

OIL ANALYSIS REPORT

Sample Rating Trend



Area (48021UA) 834034

Natural Gas Engine Fluid

{not provided} (--- GAL)

DIAGNOSIS Recommendation

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

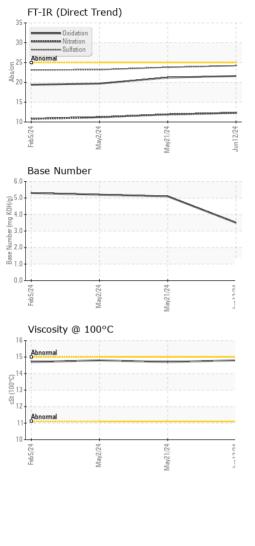
Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFOR | MATION | method | limit/base | current | history1 | history2 |
|---|--|--|--|--|--|--|
| Sample Number | | Client Info | | GFL0122085 | GFL0116593 | GFL0116537 |
| Sample Date | | Client Info | | 12 Jun 2024 | 21 May 2024 | 02 May 2024 |
| Machine Age | hrs | Client Info | | 1764 | 1606 | 1482 |
| Oil Age | hrs | Client Info | | 1259 | 1225 | 381 |
| Oil Changed | | Client Info | | Not Changd | Not Changd | Not Changd |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINAT | ION | method | limit/base | current | history1 | history2 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >50 | 28 | 38 | 26 |
| Chromium | ppm | ASTM D5185m | >4 | <1 | 2 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 2 | 0 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 1 | 0 |
| Aluminum | ppm | ASTM D5185m | >9 | 4 | 7 | 4 |
| Lead | ppm | ASTM D5185m | >30 | <1 | 2 | 0 |
| Copper | ppm | ASTM D5185m | >35 | 7 | 10 | 6 |
| Tin | ppm | ASTM D5185m | >4 | 0 | 3 | <1 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | <1 | 0 |
| | | | | | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| ADDITIVES Boron | ppm | method ASTM D5185m | limit/base | current 6 | history1 9 | history2 13 |
| | ppm ppm | | limit/base | | | |
| Boron | | ASTM D5185m | limit/base | 6 | 9 | 13 |
| Boron Barium | ppm | ASTM D5185m ASTM D5185m | limit/base | 6 0 | 9 <1 | 13 0 |
| Boron Barium Molybdenum | ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 6 0 57 | 9 <1 77 | 13 0 56 |
| Boron Barium Molybdenum Manganese | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 6 0 57 6 | 9 <1 77 8 | 13 0 56 6 |
| Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 6 0 57 6 593 | 9 <1 77 8 871 | 13 0 56 6 671 |
| 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 | 6 0 57 6 593 1501 | 9 <1 77 8 871 2061 | 13 0 56 6 671 1496 |
| 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 | 6 0 57 6 593 1501 692 | 9 <1 77 8 871 2061 1000 | 13 0 56 6 671 1496 774 |
| 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 | 6 0 57 6 593 1501 692 1016 | 9 <1 77 8 871 2061 1000 1353 | 13 0 56 6 671 1496 774 995 |
| 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 | 6 0 57 6 593 1501 692 1016 2486 | 9 <1 77 8 871 2061 1000 1353 3499 | 13 0 56 6 671 1496 774 995 2701 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN | ppm 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 | 6 0 57 6 593 1501 692 1016 2486 current | 9 <1 77 8 871 2061 1000 1353 3499 history1 | 13 0 56 6 671 1496 774 995 2701 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon | ppm ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method | limit/base >+100 | 6 0 57 6 593 1501 692 1016 2486 current 12 | 9 <1 77 8 871 2061 1000 1353 3499 history1 17 | 13 0 56 6 671 1496 774 995 2701 kistory2 11 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base >+100 | 6 0 57 6 593 1501 692 1016 2486 <u>current</u> 12 4 | 9 <1 77 8 871 2061 1000 1353 3499 history1 17 7 | 13 0 56 6 671 1496 774 995 2701 history2 11 4 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm TS | ASTM D5185m ASTM D5185m | limit/base >+100 >20 | 6 0 57 6 593 1501 692 1016 2486 <u>current</u> 12 4 6 | 9 <1 77 8 8 871 2061 1000 1353 3499 history1 17 7 10 | 13 0 56 6 671 1496 774 995 2701 history2 11 4 6 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm | ASTM D5185m ASTM D5185m | limit/base >+100 >20 limit/base | 6 0 57 6 593 1501 692 1016 2486 current 12 4 6 current | 9 <1 77 8 8 71 2061 1000 1353 3499 history1 17 7 10 history1 | 13 0 56 6 671 1496 774 995 2701 history2 11 4 6 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % | ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm | ASTM D5185m ASTM D5185m | limit/base >+100 >20 limit/base | 6 0 57 6 593 1501 692 1016 2486 <u>current</u> 12 4 6 <u>current</u> 0 | 9 <1 77 8 8 871 2061 1000 1353 3499 history1 17 7 10 history1 0.4 | 13 0 56 6 671 1496 774 995 2701 history2 11 4 6 history2 0.1 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >+100 >20 limit/base | 6 0 57 6 593 1501 692 1016 2486 <i>current</i> 12 4 6 <i>current</i> 0 12.3 | 9 <1 77 8 8 871 2061 1000 1353 3499 history1 17 7 10 history1 0.4 11.9 | 13 0 56 6 671 1496 774 995 2701 history2 11 4 6 history2 0.1 11.2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >+100 >20 limit/base >20 >20 | 6 0 57 6 593 1501 692 1016 2486 <u>current</u> 12 4 6 <u>current</u> 0 12.3 24.2 | 9 <1 77 8 8 871 2061 1000 1353 3499 history1 17 7 10 history1 0.4 11.9 23.8 | 13 0 56 6 671 1496 774 995 2701 history2 11 4 6 history2 0.1 11.2 23.2 |



OIL ANALYSIS REPORT



| end) | | 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 | | |
| 1/24 | 2/24 | Appearance | scalar | *Visual | NORML | NORML | NORML | NORML | | |
| May21/24 | Jun12/24 | Odor | scalar | *Visual | NORML | NORML | NORML | NORML | | |
| | | Emulsified Water | scalar | *Visual | >0.1 | NEG | NEG | NEG | | |
| | | Free Water | scalar | *Visual | | NEG | NEG | NEG | | |
| | | FLUID PROPE | | method | limit/base | current | history1 | history2 | | |
| | | Visc @ 100°C | cSt | ASTM D445 | | 14.8 | 14.7 | 14.8 | | |
| | | GRAPHS | | | | | | | | |
| | | Ferrous Alloys | | | | | | | | |
| | | 40 L | | | | | | | | |
| 1/24 - | Y C C | 35 - iron | / | \frown | | | | | | |
| May21/24 | ll | 30 - nickel | / | | 1 | | | | | |
|)°C | | 25- | | | | | | | | |
| | | 톱 20 | | | | | | | | |
| | | 15- | | | | | | | | |
| | | 10- | | | | | | | | |
| | | | Analtestaded | | | | | | | |
| | | Feb5/24 May2/24 | | 1/24 - | 2/24 - | | | | | |
| | | May | | May21/24 | Jun12/24 | | | | | |
| | | Non-ferrous Metal | 5 | | | | | | | |
| May21/24 | 1000 | 10 copper | / | | | | | | | |
| Mai | | 8 - | / | | | | | | | |
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| | | Feb5/24 May2/24 | | May21/24 | Jun 12/24 | | | | | |
| | | – – – – Viscosity @ 100°C | | W | ٦٢ ٦ | | | | | |
| | | 16 _T | | | | Base Number | | | | |
| | | 15 - Abnormal | | | 6.0 | | | | | |
| | | 15-0 | | | 5.0 © |) | | | | |
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| | | ⁶³ 12 | | | |) | | | | |
| | | Abnormal | | | Base | | | | | |
| | | | | | 1.0 | | | | | |
| | | 10 +2 +2 | | 24 | 0.0 | | | 24 | | |
| | | Feb5/24 May2/24 | | May21/24 | Jun12/24 | Feb5/24 | *C/2/5I/N | Jun12/24 | | |
| | | | | 2 | - | | 2 | = → | | |
| | Laboratory | : WearCheck USA - 50 | Madiso | Madison Ave., Cary, NC 27513 GFL Enviro | | | nmental - 652 - Fredericksburg Hauling | | | |
| | Sample No. | : GFL0122085 | Recei | | | | | 10954 Houser Drive | | |
| | Lab Number | : 06211025 | | Fredericksburg, VA | | | | | | |
| TESTING LABORATORY | Unique Number | | Diagr | les Davis | . | US 22408 | | | | |
| Certificate L2367 | Test Package | | | | | | | | | |
| | | are outside of the ISO 1 | | | | | vvffi | ilo@gflenv.com T: | | |
| | | pecifications are based o | | | | rule (JCGM 106 | :2012) | F: | | |
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Submitted By: TECHNICIAN ACCOUNT