

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **4587M** Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (36 QTS)

DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Fluid

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

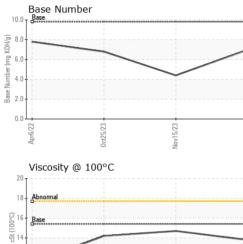
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| SAMPLE INFORI | MATION | method | limit/base | current | history1 | history2 |
|---|--|--|--|--|---|---|
| Sample Number | | Client Info | | GFL0104259 | GFL0059250 | GFL0059136 |
| Sample Date | | Client Info | | 08 Jan 2024 | 15 Nov 2023 | 25 Oct 2023 |
| Machine Age | mls | Client Info | | 189043 | 186356 | 185411 |
| Oil Age | mls | Client Info | | 188098 | 10037 | 185411 |
| Oil Changed | | Client Info | | Changed | Not Changd | Changed |
| Sample Status | | | | NORMAL | MARGINAL | ABNORMAL |
| CONTAMINAT | ION | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >3.0 | <1.0 | 2 .9 | 3 .3 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >90 | 28 | 61 | 36 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | 2 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | 0 | <1 | <1 |
| Titanium | ppm | ASTM D5185m | >2 | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 1 | 11 | 3 |
| Lead | ppm | ASTM D5185m | >40 | <1 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >330 | <1 | 2 | <1 |
| Tin | ppm | ASTM D5185m | >15 | 0 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| | | | | | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| ADDITIVES Boron | ppm | method ASTM D5185m | limit/base | current 1 | history1 5 | history2 7 |
| | ppm ppm | | | | | |
| Boron | | ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 | 1 0 56 | 5 0 61 | 7 |
| Boron Barium Molybdenum Manganese | ppm | ASTM D5185m ASTM D5185m | 0 0 60 0 | 1 0 | 5 0 61 <1 | 7 0 56 <1 |
| Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 | 1 0 56 0 916 | 5 0 61 <1 971 | 7 0 56 <1 885 |
| Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 0 0 60 0 1010 1070 | 1 0 56 0 916 1033 | 5 0 61 <1 971 1095 | 7 0 56 <1 885 1029 |
| 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 | 0 0 60 0 1010 1070 1150 | 1 0 56 0 916 1033 911 | 5 0 61 <1 971 1095 1054 | 7 0 56 <1 885 1029 932 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm 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 1270 | 1 0 56 0 916 1033 911 1260 | 5 0 61 <1 971 1095 1054 1318 | 7 0 56 <1 885 1029 932 1191 |
| 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 | 0 0 60 0 1010 1070 1150 1270 2060 | 1 0 56 0 916 1033 911 1260 2799 | 5 0 61 <1 971 1095 1054 1318 2646 | 7 0 56 <1 885 1029 932 1191 2645 |
| 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 | 0 0 60 1010 1070 1150 1270 2060 | 1 0 56 0 916 1033 911 1260 2799 current | 5 0 61 <1 971 1095 1054 1318 2646 history1 | 7 0 56 <1 885 1029 932 1191 2645 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 | 0 0 60 0 1010 1070 1150 1270 2060 | 1 0 56 0 916 1033 911 1260 2799 current 4 | 5 0 61 <1 971 1095 1054 1318 2646 history1 13 | 7 0 56 <1 885 1029 932 1191 2645 history2 6 |
| 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 ASTM D5185m | 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 | 1 0 56 0 916 1033 911 1260 2799 current 4 5 | 5 0 61 <1 971 1095 1054 1318 2646 history1 13 9 | 7 0 56 <1 885 1029 932 1191 2645 history2 6 6 |
| 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 | 0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 | 1 0 56 0 916 1033 911 1260 2799 current 4 5 2 | 5 0 61 <1 971 1095 1054 1318 2646 history1 13 9 20 | 7 0 56 <1 885 1029 932 1191 2645 history2 6 6 6 3 |
| 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 ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 >20 20 | 1 0 56 0 916 1033 911 1260 2799 current 4 5 2 2 | 5 0 61 <1 971 1095 1054 1318 2646 history1 13 9 20 history1 | 7 0 56 <1 885 1029 932 1191 2645 history2 6 6 3 3 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 ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20 | 1 0 56 0 916 1033 911 1260 2799 current 4 5 2 2 current 1.1 | 5 0 61 <1 971 1095 1054 1318 2646 history1 13 9 20 history1 1.1 | 7 0 56 <1 885 1029 932 1191 2645 history2 6 6 6 3 3 history2 0.7 |
| 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 TS ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1000 225 220 20 20 20 20 20 20 20 20 20 20 20 | 1 0 56 0 916 1033 911 1260 2799 <i>current</i> 4 5 2 2 <i>current</i> 1.1 1.1 12.1 | 5 0 61 <1 971 1095 1054 1318 2646 history1 13 9 20 history1 1.1 1.1 | 7 0 56 <1 885 1029 932 1191 2645 history2 6 6 6 6 3 3 history2 0.7 12.9 |
| 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 ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 limit/base >20 | 1 0 56 0 916 1033 911 1260 2799 current 4 5 2 2 current 1.1 | 5 0 61 <1 971 1095 1054 1318 2646 history1 13 9 20 history1 1.1 | 7 0 56 <1 885 1029 932 1191 2645 history2 6 6 6 3 3 history2 0.7 |
| 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 t ppm ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 220 220 1000 225 220 20 20 20 20 20 20 20 20 20 20 20 | 1 0 56 0 916 1033 911 1260 2799 <i>current</i> 4 5 2 2 <i>current</i> 1.1 1.1 12.1 | 5 0 61 <1 971 1095 1054 1318 2646 history1 13 9 20 history1 1.1 1.1 | 7 0 56 <1 885 1029 932 1191 2645 history2 6 6 6 6 3 3 history2 0.7 12.9 |
| 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 t ppm ppm | ASTM D5185m ASTM D5185m | 0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 <u>imit/base</u> >6 >20 20 | 1 0 56 0 916 1033 911 1260 2799 <u>current</u> 4 5 2 2 <u>current</u> 1.1 12.1 22.0 | 5 0 61 <1 971 1095 1054 1318 2646 history1 13 9 20 history1 1.1 1.1 1.5.6 29.1 | 7 0 56 <1 885 1029 932 1191 2645 history2 6 6 6 3 3 history2 0.7 12.9 22.6 |



OIL ANALYSIS REPORT

VISUAL



0ct25/23

| 0od25/23 Nov15/22 Jan6/24 | White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water | scalar*Visualscalar*Visualscalar*Visualscalar*Visualscalar*Visualscalar*Visualscalar*Visualscalar*Visualscalar*Visualscalar*Visualscalar*Visualscalar*Visualscalar*Visualscalar*Visual | | NE NONE NE NONE NE NONE NE NONE RML NORML RML NORML G NEG | NONE NONE NONE NONE NORML NORML NEG NEG |
|---|---|--|---|--|--|
| | FLUID PROP | ERTIES method | limit/base cu | urrent history1 | history2 |
| | Visc @ 100°C | cSt ASTM D445 | 15.4 13. 8 | B 14.7 | 14.2 |
| | GRAPHS Ferrous Alloys | | | | |
| 0625/23 | Non-ferrous Meta | | Jan 6/24 | | |
| | Apr6/22 0ct25/23 | Nov15/23 | Jan8/24 | | |
| | Viscosity @ 100° | C | Base 10.0 (6)HOX Buy Jaquer 8.0 (6)HOX Buy Jaquer 8.0 (6) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7 | Number | Jan 8.2.4 |
| Laboratory Sample No. Lab Number Unique Number Test Package To discuss this sample report, * - Denotes test methods that Statements of conformity to spe | : WearCheck USA - : GFL0104259 : 06057780 r : 10829162 : FLEET contact Customer Ser are outside of the ISO | 501 Madison Ave., Ca Recieved : 11 Diagnosed : 12 Diagnostician : We vice at 1-800-237-136 17025 scope of accrea | ary, NC 27513 Jan 2024 Jan 2024 s Davis 9. ditation. | GFL Environmental - 410 - Michigan West 39000 Van Born Rd Wayne, MI US 48184 Contact: Belal Dgheish bdgheish@gflenv.com T: (734)714-2340 | |

Submitted By: Belal Dgheish Page 2 of 2