

OIL ANALYSIS REPORT

Sample Rating Trend







DIESEL ENGINE OIL SAE 15W40 (--- GAL)

Recommendation

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

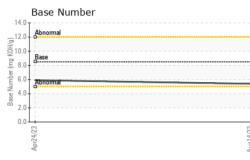
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

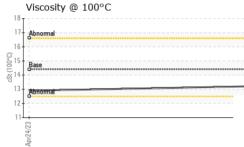
| | | | Apr2023 | Aug2023 | | |
|---|--|--|---|--|--|--|
| SAMPLE INFORM | IATION | method | limit/base | current | history1 | history2 |
| Sample Number | | Client Info | | WC0783987 | WC0784004 | |
| Sample Date | | Client Info | | 14 Aug 2023 | 24 Apr 2023 | |
| Machine Age | hrs | Client Info | | 8633 | 8086 | |
| Oil Age | hrs | Client Info | | 547 | 513 | |
| Oil Changed | | Client Info | | Changed | Changed | |
| Sample Status | | | | NORMAL | NORMAL | |
| CONTAMINATION | ٧ | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >3.0 | <1.0 | <1.0 | |
| Glycol | | WC Method | | NEG | NEG | |
| WEAR METALS | | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >120 | 11 | 13 | |
| Chromium | ppm | ASTM D5185m | >20 | 0 | <1 | |
| Nickel | ppm | ASTM D5185m | >5 | 0 | <1 | |
| Titanium | ppm | ASTM D5185m | | <1 | 0 | |
| Silver | ppm | ASTM D5185m | >2 | 0 | 0 | |
| Aluminum | ppm | ASTM D5185m | | 4 | 4 | |
| Lead | ppm | ASTM D5185m | >40 | <1 | 0 | |
| Copper | ppm | ASTM D5185m | | 1 | 2 | |
| Tin | ppm | ASTM D5185m | >15 | <1 | 0 | |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| Boron | ppm | ASTM D5185m | 250 | 27 | 29 | |
| Barium | ppm | ASTM D5185m | 10 | 0 | 0 | |
| Molybdenum | | | | | | |
| | ppm | ASTM D5185m | 100 | 79 | 52 | |
| Manganese | | ASTM D5185m ASTM D5185m | 100 | 79 <1 | 52 <1 | |
| - | ppm ppm ppm | | 100 450 | - | | |
| Magnesium | ppm | ASTM D5185m | | <1 | <1 | |
| Magnesium Calcium | ppm ppm | ASTM D5185m ASTM D5185m | 450 | <1 110 | <1 96 | |
| Magnesium Calcium Phosphorus | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 | <1 110 2089 | <1 96 2050 | |
| Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 1150 1350 | <1 110 2089 939 | <1 96 2050 897 | |
| Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 1150 1350 | <1 110 2089 939 1191 | <1 96 2050 897 1089 | |
| Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 1150 1350 4250 | <1 110 2089 939 1191 4008 | <1 96 2050 897 1089 4057 | |
| Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method | 450 3000 1150 1350 4250 limit/base | <1 110 2089 939 1191 4008 current | <1 96 2050 897 1089 4057 history1 | history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m | 450 3000 1150 1350 4250 <i>limit/base</i> >25 >158 | <1 110 2089 939 1191 4008 current 6 | <1 96 2050 897 1089 4057 history1 5 | history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m | 450 3000 1150 1350 4250 <i>limit/base</i> >25 >158 | <1 110 2089 939 1191 4008 current 6 6 | <1 96 2050 897 1089 4057 history1 5 2 | history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 1150 1350 4250 limit/base >25 >158 >20 | <1 110 2089 939 1191 4008 current 6 6 7 | <1 96 2050 897 1089 4057 <u>history1</u> 5 2 6 | history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 450 3000 1150 1350 4250 imit/base >25 >158 >20 imit/base >4 | <1 110 2089 939 1191 4008 <u>current</u> 6 6 7 <u>current</u> | <1 96 2050 897 1089 4057 history1 5 2 6 history1 0.3 | history2 |
| Silicon Sodium Potassium | ppm | ASTM D5185m ASTM D5185m | 450 3000 1150 1350 4250 imit/base >25 >158 >20 imit/base >4 >20 | <1 110 2089 939 1191 4008 current 6 6 6 7 7 current 0.4 | <1 96 2050 897 1089 4057 history1 5 2 6 history1 | history2 history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | 450 3000 1150 1350 4250 imit/base >25 >158 >20 imit/base >4 >20 | <1 110 2089 939 1191 4008 current 6 6 7 current 0.4 9.4 20.2 | <1 96 2050 897 1089 4057 history1 5 2 6 history1 0.3 8.6 | history2 history2 history2 |
| Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7844 | 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >4 >20 >4 >20 | <1 110 2089 939 1191 4008 current 6 6 7 current 0.4 9.4 20.2 | <1 96 2050 897 1089 4057 history1 5 2 6 history1 0.3 8.6 18.1 | history2 history2 history2 |



OIL ANALYSIS REPORT

VISUAL





| | VISUAL | | method | limit/base | current | nistory i | nistory2 |
|---|---|---|---|---|-----------------|-----------|---|
| | White Metal | scalar | *Visual | NONE | NONE | NONE | |
| | Yellow Metal | scalar | *Visual | NONE | NONE | NONE | |
| | Precipitate | scalar | *Visual | NONE | NONE | NONE | |
| | Silt | scalar | *Visual | NONE | NONE | NONE | |
| | Debris | scalar | *Visual | NONE | NONE | NONE | |
| | Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | |
| | | scalar | *Visual | NORML | NORML | NORML | |
| | Appearance Odor | scalar | *Visual | NORML | NORML | NORML | |
| | Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | |
| | Free Water | scalar | *Visual | 20.L | NEG | NEG | |
| | | | | | | | _ |
| | FLUID PROPER | | method | limit/base | current | history1 | history2 |
| | Visc @ 100°C | cSt | ASTM D445 | 14.4 | 13.2 | 12.9 | |
| | GRAPHS | | | | | | |
| | Ferrous Alloys | | | | | | |
| | 12 - iron | | | | | | |
| | 10 - nickel | | | | | | |
| | 0 | | | | | | |
| | Ed c | | | | | | |
| | 6- | | | | | | |
| | 4 - | | | | | | |
| | 2 | | | | | | |
| | | | | ~ | | | |
| | Apr24/23 | | | Aug14/23 | | | |
| | | | | Au | | | |
| | Non-ferrous Meta | ls | | | | | |
| | copper | | | | | | |
| | 8 - lead | | | | | | |
| | 6 | | | | | | |
| | E dd | | | | | | |
| | 4 | | | | | | |
| | 2 | | | | | | |
| | 2- | | | | | | |
| | 0 | | | | | | |
| | Apr24/23 | | | Aug14/23 | | | |
| | Apr | | | Aug | | | |
| | Viscosity @ 100°C | C | | | Base Number | | |
| | ¹⁸ | | | 14.0 | °T : | | |
| | 17 Abnormal | | | 12.0 | | | |
| | 16 | | | (^B /H ₀ 10.0 | 0 | | |
| | 0 8 8 8 8 8 | | | (0,110.1 HOX 0 0, 10, 10, 10, 10, 10, 10, 10, 10, 10 | Base | | |
| | () 15 00 01 73 14 | | | e 6.0 | 0 | | |
| | 12 | | | NN as 4.0 | Abnormal | | |
| | 13 Abnormal | | | | | | |
| | | | | 2.1 | | | |
| | 33 | | | .0 | | | C E |
| | Apr24/23 | | | Aug14/23 | Apr24/23 | | () () () () () () () () () () () () () (|
| Laboratory Sample No. Lab Number Unique Number Test Packag o discuss this sample repor | • : 05930242 er : 10615513 le : CONST (Additiona <i>t, contact Customer Ser</i> v | Received Diagnose Diagnost I Tests: The vice at 1-8 | l : 21 / ed : 22 / ician : We BN) <i>00-237-136</i> 9 | Aug 2023 Aug 2023 s Davis 9. | 3 Apple V | Egg Harbo | EHT Locatio 6 Delilah Roa r Township, N US 0823 ervice Manage T |
| tatements of conformity to sp | | | | | (JCGM 106:2012) | | F |

Contact/Location: Service Manager - AVWEHT