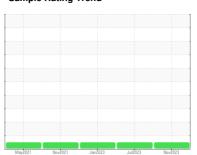


OIL ANALYSIS REPORT

Sample Rating Trend









DIAGNOSIS

Recommendation

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

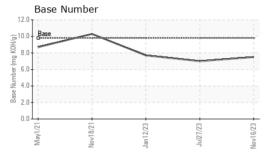
Fluid Condition

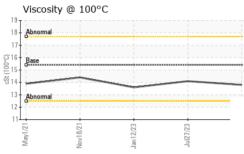
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| Sample Number Client Info GFL0101529 GFL0086689 GFL0086689 Gample Date Client Info 16 Nov 2023 27 Jul 2023 12 Jan 2023 1 | N SHP 15W40 (| - GAL) | May2021 | Nov2021 | Jan 2023 Jul 2023 | Nov2023 | |
|--|------------------|----------|-------------|------------|-------------------|-------------|-------------|
| Sample Date | SAMPLE INFORM | MATION | method | limit/base | current | history1 | history2 |
| Machine Age hrs Client Info 11651 10898 9700 6430 Oil Age hrs Client Info 10898 9700 6430 6430 Changed C | Sample Number | | Client Info | | GFL0101529 | GFL0086669 | GFL0068639 |
| Oil Age hrs Client Info 10898 9700 6430 Oil Changed Changed< | Sample Date | | Client Info | | 16 Nov 2023 | 27 Jul 2023 | 12 Jan 2023 |
| Contained Client Info Changed NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL | Machine Age | hrs | Client Info | | 11651 | 10898 | 9700 |
| NORMAL NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 history2 NEG NE | Oil Age | hrs | Client Info | | 10898 | 9700 | 6430 |
| CONTAMINATION method limit/base current history1 history2 Fuel WC Method >3.0 <1.0 | Oil Changed | | Client Info | | Changed | Changed | Changed |
| Fuel | Sample Status | | | | NORMAL | NORMAL | NORMAL |
| Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >75 28 53 26 Chromium ppm ASTM D5185m >5 1 2 2 Nickel ppm ASTM D5185m >4 <1 | CONTAMINAT | ION | method | limit/base | current | history1 | history2 |
| WEAR METALS | Fuel | | WC Method | >3.0 | <1.0 | <1.0 | <1.0 |
| WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >75 28 53 26 Chromium ppm ASTM D5185m >5 1 2 2 Nickel ppm ASTM D5185m >2 <1 | Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Irron | Glycol | | WC Method | | NEG | NEG | NEG |
| Chromium | WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Nickel | Iron | ppm | ASTM D5185m | >75 | 28 | 53 | 26 |
| Titanium | Chromium | ppm | ASTM D5185m | >5 | 1 | 2 | 2 |
| Silver | Nickel | ppm | ASTM D5185m | >4 | <1 | 1 | 0 |
| Aluminum | Titanium | ppm | ASTM D5185m | >2 | <1 | 0 | 0 |
| Lead | Silver | ppm | ASTM D5185m | >2 | <1 | <1 | 0 |
| Copper ppm ASTM D5185m >100 2 2 2 2 Tin ppm ASTM D5185m >4 0 <1 | Aluminum | ppm | ASTM D5185m | >15 | 3 | 6 | 4 |
| Tin | Lead | ppm | ASTM D5185m | >25 | <1 | <1 | <1 |
| Trin | Copper | ppm | ASTM D5185m | >100 | 2 | 2 | 2 |
| Antimony | | | ASTM D5185m | >4 | 0 | <1 | <1 |
| Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 3 3 Barium ppm ASTM D5185m 0 0 1 0 Molybdenum ppm ASTM D5185m 60 62 61 63 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 911 919 907 Calcium ppm ASTM D5185m 1070 1078 1079 1088 Phosphorus ppm ASTM D5185m 1270 1203 1243 1187 Sulfur ppm ASTM D5185m 2060 2660 2865 3325 CONTAMINANTS method limit/base current history1< | Antimony | | ASTM D5185m | | | | |
| Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 3 3 Barium ppm ASTM D5185m 0 0 1 0 Molybdenum ppm ASTM D5185m 0 0 -1 -1 Magnesium ppm ASTM D5185m 0 0 -1 -1 Magnesium ppm ASTM D5185m 1010 911 919 907 Calcium ppm ASTM D5185m 1070 1078 1079 1088 Phosphorus ppm ASTM D5185m 11270 1203 1243 1187 Sulfur ppm ASTM D5185m 2060 2660 2865 3325 CONTAMINANTS method limit/base current history1 history2 Solium ppm ASTM D5185m >25 5 | • | | | | 0 | 0 | 0 |
| Boron ppm ASTM D5185m 0 0 1 0 0 0 1 0 0 0 | Cadmium | | ASTM D5185m | | 0 | 0 | 0 |
| Barium ppm ASTM D5185m 0 0 1 0 Molybdenum ppm ASTM D5185m 60 62 61 63 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 911 919 907 Calcium ppm ASTM D5185m 1070 1078 1079 1088 Phosphorus ppm ASTM D5185m 1150 984 992 995 Zinc ppm ASTM D5185m 1270 1203 1243 1187 Sulfur ppm ASTM D5185m 2060 2660 2865 3325 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >20 3 4 17 23 Potassium ppm | ADDITIVES | | method | limit/base | current | history1 | history2 |
| Molybdenum ppm ASTM D5185m 60 62 61 63 Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 911 919 907 Calcium ppm ASTM D5185m 1070 1078 1079 1088 Phosphorus ppm ASTM D5185m 1150 984 992 995 Zinc ppm ASTM D5185m 1270 1203 1243 1187 Sulfur ppm ASTM D5185m 2060 2660 2865 3325 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >20 3 4 17 23 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method | Boron | ppm | ASTM D5185m | 0 | 0 | 3 | 3 |
| Manganese ppm ASTM D5185m 0 0 <1 <1 Magnesium ppm ASTM D5185m 1010 911 919 907 Calcium ppm ASTM D5185m 1070 1078 1079 1088 Phosphorus ppm ASTM D5185m 1150 984 992 995 Zinc ppm ASTM D5185m 1270 1203 1243 1187 Sulfur ppm ASTM D5185m 2060 2660 2865 3325 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >20 3 4 17 23 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % <t< td=""><td>Barium</td><td>ppm</td><td>ASTM D5185m</td><td>0</td><th>0</th><td>1</td><td>0</td></t<> | Barium | ppm | ASTM D5185m | 0 | 0 | 1 | 0 |
| Magnesium ppm ASTM D5185m 1010 911 919 907 Calcium ppm ASTM D5185m 1070 1078 1079 1088 Phosphorus ppm ASTM D5185m 1150 984 992 995 Zinc ppm ASTM D5185m 1270 1203 1243 1187 Sulfur ppm ASTM D5185m 2060 2660 2865 3325 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >20 3 4 17 23 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 9.4 9.8 10.2 Sulfation Abs/:nm <td< td=""><td>Molybdenum</td><td>ppm</td><td>ASTM D5185m</td><td>60</td><th>62</th><td>61</td><td>63</td></td<> | Molybdenum | ppm | ASTM D5185m | 60 | 62 | 61 | 63 |
| Calcium ppm ASTM D5185m 1070 1078 1079 1088 Phosphorus ppm ASTM D5185m 1150 984 992 995 Zinc ppm ASTM D5185m 1270 1203 1243 1187 Sulfur ppm ASTM D5185m 2060 2660 2865 3325 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >20 3 4 17 23 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.9 0.7 Nitration Abs/cm *ASTM D7415 >30 21.0 21.8 20.5 FLUID DEGRADATION | Manganese | ppm | ASTM D5185m | 0 | 0 | <1 | <1 |
| Phosphorus ppm ASTM D5185m 1150 984 992 995 Zinc ppm ASTM D5185m 1270 1203 1243 1187 Sulfur ppm ASTM D5185m 2060 2660 2865 3325 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m >20 3 4 17 23 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.9 0.7 Nitration Abs/cm *ASTM D7415 >30 21.0 21.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm | Magnesium | ppm | ASTM D5185m | 1010 | 911 | 919 | 907 |
| Zinc ppm ASTM D5185m 1270 1203 1243 1187 Sulfur ppm ASTM D5185m 2060 2660 2865 3325 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 4 17 23 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.4 9.8 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 21.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM | Calcium | ppm | ASTM D5185m | 1070 | 1078 | 1079 | 1088 |
| Sulfur ppm ASTM D5185m 2060 2660 2865 3325 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 4 17 23 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.4 9.8 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 21.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 18.4 18.0 | Phosphorus | ppm | ASTM D5185m | 1150 | 984 | 992 | 995 |
| CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 4 17 23 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.4 9.8 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 21.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 18.4 18.0 | Zinc | ppm | ASTM D5185m | 1270 | 1203 | 1243 | 1187 |
| Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 4 17 23 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.4 9.8 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 21.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 18.4 18.0 | Sulfur | ppm | ASTM D5185m | 2060 | 2660 | 2865 | 3325 |
| Sodium ppm ASTM D5185m 4 17 23 Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % *ASTM D7844 >6 0.6 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.4 9.8 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 21.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 18.4 18.0 | CONTAMINAN | TS | method | limit/base | current | history1 | history2 |
| Potassium ppm ASTM D5185m >20 3 4 3 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.6 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.4 9.8 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 21.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 18.4 18.0 | Silicon | ppm | ASTM D5185m | >25 | 5 | 8 | 7 |
| INFRA-RED | Sodium | ppm | ASTM D5185m | | 4 | 17 | 23 |
| Soot % % *ASTM D7844 >6 0.6 0.9 0.7 Nitration Abs/cm *ASTM D7624 >20 9.4 9.8 10.2 Sulfation Abs/.1mm *ASTM D7415 >30 21.0 21.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 18.4 18.0 | Potassium | ppm | ASTM D5185m | >20 | 3 | 4 | 3 |
| Nitration Abs/cm *ASTM D7624 >20 9.4 9.8 10.2 Sulfation Abs/.1mm *ASTM D7615 >30 21.0 21.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 18.4 18.0 | INFRA-RED | | method | limit/base | current | history1 | history2 |
| Sulfation Abs/.1mm *ASTM D7415 >30 21.0 21.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 18.4 18.0 | Soot % | % | *ASTM D7844 | >6 | 0.6 | 0.9 | 0.7 |
| Sulfation Abs/.1mm *ASTM D7415 >30 21.0 21.8 20.5 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.7 18.4 18.0 | Nitration | Abs/cm | *ASTM D7624 | >20 | 9.4 | 9.8 | 10.2 |
| Oxidation Abs/.1mm *ASTM D7414 >25 17.7 18.4 18.0 | Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 21.0 | 21.8 | |
| | FLUID DEGRAD | NOITAC | method | limit/base | current | history1 | history2 |
| | Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 17.7 | 18.4 | 18.0 |
| | Base Number (BN) | | ASTM D2896 | | | | |



OIL ANALYSIS REPORT

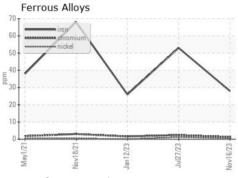


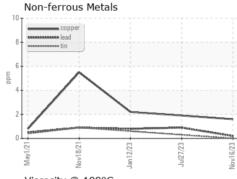


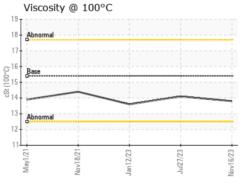
| VISUAL | | method | limit/base | current | history1 | history2 |
|-------------------------|--------|---------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Precipitate | 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 | >0.2 | NEG | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG | NEG |

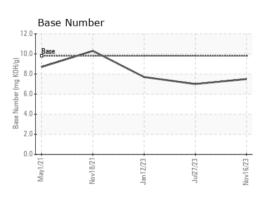
| FLUID PROPI | =RIIES | method | | | | history2 |
|--------------|--------|-----------|------|------|------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | 13.8 | 14.1 | 13.6 |

GRAPHS













Certificate L2367

Laboratory Sample No.

Lab Number Unique Number : 10750958 Test Package : FLEET

: GFL0101529 : 06011814

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 20 Nov 2023 Diagnosed : 21 Nov 2023

Diagnostician : Wes Davis

GFL Environmental - 415 - Michigan East

6200 Elmridge Sterling Heights, MI US 48313 Contact: Frank Wolak fwolak@gflenv.com

T: (586)825-9514

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)