

OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 4656M Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

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.

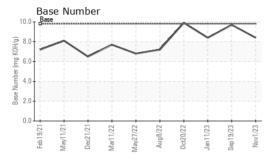
Fluid Condition

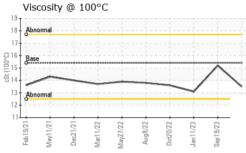
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| ' | | Feb2021 May2 | 021 Dec2021 Mar2022 May2 | | | |
|--|--|--|--|--|--|--|
| SAMPLE INFORI | MATION | method | limit/base | current | history1 | history2 |
| Sample Number | | Client Info | | GFL0096522 | GFL0046376 | GFL0071175 |
| Sample Date | | Client Info | | 01 Nov 2023 | 19 Sep 2023 | 11 Jan 2023 |
| Machine Age | hrs | Client Info | | 15428 | 15410 | 14044 |
| Oil Age | hrs | Client Info | | 600 | 600 | 600 |
| Oil Changed | | Client Info | | Changed | Not Changd | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINAT | ION | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >3.0 | <1.0 | <1.0 | <1.0 |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >90 | 6 | 18 | 3 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | 0 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | <1 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 3 | 1 | 2 |
| Lead | ppm | ASTM D5185m | >40 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >330 | <1 | 1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| ADDITIVES | | a tla a al | | | 111 | la la tarre O |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| Boron | ppm | | 0 | 0 | nistory1 2 | nistory2 0 |
| | ppm | | 0 | | | |
| Boron | | ASTM D5185m | 0 | 0 | 2 | 0 |
| Boron Barium | ppm | ASTM D5185m ASTM D5185m | 0 0 60 | 0 0 | 2 | 0 |
| Boron Barium Molybdenum | ppm | ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 | 0 0 58 | 2 0 57 | 0 0 53 |
| Boron Barium Molybdenum Manganese | ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 | 0 0 58 0 | 2 0 57 | 0 0 53 <1 |
| Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 | 0 0 58 0 872 | 2 0 57 0 926 | 0 0 53 <1 834 |
| Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 1070 | 0 0 58 0 872 1035 | 2 0 57 0 926 1141 | 0 0 53 <1 834 929 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 1070 1150 | 0 0 58 0 872 1035 969 | 2 0 57 0 926 1141 998 | 0 0 53 <1 834 929 882 |
| 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 ASTM D5185m | 0 0 60 0 1010 1070 1150 | 0 0 58 0 872 1035 969 1197 | 2 0 57 0 926 1141 998 1250 | 0 0 53 <1 834 929 882 1048 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m | 0 0 60 0 1010 1070 1150 1270 2060 | 0 0 58 0 872 1035 969 1197 3127 | 2 0 57 0 926 1141 998 1250 3565 | 0 0 53 <1 834 929 882 1048 3143 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m | 0 0 60 0 1010 1070 1150 1270 2060 | 0 0 58 0 872 1035 969 1197 3127 | 2 0 57 0 926 1141 998 1250 3565 history1 | 0 0 53 <1 834 929 882 1048 3143 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m | 0 0 60 0 1010 1070 1150 1270 2060 | 0 0 58 0 872 1035 969 1197 3127 current | 2 0 57 0 926 1141 998 1250 3565 history1 | 0 0 53 <1 834 929 882 1048 3143 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m | 0 0 60 0 1010 1070 1150 1270 2060 limit/base | 0 0 58 0 872 1035 969 1197 3127 current 2 | 2 0 57 0 926 1141 998 1250 3565 history1 5 | 0 0 53 <1 834 929 882 1048 3143 history2 6 0 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m | 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 | 0 0 58 0 872 1035 969 1197 3127 current 2 2 6 | 2 0 57 0 926 1141 998 1250 3565 history1 5 2 | 0 0 53 <1 834 929 882 1048 3143 history2 6 0 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m | 0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 | 0 0 58 0 872 1035 969 1197 3127 current 2 2 6 | 2 0 57 0 926 1141 998 1250 3565 history1 5 2 1 | 0 0 53 <1 834 929 882 1048 3143 history2 6 0 0 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % | ppm | ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base | 0 0 58 0 872 1035 969 1197 3127 current 2 2 6 current | 2 0 57 0 926 1141 998 1250 3565 history1 5 2 1 history1 | 0 0 53 <1 834 929 882 1048 3143 history2 6 0 0 history2 0.3 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm | ASTM D5185m Method ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D76145 | 0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base | 0 0 58 0 872 1035 969 1197 3127 current 2 2 6 current 0.3 7.4 | 2 0 57 0 926 1141 998 1250 3565 history1 5 2 1 history1 1.2 | 0 0 53 <1 834 929 882 1048 3143 history2 6 0 0 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm | ASTM D5185m Method ASTM D5185m Method *ASTM D7844 *ASTM D7624 *ASTM D76145 | 0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 | 0 0 58 0 872 1035 969 1197 3127 current 2 2 6 current 0.3 7.4 18.6 | 2 0 57 0 926 1141 998 1250 3565 history1 5 2 1 history1 1.2 9.0 21.5 | 0 0 53 <1 834 929 882 1048 3143 history2 6 0 0 history2 0.3 7.9 18.4 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE | ppm | ASTM D5185m method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7415 method | 0 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >6 >20 >30 limit/base | 0 0 58 0 872 1035 969 1197 3127 current 2 2 6 current 0.3 7.4 18.6 | 2 0 57 0 926 1141 998 1250 3565 history1 5 2 1 history1 1.2 9.0 21.5 | 0 0 53 <1 834 929 882 1048 3143 history2 6 0 0 history2 1.3 7.9 18.4 history2 |



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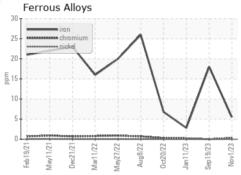


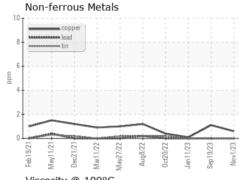


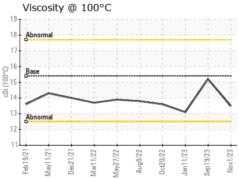
| VISUAL | | method | limit/base | current | history1 | history2 |
|-------------------------|--------|---------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Precipitate | 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 |

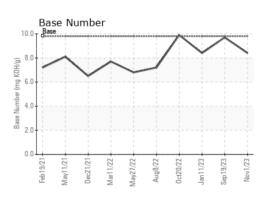
| FLUID PROPERTIES | | method | | | | history2 |
|------------------|-----|-----------|------|------|------|----------|
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | 13.5 | 15.2 | 13.1 |

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Test Package : FLEET

: 06002654 Unique Number : 10736416

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0096522 Received : 09 Nov 2023 Diagnosed

: 09 Nov 2023 Diagnostician : Wes Davis

GFL Environmental - 465 - Pontiac 888 Baldwin

Pontiac, MI US 48340

Contact: Ricky Matthews rickymathews@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)

Report Id: GFL465 [WUSCAR] 06002654 (Generated: 11/12/2023 08:52:11) Rev: 1

Submitted By: Ricky Matthews