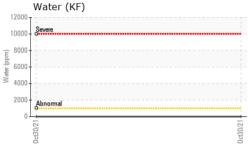
Sample Rating Trend

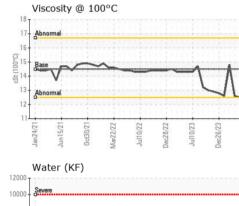
SAMPLE INFORM	1ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0860109	WC0860041	WC0860045
Sample Date		Client Info		10 Apr 2024	20 Mar 2024	21 Feb 2024
Machine Age	hrs	Client Info		19421	19132	18754
Oil Age	hrs	Client Info		18231	17942	17574
Oil Changed		Client Info		N/A	Oil Added	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	١	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	>75	3	5	11
Chromium	ppm	ASTM D5185m	>8	ء <1	0	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	5	5	4
Lead	ppm	ASTM D5185m	>18	1	1	5
Copper	ppm		>80	9	10	19
Tin	ppm	ASTM D5185m	>14	3	2	6
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	historv1	historv2
ADDITIVES Boron	maa	method ASTM D5185m	limit/base	current	history1 2	history2 4
Boron	ppm	ASTM D5185m	limit/base	3	2	4
Boron Barium	ppm		limit/base			
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	3 0	2 0 3	4 0 11
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base	3 0 2	2 0	4
Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	3 0 2 <1	2 0 3 <1	4 0 11 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	3 0 2 <1 33	2 0 3 <1 35	4 0 11 <1 42
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	3 0 2 <1 33 2799	2 0 3 <1 35 2815	4 0 11 <1 42 3015
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	3 0 2 <1 33 2799 18	2 0 3 <1 35 2815 16	4 0 11 <1 42 3015 31
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	3 0 2 <1 33 2799 18 18	2 0 3 <1 35 2815 16 13	4 0 11 <1 42 3015 31 26
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	3 0 2 <1 33 2799 18 18 18 4894	2 0 3 <1 35 2815 16 13 4976	4 0 11 <1 42 3015 31 26 4370
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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	limit/base	3 0 2 <1 33 2799 18 18 18 4894 current	2 0 3 <1 35 2815 16 13 4976 history1	4 0 11 <1 42 3015 31 26 4370 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	limit/base	3 0 2 <1 33 2799 18 18 4894 current 5	2 0 3 <1 35 2815 16 13 4976 history1 5	4 0 11 <1 42 3015 31 26 4370 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >20 >75 >20	3 0 2 <1 33 2799 18 18 18 4894 <u>current</u> 5 2	2 0 3 <1 35 2815 16 13 4976 history1 5 1	4 0 11 <1 42 3015 31 26 4370 history2 4 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm	ASTM D5185m ASTM D5185m	limit/base >20 >75 >20	3 0 2 <1 33 2799 18 18 18 4894 <u>current</u> 5 2 2 0	2 0 3 <1 35 2815 16 13 4976 history1 5 1 0	4 0 11 42 3015 31 26 4370 history2 4 1 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm	ASTM D5185m ASTM D5185m	limit/base >20 >75 >20 >75 >20 >0.1	3 0 2 <1 33 2799 18 18 4894 <i>current</i> 5 2 0 NEG	2 0 3 <1 35 2815 16 13 4976 history1 5 1 0 NEG	4 0 11 <1 42 3015 31 26 4370 history2 4 1 0 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >20 >75 >20 >0.1 limit/base >3	3 0 2 <1 33 2799 18 18 4894 <i>current</i> 5 2 0 0 NEG	2 0 3 <1 35 2815 16 13 4976 history1 5 1 0 NEG history1	4 0 11 <1 42 3015 31 26 4370 history2 4 1 0 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Vater INFRA-RED Soot %	ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >20 >75 >20 >0.1 limit/base >3 >20	3 0 2 <1 33 2799 18 18 4894 <i>current</i> 5 2 0 <i>NEG</i> <i>current</i> 0.3	2 0 3 <1 35 2815 16 13 4976 history1 5 1 0 NEG history1 0.3	4 0 11 <1 42 3015 31 26 4370 history2 4 1 0 NEG history2 0.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >20 >75 >20 >0.1 limit/base >3 >20	3 0 2 <1 33 2799 18 18 4894 <i>current</i> 5 2 0 <i>NEG</i> 0.3 8.9	2 0 3 <1 35 2815 16 13 4976 history1 5 1 0 NEG NEG history1 0.3 8.9	4 0 11 <1 42 3015 31 26 4370 history2 4 1 0 NEG NEG history2 0.5 9.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Vater INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	Imit/base >20 >75 >20 >0.1 Imit/base >3 >20 30	3 0 2 <1 33 2799 18 18 4894 <i>current</i> 5 2 0 <i>NEG</i> 0 <i>NEG</i> 0.3 8.9 19.9	2 0 3 <1 35 2815 16 13 4976 history1 5 1 0 NEG history1 0.3 8.9 20.0	4 0 11 <1 42 3015 31 26 4370 history2 4 1 0 NEG history2 0.5 9.9 20.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7644	imit/base >20 >75 >20 >0.1 Imit/base >3 >20 >30 Imit/base	3 0 2 <1 33 2799 18 18 4894 <i>current</i> 5 2 0 <i>current</i> 0 <i>NEG</i> 0 <i>NEG</i> 0.3 8.9 19.9 19.9	2 0 3 <1 35 2815 16 13 4976 history1 5 1 0 NEG NEG history1 0.3 8.9 20.0 history1	4 0 11 <1 42 3015 31 26 4370 history2 4 1 0 NEG history2 0.5 9.9 20.3 history2



OIL ANALYSIS REPORT



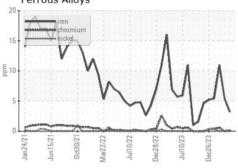


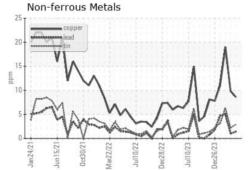


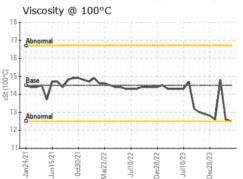


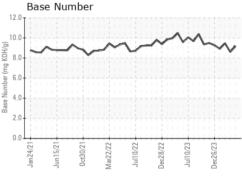
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.5	12.5	12.6	14.8
GRAPHS						

Ferrous Alloys









Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 MARATHON PETROLEUM CO. Sample No. : WC0860109 Received : 23 Apr 2024 101 12TH ST Lab Number : 06157884 Tested : 25 Apr 2024 CATLETTSBURG, KY Unique Number : 10993307 Diagnosed : 25 Apr 2024 - Sean Felton US 41169 Test Package : IND 2 (Additional Tests: KF) Contact: CORY GUMBERT Certificate 12367 cagumbert@marathonpetroleum.com To discuss this sample report, contact Customer Service at 1-800-237-1369. T: (606)585-3950 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. F: x:

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: MARCAT [WUSCAR] 06157884 (Generated: 04/25/2024 20:15:47) Rev: 1

Submitted By: M/V SPEEDWAY

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