

OIL ANALYSIS REPORT

Sample Rating Trend **FUEL**

Irvington Unit 02 DB060102E

Component

Natural Gas Engine

PETRO CANADA DURON MONOGRADE HD 40W (250 GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. Resample at the next service interval to monitor. (Customer Sample Comment: Top Up Amount: 13 GAL)

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of fuel present in the oil.

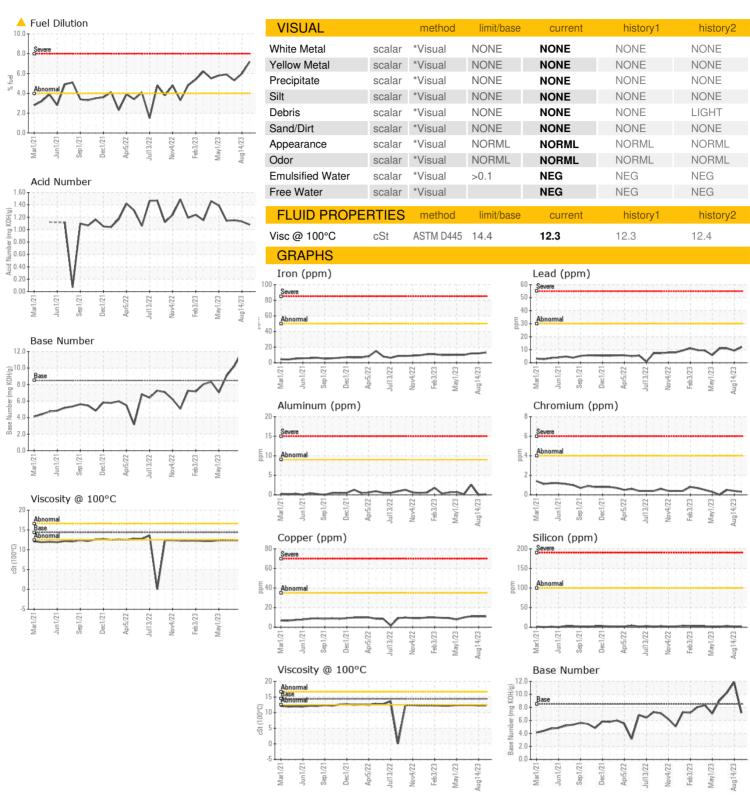
Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The AN level is acceptable for this fluid.

| Sample Number Client Info PCA0105172 PCA0082298 PCA008229 PCA008229 PCA008229 11 Jul 2023 Machine Age hrs Client Info 05 Sep 2023 14 Aug 2023 11 Jul 2023 Machine Age hrs Client Info 16513 15821 15453 Oil Changed Client Info Oil Added ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL ABNORMAL WEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >50 13 12 12 Chromium ppm ASTM D5185m >4 <1 | 7 40W (250 GAL | .) | ar2021 Jun202 | 1 Sep2021 Dec2021 Apr202 | 2 Jul2022 Nov2022 Feb2023 May2 | 023 Aug2023 | |
|--|------------------|----------|---------------|--------------------------|--------------------------------|--------------|--------------|
| Sample Date Client Info 05 Sep 2023 14 Aug 2023 11 Jul 2025 Machine Age hrs Client Info 24941 24249 23881 Oil Age hrs Client Info 16513 15821 15453 Oil Changed Client Info Oil Added Oil Added Oil Added ABNORMAL ABNORMAL <th>SAMPLE INFOR</th> <th>MATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th> | SAMPLE INFOR | MATION | method | limit/base | current | history1 | history2 |
| Machine Age hrs Client Info 24941 24249 23881 Oil Age hrs Client Info 16513 15821 15453 Oil Changed Client Info Oil Added Oil Added Oil Added Sample Status MEAR METALS method limit/base current history1 history1 Iron ppm ASTM D5185m >50 13 12 12 12 Chromium ppm ASTM D5185m >50 13 12 1 Nickel ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >2 0 0 0 Silver ppm ASTM D5185m >3 0 0 0 1 0 <1 | Sample Number | | Client Info | | PCA0105172 | PCA0082298 | PCA0082300 |
| Oil Age hrs Client Info 16513 15821 15453 Oil Changed Client Info Oil Added Oil Added Oil Added Oil Added Sample Status Method Imitibase Current history1 history1 Iron ppm ASTM D5185m >50 13 12 12 Chromium ppm ASTM D5185m >4 <1 <1 <1 Nickel ppm ASTM D5185m >2 0 0 0 Alluminum ppm ASTM D5185m >3 0 0 0 Alluminum ppm ASTM D5185m >3 0 0 0 Alluminum ppm ASTM D5185m >30 12 9 11 Cadad ppm ASTM D5185m >3 11 11 11 11 Copper ppm ASTM D5185m >4 2 2 2 2 2 2 Vanadium ppm | Sample Date | | Client Info | | 05 Sep 2023 | 14 Aug 2023 | 11 Jul 2023 |
| Cilient Info | Machine Age | hrs | Client Info | | 24941 | 24249 | 23881 |
| MEAR METALS | Oil Age | hrs | Client Info | | 16513 | 15821 | 15453 |
| WEAR METALS | Oil Changed | | Client Info | | Oil Added | Oil Added | Oil Added |
| Iron | Sample Status | | | | ABNORMAL | ABNORMAL | ABNORMAL |
| Chromium ppm ASTM D5185m >4 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <td>WEAR METAL</td> <td>S</td> <td>method</td> <td>limit/base</td> <td>current</td> <td>history1</td> <td>history2</td> | WEAR METAL | S | method | limit/base | current | history1 | history2 |
| Nickel | Iron | ppm | ASTM D5185m | >50 | 13 | 12 | 12 |
| Nickel | Chromium | ppm | ASTM D5185m | >4 | <1 | <1 | <1 |
| Silver | Nickel | | ASTM D5185m | >2 | 0 | 0 | 0 |
| ASTM D5185m SP ST ST ST ST ST ST ST | Titanium | | ASTM D5185m | | <1 | 0 | <1 |
| Aluminum ppm ASTM D5185m >9 <1 0 3 Lead ppm ASTM D5185m >30 12 9 11 Copper ppm ASTM D5185m >35 11 11 11 Tin ppm ASTM D5185m >4 2 2 2 Vanadium ppm ASTM D5185m <1 | Silver | ppm | ASTM D5185m | >3 | 0 | 0 | 0 |
| Lead ppm ASTM D5185m >30 12 9 11 Copper ppm ASTM D5185m >35 11 11 11 Tin ppm ASTM D5185m >4 2 2 2 2 Vanadium ppm ASTM D5185m <1 0 0 0 Cadmium ppm ASTM D5185m 16 17 21 d Boron ppm ASTM D5185m 16 17 21 d Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 4 3 5 Manganese ppm ASTM D5185m 4 729 735 Calcium ppm ASTM D5185m 754 729 735 Zinc ppm ASTM D5185m 1162 1107 1174 Phosphorus ppm ASTM D5185m 288 815 868 Zinc <th< td=""><td>Aluminum</td><td></td><td>ASTM D5185m</td><td>>9</td><td><1</td><td>0</td><td>3</td></th<> | Aluminum | | ASTM D5185m | >9 | <1 | 0 | 3 |
| Copper ppm ASTM D5185m >35 11 0 | Lead | | ASTM D5185m | >30 | 12 | 9 | 11 |
| Tin ppm ASTM D5185m >4 2 2 2 2 Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185m 16 17 21 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 4 3 5 Manganese ppm ASTM D5185m 4 3 5 Manganesium ppm ASTM D5185m 754 729 735 Calcium ppm ASTM D5185m 1162 1107 1174 Phosphorus ppm ASTM D5185m 828 815 868 Zinc ppm ASTM D5185m 2360 2258 2262 CONTAMINANTS method limit/base current his | Copper | | ASTM D5185m | >35 | 11 | 11 | 11 |
| Vanadium ppm ASTM D5185m <1 0 0 Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 16 17 21 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 4 3 5 Manganese ppm ASTM D5185m <1 <1 <1 <1 Magnesium ppm ASTM D5185m 754 729 735 Calcium ppm ASTM D5185m 1162 1107 1174 Phosphorus ppm ASTM D5185m 828 815 868 Zinc ppm ASTM D5185m 2360 2258 2262 CONTAMINANTS method limit/base current history1 history Silicon ppm < | | | | >4 | 2 | 2 | 2 |
| Cadmium ppm ASTM D5185m <1 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185m 16 17 21 Barium ppm ASTM D5185m 0 0 0 Molybdenum ppm ASTM D5185m 4 3 5 Mangnesium ppm ASTM D5185m 754 729 735 Calcium ppm ASTM D5185m 1162 1107 1174 Phosphorus ppm ASTM D5185m 1106 1040 1124 Zinc ppm ASTM D5185m 2360 2258 2262 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >+100 2 2 4 Sodium ppm ASTM D5185m >> 20 <1 0 2 Fuel % ASTM D5185m >20< | Vanadium | | | | | 0 | 0 |
| Boron | Cadmium | | | | | | |
| Boron | ADDITIVES | | method | limit/base | current | history1 | history2 |
| Barium | Boron | ppm | ASTM D5185m | | 16 | 17 | 21 |
| Molybdenum ppm ASTM D5185m 4 3 5 Manganese ppm ASTM D5185m <1 | Barium | | ASTM D5185m | | 0 | 0 | 0 |
| Manganese ppm ASTM D5185m <1 <1 <1 Magnesium ppm ASTM D5185m 754 729 735 Calcium ppm ASTM D5185m 1162 1107 1174 Phosphorus ppm ASTM D5185m 828 815 868 Zinc ppm ASTM D5185m 1106 1040 1124 Sulfur ppm ASTM D5185m 2360 2258 2262 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >+100 2 2 4 Sodium ppm ASTM D5185m >+100 2 2 4 Potassium ppm ASTM D5185m >20 <1 | Molybdenum | | ASTM D5185m | | 4 | 3 | 5 |
| Magnesium ppm ASTM D5185m 754 729 735 Calcium ppm ASTM D5185m 1162 1107 1174 Phosphorus ppm ASTM D5185m 828 815 868 Zinc ppm ASTM D5185m 1106 1040 1124 Sulfur ppm ASTM D5185m 2360 2258 2262 CONTAMINANTS method limit/base current history1 history1 Silicon ppm ASTM D5185m >+100 2 2 4 Sodium ppm ASTM D5185m >20 <1 | , | | ASTM D5185m | | <1 | | |
| Calcium ppm ASTM D5185m 1162 1107 1174 Phosphorus ppm ASTM D5185m 828 815 868 Zinc ppm ASTM D5185m 1106 1040 1124 Sulfur ppm ASTM D5185m 2360 2258 2262 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >+100 2 2 4 Sodium ppm ASTM D5185m >+100 2 2 4 Potassium ppm ASTM D5185m >20 <1 | • | | ASTM D5185m | | 754 | 729 | 735 |
| Phosphorus ppm ASTM D5185m 828 815 868 Zinc ppm ASTM D5185m 1106 1040 1124 Sulfur ppm ASTM D5185m 2360 2258 2262 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >+100 2 2 4 Sodium ppm ASTM D5185m >+100 2 2 4 Potassium ppm ASTM D5185m >20 <1 | Calcium | | ASTM D5185m | | 1162 | 1107 | 1174 |
| Zinc ppm ASTM D5185m 1106 1040 1124 Sulfur ppm ASTM D5185m 2360 2258 2262 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >+100 2 2 4 Sodium ppm ASTM D5185m 6 6 4 Potassium ppm ASTM D5185m >20 <1 | | | | | | | |
| Sulfur ppm ASTM D5185m 2360 2258 2262 CONTAMINANTS method limit/base current history1 history Silicon ppm ASTM D5185m >+100 2 2 4 Sodium ppm ASTM D5185m >+100 6 6 4 Potassium ppm ASTM D5185m >20 <1 | • | | | | 1106 | | |
| Silicon ppm ASTM D5185m >+100 2 2 4 | | | | | | | |
| Sodium ppm ASTM D5185m 6 6 4 Potassium ppm ASTM D5185m >20 <1 | CONTAMINAN | TS | method | limit/base | current | history1 | history2 |
| Sodium ppm ASTM D5185m 6 6 4 Potassium ppm ASTM D5185m >20 <1 | Silicon | maa | ASTM D5185m | >+100 | 2 | 2 | 4 |
| Potassium ppm ASTM D5185m >20 <1 0 2 Fuel % ASTM D3524 >4.0 ▲ 7.2 ▲ 6.0 ▲ 5.3 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.0 6.6 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 16.9 16.1 17.0 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 10.8 10.2 10.8 Acid Number (AN) mg KOH/g ASTM D8045 1.08 1.13 1.15 | Sodium | | ASTM D5185m | | 6 | 6 | 4 |
| Fuel % ASTM D3524 >4.0 ♣ 7.2 ♠ 6.0 ♠ 5.3 INFRA-RED method limit/base current history1 history Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.0 6.6 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 16.9 16.1 17.0 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 10.8 10.2 10.8 Acid Number (AN) mg KOH/g ASTM D8045 1.08 1.13 1.15 | Potassium | | | >20 | | 0 | 2 |
| Soot % % *ASTM D7844 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 7.0 6.6 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 16.9 16.1 17.0 FLUID DEGRADATION method limit/base current history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 10.8 10.2 10.8 Acid Number (AN) mg KOH/g ASTM D8045 1.08 1.13 1.15 | | | | >4.0 | | △ 6.0 | △ 5.3 |
| Nitration Abs/cm *ASTM D7624 >20 7.0 6.6 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 16.9 16.1 17.0 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 10.8 10.2 10.8 Acid Number (AN) mg KOH/g ASTM D8045 1.08 1.13 1.15 | INFRA-RED | | method | limit/base | current | history1 | history2 |
| Nitration Abs/cm *ASTM D7624 >20 7.0 6.6 7.1 Sulfation Abs/.1mm *ASTM D7415 >30 16.9 16.1 17.0 FLUID DEGRADATION method limit/base current history1 history Oxidation Abs/.1mm *ASTM D7414 >25 10.8 10.2 10.8 Acid Number (AN) mg KOH/g ASTM D8045 1.08 1.13 1.15 | | % | *ASTM D7844 | | 0.1 | 0.1 | 0.1 |
| Sulfation Abs/.1mm *ASTM D7415 >30 16.9 16.1 17.0 FLUID DEGRADATION method limit/base current history1 history1 history1 Oxidation Abs/.1mm *ASTM D7414 >25 10.8 10.2 10.8 Acid Number (AN) mg KOH/g ASTM D8045 1.08 1.13 1.15 | | | | >20 | | | |
| Oxidation Abs/.1mm *ASTM D7414 >25 10.8 10.2 10.8 Acid Number (AN) mg KOH/g ASTM D8045 1.08 1.13 1.15 | | | | | | | |
| Acid Number (AN) mg KOH/g ASTM D8045 1.08 1.13 1.15 | FLUID DEGRAD | OATION | method | limit/base | current | history1 | history2 |
| Acid Number (AN) mg KOH/g ASTM D8045 1.08 1.13 1.15 | Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 10.8 | | |
| | | | | - | | | |
| DASE NUMBER IDIN 110 NOTO ASTROLOGO 0.3 1.15 1.158 11.24 | Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | 7.15 | 11.88 | 10.24 |



OIL ANALYSIS REPORT







Certificate L2367

Laboratory Sample No. Lab Number **Unique Number**

: PCA0105172 : 05946649 : 10642608

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 08 Sep 2023

: 12 Sep 2023 Diagnosed Diagnostician : Don Baldridge Test Package : MOB 2 (Additional Tests: FuelDilution, PercentFuel)

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)

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