

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 921062-260379

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.

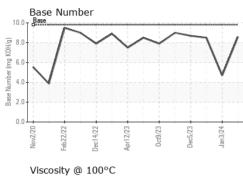
Fluid Condition

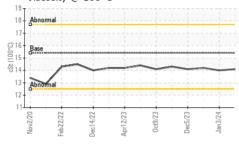
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFOR | MATION | method | limit/base | current | history1 | history2 |
|--|--|--|--|--|---|--|
| Sample Number | | Client Info | | GFL0108027 | GFL0102446 | GFL0102498 |
| Sample Date | | Client Info | | 14 Feb 2024 | 03 Jan 2024 | 27 Dec 2023 |
| Machine Age | hrs | Client Info | | 8028 | 7751 | 0 |
| Oil Age | hrs | Client Info | | 7751 | 0 | 0 |
| Oil Changed | | Client Info | | N/A | Changed | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINAT | ION | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Iron | | ASTM D5185m | >100 | 6 | 7 | 5 |
| Chromium | ppm | ASTM D5185m | >20 | o <1 | <1 | <1 |
| Nickel | ppm | | >20 | | <1 | < 1 |
| | ppm | ASTM D5185m | >4 | 0 | | |
| Titanium | ppm | ASTM D5185m | . 0 | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Aluminum | ppm | | >20 | 2 | 2 | 2 |
| Lead | ppm | ASTM D5185m | >40 | 2 | <1 | 0 |
| Copper | ppm | | >330 | 0 | <1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | 0 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| | | | | | | |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| ADDITIVES | ppm | ASTM D5185m method | limit/base | 0 current | 0 history1 | 0 history2 |
| | ppm ppm | | limit/base | | | |
| ADDITIVES | | method | 0 | current | history1 | history2 |
| ADDITIVES Boron | ppm | method ASTM D5185m | 0 | current 2 | history1 3 | history2 3 |
| ADDITIVES Boron Barium | ppm ppm | method ASTM D5185m ASTM D5185m | 0 0 60 | current 2 0 | history1 3 0 | history2 3 0 |
| ADDITIVES Boron Barium Molybdenum | ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 | current 2 0 56 | history1 3 0 61 | history2 3 0 57 |
| ADDITIVES Boron Barium Molybdenum Manganese | ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 | current 2 0 56 0 | history1 3 0 61 <1 | history2 3 0 57 <1 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 | current 2 0 56 0 1037 | history1 3 0 61 <1 1017 | history2 3 0 57 <1 914 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 1070 | Current 2 0 56 0 1037 1096 | history1 3 0 61 <1 1017 1104 | history2 3 0 57 <1 914 1013 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 1070 1150 | Current 2 0 56 0 1037 1096 1086 | history1 3 0 61 <1 1017 1104 1195 | history2 3 0 57 <1 914 1013 1012 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 0 0 60 0 1010 1070 1150 1270 | Current 2 0 56 0 1037 1096 1086 1282 | history1 3 0 61 <1 1017 1104 1195 1415 | history2 3 0 57 <1 914 1013 1012 1226 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 1010 1070 1150 1270 2060 | Current 2 0 56 0 1037 1096 1086 1282 3354 | history1 3 0 61 <1 1017 1104 1195 1415 3469 | history2 3 0 57 <1 914 1013 1012 1226 2974 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 1010 1070 1150 1270 2060 | current 2 0 56 0 1037 1096 1086 1282 3354 current 3 | history1 3 0 61 <1 1017 1104 1195 1415 3469 history1 | history2 3 0 57 <1 914 1013 1012 1226 2974 history2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 0 0 60 1010 1070 1150 1270 2060 limit/base >25 | Current 2 0 56 0 1037 1096 1086 1282 3354 Current | history1 3 0 61 <1 1017 1104 1195 1415 3469 history1 3 | history2 3 0 57 <1 914 1013 1012 1226 2974 history2 4 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 0 0 60 1010 1070 1150 1270 2060 limit/base >25 | current 2 0 56 0 1037 1096 1086 1282 3354 current 3 10 3 10 3 | history1 3 0 61 <1 1017 1104 1195 1415 3469 history1 3 17 | history2 3 0 57 <1 914 1013 1012 1226 2974 history2 4 16 |
| ADDITIVES 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 | method ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 limit/base >25 | Current 2 0 56 0 1037 1096 1086 1282 3354 Current 3 10 3 Current | history1 3 0 61 <1 1017 1104 1195 1415 3469 history1 3 17 5 history1 | history2 3 0 57 <1 914 1013 1012 1226 2974 history2 4 16 4 history2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20 | Current 2 0 56 0 1037 1096 1086 1282 3354 current 3 10 3 current 0.5 | history1 3 0 61 <1 1017 1104 1195 1415 3469 history1 3 17 5 history1 0.4 | history2 3 0 57 <1 914 1013 1012 1226 2974 history2 4 16 4 history2 0.6 |
| ADDITIVES 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 | method ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20 | current 2 0 56 0 1037 1096 1086 1282 3354 current 3 10 3 0.5 6.0 | history1 3 0 61 <1 1017 1104 1195 1415 3469 history1 3 17 5 history1 0.4 13.9 | history2 3 0 57 <1 914 1013 1012 1226 2974 history2 4 16 4 16 4 0.6 6.7 |
| ADDITIVES 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 | method ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20 | Current 2 0 56 0 1037 1096 1086 1282 3354 current 3 10 3 current 0.5 6.0 18.4 | history1 3 0 61 <1 1017 1104 1195 1415 3469 history1 3 17 5 history1 0.4 13.9 27.7 | history2 3 0 57 <1 914 1013 1012 1226 2974 history2 4 16 4 history2 0.6 6.7 19.5 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM | ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm | method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 method | 0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 3 20 3 3 20 3 3 20 3 3 20 3 3 3 20 3 3 3 20 3 3 3 3 | 2 0 56 0 1037 1096 1086 1282 3354 current 3 10 3 current 0.5 6.0 18.4 | history1 3 0 61 <1 1017 1104 1195 1415 3469 history1 3 17 5 history1 0.4 13.9 27.7 history1 | 3 0 57 <1 914 1013 1012 1226 2974 history2 4 16 4 0.6 6.7 19.5 |
| ADDITIVES 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 | method ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 20 20 33 20 30 20 30 20 30 20 20 20 20 20 20 20 20 20 20 20 20 20 | Current 2 0 56 0 1037 1096 1086 1282 3354 current 3 10 3 current 0.5 6.0 18.4 | history1 3 0 61 <1 1017 1104 1195 1415 3469 history1 3 17 5 history1 0.4 13.9 27.7 | history2 3 0 57 <1 914 1013 1012 1226 2974 history2 4 16 4 history2 0.6 6.7 19.5 |

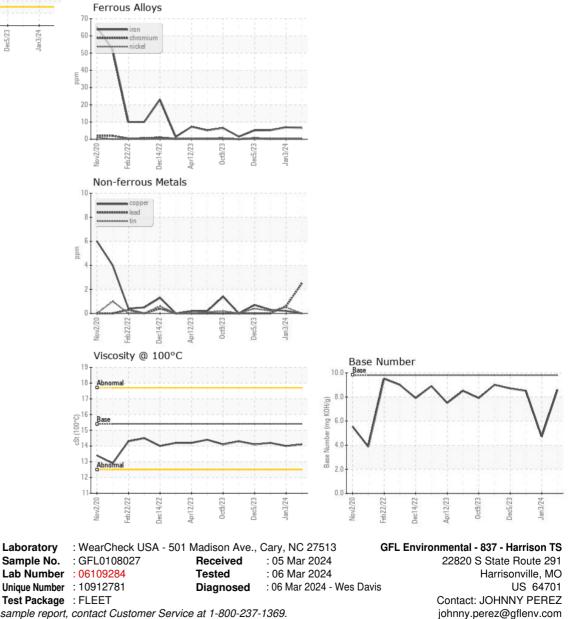


OIL ANALYSIS REPORT





| 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 PROPE | RTIES | method | limit/base | current | history1 | history2 |
| Visc @ 100°C | cSt | ASTM D445 | 15.4 | 14.1 | 14.0 | 14.2 |
| GRAPHS | | | | | | |





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 * - 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)

Submitted By: JEREMY BROWN

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