

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **219003** Component Natural Gas Engine Fluid MOBIL 1 FS 0W40 (--- GAL)

DIAGNOSIS

Recommendation

The component was not specified, however we determined the component was a natural gas engine based on the type of fluid used. Please specify component type with your next sample. 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 condition of the oil is acceptable for the time in service.

| SAMPLE INFOR | MATION | method | limit/base | current | history1 | history2 |
|--|---|---|--|--|--|--|
| Sample Number | | Client Info | | GFL0117125 | | |
| Sample Date | | Client Info | | 04 Jun 2024 | | |
| Machine Age | hrs | Client Info | | 2551 | | |
| Oil Age | hrs | Client Info | | 600 | | |
| Oil Changed | | Client Info | | Changed | | |
| Sample Status | | | | NORMAL | | |
| CONTAMINAT | ION | method | limit/base | current | history1 | history2 |
| Water | | WC Method | >0.1 | NEG | | |
| WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185(m) | >50 | 90 | | |
| Chromium | ppm | ASTM D5185(m) | >4 | <1 | | |
| Nickel | ppm | ASTM D5185(m) | >2 | 0 | | |
| Titanium | ppm | ASTM D5185(m) | | 1 | | |
| Silver | ppm | ASTM D5185(m) | >3 | 0 | | |
| Aluminum | ppm | ASTM D5185(m) | >9 | 9 | | |
| Lead | ppm | ASTM D5185(m) | >30 | 0 | | |
| Copper | ppm | ASTM D5185(m) | >35 | 2 | | |
| Tin | ppm | ASTM D5185(m) | >4 | 0 | | |
| Antimony | ppm | ASTM D5185(m) | | 0 | | |
| Vanadium | ppm | ASTM D5185(m) | | 0 | | |
| Beryllium | ppm | ASTM D5185(m) | | 0 | | |
| Cadmium | ppm | ASTM D5185(m) | | 0 | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| Boron | ppm | ASTM D5185(m) | | 46 | | |
| Barium | ppm | ASTM D5185(m) | | 0 | | |
| Molybdenum | ppm | ASTM D5185(m) | | 76 | | |
| Manganese | | | | | | |
| manganooo | ppm | ASTM D5185(m) | | <1 | | |
| Magnesium | | | | <1 26 | | |
| | ppm | ASTM D5185(m) | | | | |
| Magnesium Calcium | ppm ppm | ASTM D5185(m) ASTM D5185(m) | | 26 | | |
| Magnesium | ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | | 26 2137 | | |
| Magnesium Calcium Phosphorus | ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | | 26 2137 989 | | |
| Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | | 26 2137 989 1129 | | |
| Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | limit/base | 26 2137 989 1129 3065 <1 | | |
| Magnesium Calcium Phosphorus Zinc Sulfur Lithium | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | limit/base >+100 | 26 2137 989 1129 3065 <1 | | |
| Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | | 26 2137 989 1129 3065 <1 current | history1 | history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) method ASTM D5185(m) | | 26 2137 989 1129 3065 <1 current 7 | history1 | history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) method ASTM D5185(m) ASTM D5185(m) | >+100 | 26 2137 989 1129 3065 <1 <u>current</u> 7 2 1 | history1 | history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) | >+100 >20 | 26 2137 989 1129 3065 <1 current 7 2 1 1 current | history1 | history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % | ppm ppm ppm ppm ppm ppm ppm TTS ppm ppm ppm | ASTM D5185(m) ASTM D5185(m) | >+100 >20 | 26 2137 989 1129 3065 <1 <u>current</u> 7 2 1 | history1 history1 | history2 history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185(m) ASTM D7844* | >+100 >20 limit/base | 26 2137 989 1129 3065 <1 <i>current</i> 7 2 1 <i>current</i> 0.1 10.2 | history1 history1 | history2 history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D7844* ASTM D7844* ASTM D7624* | >+100 >20 limit/base >20 >30 | 26 2137 989 1129 3065 <1 current 7 2 1 2 1 1 current 0.1 10.2 18.4 | history1 history1 | history2 history2 history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185(m) ASTM D7844* ASTM D7844* ASTM D7624* | >+100 >20 limit/base | 26 2137 989 1129 3065 <1 current 7 2 1 2 1 1 current 0.1 10.2 18.4 | history1 history1 | history2 history2 |



Abnormal

35

31

____25·

15 10

65 Abnorm

60

Abnormal

75 -(J=0+) 70 -

65 - Abnorma

Jun4/24

FT-IR (Direct Trend)

Oxidation

Nitration
Sulfation

Viscosity @ 40°C

Viscosity @ 40°C

OIL ANALYSIS REPORT

| VISUAL | | method | limit/base | current | history1 | histor |
|-----------------------------|--------|---------------|--|---------------|----------|--------|
| White Metal | scalar | Visual* | NONE | NONE | | |
| Yellow Metal | | Visual* | NONE | NONE | | |
| Precipitate | scalar | Visual* | NONE | NONE | | |
| Silt | scalar | Visual* | NONE | NONE | | |
| Debris | scalar | Visual* | NONE | NONE | | |
| Sand/Dirt | scalar | Visual* | NONE | NONE | | |
| Appearance | scalar | Visual* | NORML | NORML | | |
| Odor | scalar | Visual* | NORML | NORML | | |
| Emulsified Water | scalar | Visual* | >0.1 | NEG | | |
| Free Water | scalar | Visual* | | NEG | | |
| FLUID PROPE | RTIES | method | limit/base | current | history1 | histor |
| Visc @ 40°C | cSt | ASTM D7279(m) | 70.8 | 72.8 | | |
| Visc @ 100°C | cSt | ASTM D7279(m) | 12.9 | 11.3 | | |
| Viscosity Index (VI) | Scale | ASTM D2270* | 186 | 147 | | |
| GRAPHS | | | | | | |
| Iron (ppm) | | | | Lead (ppm) | | |
| 100 80 | | | 60 | Severe | | |
| co | | | 40 | | | |
| E 40 | | | bhu | Abnormal | | |
| 20 | | | 20 |) + | | |
| | | | |) L | | |
| Jun4/24 | | | Jun4/24 | Jun4/24 | | |
| | | | ٦٢ | | | |
| Aluminum (ppm) | | | | Chromium (p | pm) | |
| Severe | | | | Severe | | |
| E 10 - Abnormal | | | E d | i i | | |
| 5 | | | id is a second s | | | |
| | | | | | | |
| 0++ | | | | 24 | | |
| Jun4/24 | | | Jun4/24 | Jun4/24 | | |
| Copper (ppm) | | | | Silicon (ppm) | | |
| 80 Severe | | | 200 | Severe | | |
| 60 - | | | 150 | i i | | |
| a 40 - Abnormal | | | 틆 100 | Abnormal | | |
| 20 - | | | 50 | | | |
| | | | | | | |
| Jun4/24 | | | Jun4/24 | Jun4/24 | | |
| | | | Jur | μĻ | | |
| Viscosity @ 100°C | | | 2500 | Additives | | |
| | | | | calcium | 1 | |
| 0 - Abnormal | | | 2000 | Tipe | 15 | |
| G 16 Abnormal | | | 틆 1500 |) | | |
| ³³ 12 - Abnormal | | | 1000 |) - | | **** |
| | | | |) L | | |
| 10 | | | | | | |
| 10 4/5 4 Uni | | | Jun4/24 - | Jun4/24 | | |

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 GFL Environmental - 209 - Hamilton Laboratory CALA : 10 Jun 2024 Sample No. : GFL0117125 Received 560 Seaman Street Lab Number : 02640749 Tested : 11 Jun 2024 Stoney Creek, ON ISO 17025:2017 Accredited Laboratory CA L8E 3X7 Unique Number : 5789911 Diagnosed : 11 Jun 2024 - Kevin Marson Test Package : MOB 1 (Additional Tests: KV40, VI, Visual) Contact: Fred Carleton To discuss this sample report, contact Customer Service at 1-800-268-2131. fred.carleton@gflenv.com T: (289)925-6693 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. F: (905)664-9008 Validity of results and interpretation are based on the sample and information as supplied.

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Submitted By: Fred Carleton Page 2 of 2