

## **OIL ANALYSIS REPORT**

### Area Speedway [Speedway] Oil - Forward Genset

Forward Genset

MOBIL 15W40 (8 GAL)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. ( Customer Sample Comment: Top Up Amount: 2 GAL )

#### Wear

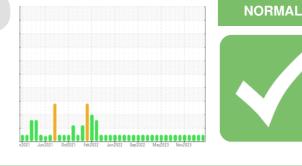
All component wear rates are normal.

#### 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.

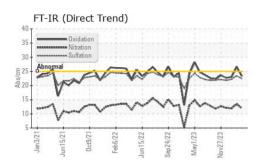


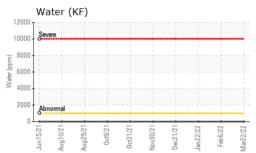
Sample Rating Trend

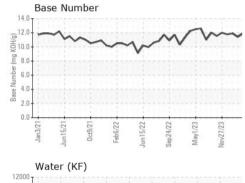
Sample Number     Client Info     VC0860040     WC0860040     WC0860040     WC0845777       Sample Date     Client Info     20 Mar 2024     21 Feb 2024     23 Jan 2024       Machine Age     hrs     Client Info     11734     11555     11164       Oil Age     hrs     Client Info     Oil Added     N/A     Oil Added       Sample Status     Client Info     Oil Added     N/A     Oil Added     N/A       Glycol     WC Method     S4.0     <1.0     <1.0     <1.0       Glycol     WC Method     S4.0     <1.0     <1.0     <1.0       Glycol     WC Method     S4.0     <1.0     <1.0     <1.0       Silver     ppm     ASTM 051555     >2     2     0     0     <1       Silver     ppm     ASTM 051555     >5     0     0     <1     2       Lead     ppm     ASTM 051555     >17     0     0     3     3       Chromium     ppm     ASTM 051555     70     0     <1<	SAMPLE INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Machine Age     hrss     Cilent Info     11734     11585     11164       Oil Age     hrss     Cilent Info     0il Added     N/A     Oil Added       Oil Changed     Client Info     Oil Added     N/A     Oil Added     NORMAL       Sample Status     Imit/base     current     history1     history2       Fuel     WC Method     >4.0     <1.0     <1.0     <1.0       Glycol     WC Method     >4.0     <1.0     <1.0     <1.0       WEAR METALS     method     imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     24     31     35       Chromium     ppm     ASTM D5185m     >50     0     0     <1       Silver     ppm     ASTM D5185m     >12     2     1     2       Lead     ppm     ASTM D5185m     >70     0     3     2       Vanadium     ppm     ASTM D5185m     >17     0     2     2       Vanadi	Sample Number		Client Info		WC0860040	WC0860046	WC0845777
Oil Age     hrs     Client Info     11657     11508     11108       Oil Changed     Client Info     Oil Added     N/A     Oil Added       Sample Status     Imit/base     current     history1     history2       Fuel     WC Method     >4.0     -1.0     <1.0     <1.0       Glycol     WC Method     >4.0     -1.0     <1.0     <1.0       Glycol     WC Method     >5.0     24     31     35       Chromium     ppm     ASTM D5185m     >5.0     24     31     35       Chromium     ppm     ASTM D5185m     >5.0     0     0     <1       Nickel     ppm     ASTM D5185m     >5     0     0     <1       Silver     ppm     ASTM D5185m     >70     0     <1     2       Lead     ppm     ASTM D5185m     >70     0     <1     2       Cadmium     ppm     ASTM D5185m     10     0     <1     2       Lead     ppm     ASTM D51	Sample Date		Client Info		20 Mar 2024	21 Feb 2024	23 Jan 2024
Oil Changed Sample Status     Client Info     Oil Added NORMAL     N/A     Oil Added NORMAL       CONTAMINATION     method     limit/base     current     history1     history2       Fuel     WC Method     >4.0     <1.0     <1.0     <1.0       Glycol     WC Method     >4.0     <1.0     <1.0     <1.0       Glycol     WC Method     >4.0     <1.0     <1.0     <1.0       WEAR METALS     method     imit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     24     31     35       Chromium     ppm     ASTM D5185m     >4     <1     <1     <1       Nickel     ppm     ASTM D5185m     >5     0     0     <1     30       Glupper     ppm     ASTM D5185m     >17     0     0     31     32       Vanadium     ppm     ASTM D5185m     10     0     <1     2       Lead     ppm     ASTM D5185m     0     0     0<	Machine Age	hrs	Client Info		11734	11585	11164
Sample Status     NORMAL     NORMAL     NORMAL     NORMAL     NORMAL       CONTAMINATION     method     imit/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     >2     0     0     <1       Nickel     ppm     ASTM D5185m     >2     0     0     <1       Nickel     ppm     ASTM D5185m     >5     0     0     <1       Silver     ppm     ASTM D5185m     >12     2     1     2     2       Lead     ppm     ASTM D5185m     >15     <1     0     2     2       Vanadium     ppm     ASTM D5185m     10     0     <1     1       Cadmium     ppm     ASTM D5185m     10     0     0     0 </th <th>Oil Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>11657</th> <th>11508</th> <th>11108</th>	Oil Age	hrs	Client Info		11657	11508	11108
CONTAMINATION     method     limit/base     current     history1     history2       Fuel     WC Method     >4.0     <1.0     <1.0     <1.0     <1.0       Glycol     WC Method     NEG     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     24     31     35       Chromium     ppm     ASTM D5185m     >2     0     0     <1       Nickel     ppm     ASTM D5185m     >2     0     0     <1       Silver     ppm     ASTM D5185m     >5     0     0     <1       Aluminum     ppm     ASTM D5185m     >17     0     0     3       Copper     ppm     ASTM D5185m     >15     <1     0     2       Vanadium     ppm     ASTM D5185m     0     0     <1     2       Cadmium     ppm     ASTM D5185m     10     8     9 <t< th=""><th>Oil Changed</th><th></th><th>Client Info</th><th></th><th>Oil Added</th><th>N/A</th><th>Oil Added</th></t<>	Oil Changed		Client Info		Oil Added	N/A	Oil Added
Fuel     WC Method     >4.0     <1.0	Sample Status				NORMAL	NORMAL	NORMAL
Giycol     WC Method     NEG     NEG     NEG     NEG       WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     24     31     35       Chromium     ppm     ASTM D5185m     >2     0     0     <1       Nickel     ppm     ASTM D5185m     >2     0     0     <1       Silver     ppm     ASTM D5185m     >2     0     0     <1       Aluminum     ppm     ASTM D5185m     >12     2     1     2       Lead     ppm     ASTM D5185m     >70     0     <1     3       Tin     ppm     ASTM D5185m     >70     0     <1     2       Vanadium     ppm     ASTM D5185m     >70     0     <1     2       Cadmium     ppm     ASTM D5185m     0     0     <1     2       Vanadium     ppm     ASTM D5185m     10     8     9     3 <th>CONTAMINATIO</th> <th>N</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINATIO	N	method	limit/base	current	history1	history2
WEAR METALS     method     limit/base     current     history1     history2       Iron     ppm     ASTM D5185m     >50     24     31     35       Chromium     ppm     ASTM D5185m     >2     0     0     <1       Nickel     ppm     ASTM D5185m     >2     0     0     <1       Silver     ppm     ASTM D5185m     >5     0     0     <1     2       Lead     ppm     ASTM D5185m     >12     2     1     2     2       Lead     ppm     ASTM D5185m     >17     0     0     3     3       Copper     ppm     ASTM D5185m     >15     <1     0     2     2       Vanadium     ppm     ASTM D5185m     0     0     <1     1       ADDITVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     10     8     9       Barium     ppm     ASTM D5185m     100	Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Iron     ppm     ASTM D5185m     >50     24     31     35       Chromium     ppm     ASTM D5185m     >4     <1     <1     <1       Nickel     ppm     ASTM D5185m     >2     0     0     <1       Titanium     ppm     ASTM D5185m     >5     0     0     <1       Silver     ppm     ASTM D5185m     >5     0     0     <1     2       Lead     ppm     ASTM D5185m     >70     0     <1     3     3       Copper     ppm     ASTM D5185m     >70     0     <1     2     1     2       Lead     ppm     ASTM D5185m     >70     0     <1     3     1     3     1     3     1     1     2     1     1     2     1     2     1     2     1     1     2     1     1     1     1     1     1     1     1     1     1     1     1     1     1     1 </th <th>Glycol</th> <th></th> <th>WC Method</th> <th></th> <th>NEG</th> <th>NEG</th> <th>NEG</th>	Glycol		WC Method		NEG	NEG	NEG
Chromium     ppm     ASTM D5185m     >4     <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel     ppm     ASTM D5185m     >2     0     0     <1	Iron	ppm	ASTM D5185m	>50	24	31	35
Titanium     ppm     ASTM D5185m     0     0     <1	Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Silver     ppm     ASTM D5185m     >5     0     0     <1	Nickel	ppm	ASTM D5185m	>2	0	0	<1
Silver     ppm     ASTM D5185m     >5     0     0     <1	Titanium		ASTM D5185m		0	0	<1
Aluminum     ppm     ASTM D5185m     >12     2     1     2       Lead     ppm     ASTM D5185m     >17     0     0     3       Copper     ppm     ASTM D5185m     >70     0     <1     3       Tin     ppm     ASTM D5185m     >15     <1     0     2       Vanadium     ppm     ASTM D5185m     0     0     <11     3       Cadmium     ppm     ASTM D5185m     0     0     <11     2       Boron     ppm     ASTM D5185m     10     8     9       Barium     ppm     ASTM D5185m     10     0     0       Malybdenum     ppm     ASTM D5185m     10     8     9       Barium     ppm     ASTM D5185m     1506     1533     1440       Calcium     ppm     ASTM D5185m     1106     1048     1051       Zinc     ppm     ASTM D5185m     1360     1332     1317       Sulfur     ppm     ASTM D5185m	Silver		ASTM D5185m	>5	0	0	<1
Lead     ppm     ASTM D5185m     >17     0     0     3       Copper     ppm     ASTM D5185m     >70     0     <1     3       Tin     ppm     ASTM D5185m     >15     <1     0     2       Vanadium     ppm     ASTM D5185m     0     0     <1     0       Cadmium     ppm     ASTM D5185m     0     0     <1     0       ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     10     8     9       Barium     ppm     ASTM D5185m     0     0     0       Molybdenum     ppm     ASTM D5185m     68     68     65       Magnaese     ppm     ASTM D5185m     1106     1048     1051       Zinc     ppm     ASTM D5185m     1106     1048     1051       Zinc     ppm     ASTM D5185m     1360     1332     1317       Sulfur     ppm     ASTM D5185m	Aluminum		ASTM D5185m	>12	2	1	2
Copper     ppm     ASTM D5185m     >70     0     <1	Lead	ppm	ASTM D5185m	>17	0	0	3
Tin     ppm     ASTM D5185m     >15     <1	Copper		ASTM D5185m	>70	0	<1	3
Vanadium     ppm     ASTM D5185m     0     0     <1			ASTM D5185m	>15	<1	0	2
ADDITIVES     method     limit/base     current     history1     history2       Boron     ppm     ASTM D5185m     10     8     9       Barium     ppm     ASTM D5185m     0     0     0       Molybdenum     ppm     ASTM D5185m     68     68     65       Magnesee     ppm     ASTM D5185m     1506     1538     1440       Calcium     ppm     ASTM D5185m     1506     1538     1440       Calcium     ppm     ASTM D5185m     1163     1241     1109       Phosphorus     ppm     ASTM D5185m     1106     1048     1051       Zinc     ppm     ASTM D5185m     1360     1332     1317       Sulfur     ppm     ASTM D5185m     3822     3280     3130       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     6     6     6       Sodium     ppm     ASTM D5185m     >20 <th>Vanadium</th> <th></th> <th>ASTM D5185m</th> <th></th> <th>0</th> <th>0</th> <th>&lt;1</th>	Vanadium		ASTM D5185m		0	0	<1
Boron     ppm     ASTM D5185m     10     8     9       Barium     ppm     ASTM D5185m     0     0     0       Molybdenum     ppm     ASTM D5185m     68     68     65       Manganese     ppm     ASTM D5185m     <1     <1     2       Magnesium     ppm     ASTM D5185m     1506     1538     1440       Calcium     ppm     ASTM D5185m     1163     1241     1109       Phosphorus     ppm     ASTM D5185m     1106     1048     1051       Zinc     ppm     ASTM D5185m     1360     1332     1317       Sulfur     ppm     ASTM D5185m     25     6     6     6       Sodium     ppm     ASTM D5185m     >25     6     6     6       Sodium     ppm     ASTM D5185m     >20     1     0     4       Water     %     ASTM D5185m     >20     1     0     4       Water     %     ASTM D6304     >0.1     <	Cadmium	ppm	ASTM D5185m		0	0	<1
Barium     ppm     ASTM D5185m     O     O     O       Molybdenum     ppm     ASTM D5185m     68     68     65       Magnesse     ppm     ASTM D5185m     <1     <1     2       Magnesium     ppm     ASTM D5185m     1506     1538     1440       Calcium     ppm     ASTM D5185m     1163     1241     1109       Phosphorus     ppm     ASTM D5185m     1106     1048     1051       Zinc     ppm     ASTM D5185m     1360     1332     1317       Sulfur     ppm     ASTM D5185m     3822     3280     3130       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     6     6     6     6       Sodium     ppm     ASTM D5185m     >20     1     0     4       Water     %     ASTM D6304     >0.1     NEG     NEG     NEG       INFRA-RED     method							
Molybdenum     ppm     ASTM D5185m     68     68     65       Manganese     ppm     ASTM D5185m     <1     <1     2       Magnesium     ppm     ASTM D5185m     1506     1538     1440       Calcium     ppm     ASTM D5185m     1163     1241     1109       Phosphorus     ppm     ASTM D5185m     1106     1048     1051       Zinc     ppm     ASTM D5185m     1360     1332     1317       Sulfur     ppm     ASTM D5185m     3822     3280     3130       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     6     6     6       Sodium     ppm     ASTM D5185m     >20     1     0     4       Vater     %     ASTM D6304     >0.1     NEG     NEG     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     <	ADDITIVES		method				history2
Manganese     ppm     ASTM D5185m     <1		ppm		limit/base			
Manganese     ppm     ASTM D5185m     <1	Boron		ASTM D5185m	limit/base	10	8	9
Magnesium     ppm     ASTM D5185m     1506     1538     1440       Calcium     ppm     ASTM D5185m     1163     1241     1109       Phosphorus     ppm     ASTM D5185m     1106     1048     1051       Zinc     ppm     ASTM D5185m     1360     1332     1317       Sulfur     ppm     ASTM D5185m     3822     3280     3130       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     6     6     6       Sodium     ppm     ASTM D5185m     >18     10     14     14       Potassium     ppm     ASTM D5185m     >20     1     0     4       Water     %     ASTM D6304     >0.1     NEG     NEG     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     'ASTM D7844     0.2     0.2     0.3       Nitration	Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	10 0	8 0	9 0
Phosphorus     ppm     ASTM D5185m     1106     1048     1051       Zinc     ppm     ASTM D5185m     1360     1332     1317       Sulfur     ppm     ASTM D5185m     3822     3280     3130       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     6     6     6       Sodium     ppm     ASTM D5185m     >25     6     6     6       Sodium     ppm     ASTM D5185m     >20     1     0     14     14       Potassium     ppm     ASTM D5185m     >20     1     0     4       Water     %     ASTM D6304     >0.1     NEG     NEG     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.1mm     *ASTM D7415     >30     22.4     23.4<	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	10 0 68	8 0 68	9 0 65
Zinc     ppm     ASTM D5185m     1360     1332     1317       Sulfur     ppm     ASTM D5185m     3822     3280     3130       CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     6     6     6       Sodium     ppm     ASTM D5185m     >118     10     14     14       Potassium     ppm     ASTM D5185m     >20     1     0     4       Water     %     ASTM D6304     >0.1     NEG     NEG     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.mm     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.imm     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.imm     *ASTM D7415     >30     22.	Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	10 0 68 <1	8 0 68 <1	9 0 65 2
SulfurppmASTM D5185m382232803130CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25666SodiumppmASTM D5185m>118101414PotassiumppmASTM D5185m>20104Water%ASTM D6304>0.1NEGNEGNEGINFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D78440.20.20.3NitrationAbs/cm*ASTM D7624>2011.913.511.9SulfationAbs/lmm*ASTM D7415>3022.423.422.2FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/lmm*ASTM D7414>2523.326.623.0	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	10 0 68 <1 1506	8 0 68 <1 1538	9 0 65 2 1440
CONTAMINANTS     method     limit/base     current     history1     history2       Silicon     ppm     ASTM D5185m     >25     6     6     6       Sodium     ppm     ASTM D5185m     >118     10     14     14       Potassium     ppm     ASTM D5185m     >20     1     0     4       Water     %     ASTM D6304     >0.1     NEG     NEG     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0.2     0.2     0.3       Nitration     Abs/cm     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.imm     *ASTM D7415     >30     22.4     23.4     22.2       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.imm     *ASTM D7414     >25     23.3     26.6     23.0	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	10 0 68 <1 1506 1163	8 0 68 <1 1538 1241	9 0 65 2 1440 1109
Silicon     ppm     ASTM D5185m     >25     6     6     6       Sodium     ppm     ASTM D5185m     >118     10     14     14       Potassium     ppm     ASTM D5185m     >20     1     0     4       Water     %     ASTM D6304     >0.1     NEG     NEG     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.mm     *ASTM D7415     >30     22.4     23.4     22.2       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     23.3     26.6     23.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	10 0 68 <1 1506 1163 1106	8 0 68 <1 1538 1241 1048	9 0 65 2 1440 1109 1051
Sodium     ppm     ASTM D5185m     >118     10     14     14       Potassium     ppm     ASTM D5185m     >20     1     0     4       Water     %     ASTM D6304     >0.1     NEG     NEG     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0.2     0.2     0.3       Nitration     Abs/cm     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.tmm     *ASTM D7415     >30     22.4     23.4     22.2       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.tmm     *ASTM D7414     >25     23.3     26.6     23.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	10 0 68 <1 1506 1163 1106 1360	8 0 68 <1 1538 1241 1048 1332	9 0 65 2 1440 1109 1051 1317
Potassium     ppm     ASTM D5185m     >20     1     0     4       Water     %     ASTM D6304     >0.1     NEG     NEG     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0.2     0.2     0.3       Nitration     Abs/cm     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.1mm     *ASTM D7415     >30     22.4     23.4     22.2       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     23.3     26.6     23.0	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		10 0 68 <1 1506 1163 1106 1360 3822	8 0 68 <1 1538 1241 1048 1332 3280	9 0 65 2 1440 1109 1051 1317 3130
Water     %     ASTM D6304     >0.1     NEG     NEG     NEG       INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0.2     0.2     0.3       Nitration     Abs/cm     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.1mm     *ASTM D7415     >30     22.4     23.4     22.2       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     23.3     26.6     23.0	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	10 0 68 <1 1506 1163 1106 1360 3822 current	8 0 68 <1 1538 1241 1048 1332 3280 history1	9 0 65 2 1440 1109 1051 1317 3130 history2
INFRA-RED     method     limit/base     current     history1     history2       Soot %     %     *ASTM D7844     0.2     0.2     0.3       Nitration     Abs/cm     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.tmm     *ASTM D7615     >30     22.4     23.4     22.2       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.tmm     *ASTM D7414     >25     23.3     26.6     23.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base	10 0 68 <1 1506 1163 1106 1360 3822 current 6	8 0 68 <1 1538 1241 1048 1332 3280 history1 6	9 0 65 2 1440 1109 1051 1317 3130 history2 6
Soot %     %     *ASTM D7844     0.2     0.2     0.3       Nitration     Abs/cm     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.1mm     *ASTM D7415     >30     22.4     23.4     22.2       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     23.3     26.6     23.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base >25 >118	10 0 68 <1 1506 1163 1106 1360 3822 current 6 10	8 0 68 <1 1538 1241 1048 1332 3280 history1 6 14	9 0 65 2 1440 1109 1051 1317 3130 history2 6 14
Nitration     Abs/cm     *ASTM D7624     >20     11.9     13.5     11.9       Sulfation     Abs/.1mm     *ASTM D7415     >30     22.4     23.4     22.2       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     23.3     26.6     23.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >118 >20	10 0 68 <1 1506 1163 1106 1360 3822 <u>current</u> 6 10 1	8 0 68 <1 1538 1241 1048 1332 3280 history1 6 14 0	9 0 65 2 1440 1109 1051 1317 3130 history2 6 14 4
Sulfation     Abs/.1mm     *ASTM D7415     >30     22.4     23.4     22.2       FLUID DEGRADATION     method     limit/base     current     history1     history2       Oxidation     Abs/.1mm     *ASTM D7414     >25     23.3     26.6     23.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >118 >20 >0.1	10 0 68 <1 1506 1163 1106 1360 3822 current 6 10 1 1 NEG	8 0 68 <1 1538 1241 1048 1332 3280 history1 6 14 0 NEG	9 0 65 2 1440 1109 1051 1317 3130 history2 6 14 4 NEG
FLUID DEGRADATION method limit/base current history1 history2   Oxidation Abs/.1mm *ASTM D7414 >25 23.3 26.6 23.0	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 >25 >118 >20 >0.1	10 0 68 <1 1506 1163 1106 1360 3822 current 6 10 1 NEG current	8 0 68 <1 1538 1241 1048 1332 3280 history1 6 14 0 NEG NEG	9 0 65 2 1440 1109 1051 1317 3130 history2 6 14 4 NEG history2
Oxidation     Abs/.1mm     *ASTM D7414     >25     23.3     26.6     23.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >118 >20 >0.1 limit/base	10 0 68 <1 1506 1163 1106 1360 3822 current 6 10 1 NEG current 0.2	8 0 68 <1 1538 1241 1048 1332 3280 history1 6 14 0 NEG NEG history1 0.2	9 0 65 2 1440 1109 1051 1317 3130 history2 6 14 4 NEG history2 0.3
	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 D6304 <b>method</b> *ASTM D7844	limit/base >25 >118 >20 >0.1 limit/base	10 0 68 <1 1506 1163 1106 1360 3822 current 6 10 1 NEG 0.2 11.9	8 0 68 <1 1538 1241 1048 1332 3280 history1 6 14 0 NEG NEG history1 0.2 13.5	9 0 65 2 1440 1109 1051 1317 3130 history2 6 14 4 NEG history2 0.3 11.9
	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 D5185m	limit/base >25 >118 >20 >0.1 limit/base	10 0 68 <1 1506 1163 1106 1360 3822 current 6 10 1 NEG current 0.2 11.9 22.4	8 0 68 <1 1538 1241 1048 1332 3280 history1 6 14 0 NEG history1 0.2 13.5 23.4	9 0 65 2 1440 1109 1051 1317 3130 <b>history2</b> 6 14 4 NEG <b>history2</b> 0.3 11.9 22.2
	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 D6304 •ASTM D7844 *ASTM D7624 *ASTM D7844	limit/base >25 >118 >20 >0.1 limit/base >20 >30 limit/base	10 0 68 <1 1506 1163 1106 1360 3822 <i>current</i> 6 10 1 NEG 0.2 11.9 22.4	8 0 68 <1 1538 1241 1048 1332 3280 history1 6 14 0 NEG NEG history1 0.2 13.5 23.4	9 0 65 2 1440 1109 1051 1317 3130 history2 6 14 4 NEG history2 0.3 11.9 22.2 history2

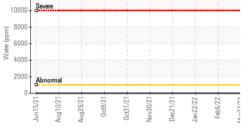


# **OIL ANALYSIS REPORT**



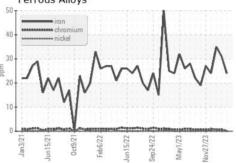


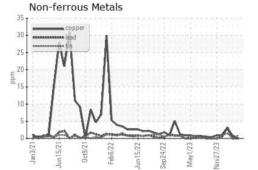


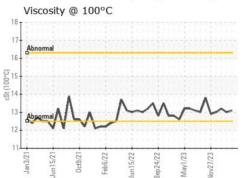


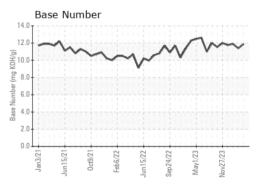
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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		13.1	13.0	13.2
GRAPHS						

Ferrous Alloys









Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 MARATHON PETROLEUM CO. : WC0860040 Sample No. Received : 23 Apr 2024 101 12TH ST Lab Number : 06157859 Tested : 25 Apr 2024 CATLETTSBURG, KY Unique Number : 10993282 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] 06157859 (Generated: 04/25/2024 20:11:06) Rev: 1

Submitted By: M/V SPEEDWAY