

OIL ANALYSIS REPORT

Sample Rating Trend



Area 600HP Machine Id 217422 [600HP] Component

Diesel Engine Fluid DIESEL ENGINE OIL SAE 10W30 (38 QTS)

DIAGNOSIS

Recommendation

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

Wear

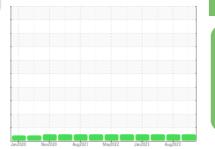
All component wear rates are normal.

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.



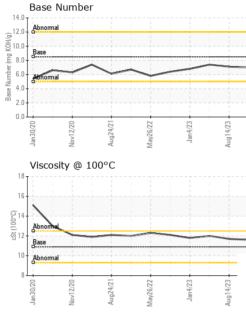


| SAMPLE INFOR | MATION | method | limit/base | current | history1 | history2 |
|---|--|--|---|---|--|--|
| Sample Number | | Client Info | | PCA0101262 | PCA0101250 | PCA0073108 |
| Sample Date | | Client Info | | 26 Oct 2023 | 14 Aug 2023 | 02 May 2023 |
| Machine Age | mls | Client Info | | 634692 | 606508 | 574432 |
| Oil Age | mls | Client Info | | 30000 | 30000 | 30000 |
| Oil Changed | | Client Info | | Changed | Changed | 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 | >200 | 15 | 22 | 24 |
| Chromium | ppm | ASTM D5185m | >20 | 1 | 2 | 2 |
| Nickel | ppm | ASTM D5185m | >2 | <1 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | >2 | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m | >2 | <1 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >30 | 4 | 7 | 8 |
| Lead | ppm | ASTM D5185m | >30 | <1 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >30 | 7 | 10 | 11 |
| Tin | ppm | ASTM D5185m | >15 | <1 | <1 | 1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| | | | | | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| ADDITIVES Boron | ppm | method ASTM D5185m | limit/base 250 | current <1 | history1 0 | history2 <1 |
| | ppm ppm | | | | | |
| Boron | | ASTM D5185m | 250 | <1 | 0 | <1 |
| Boron Barium | ppm | ASTM D5185m ASTM D5185m | 250 10 | <1 4 | 0 | <1 0 |
| Boron Barium Molybdenum | ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 | <1 4 63 | 0 0 69 | <1 0 63 <1 1012 |
| Boron Barium Molybdenum Manganese | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 100 | <1 4 63 0 | 0 0 69 <1 | <1 0 63 <1 |
| Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 100 450 | <1 4 63 0 917 | 0 0 69 <1 1220 | <1 0 63 <1 1012 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 100 450 3000 | <1 4 63 0 917 1061 | 0 0 69 <1 1220 1340 1170 1515 | <1 0 63 <1 1012 1228 |
| 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 | 250 10 100 450 3000 1150 | <1 4 63 0 917 1061 920 | 0 0 69 <1 1220 1340 1170 | <1 0 63 <1 1012 1228 1045 |
| 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 | 250 10 100 450 3000 1150 1350 | <1 4 63 0 917 1061 920 1236 | 0 0 69 <1 1220 1340 1170 1515 | <1 0 63 <1 1012 1228 1045 1383 |
| 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 | 250 10 100 450 3000 1150 1350 4250 limit/base | <1 4 63 0 917 1061 920 1236 2729 | 0 0 69 <1 1220 1340 1170 1515 3574 | <1 0 63 <1 1012 1228 1045 1383 3230 |
| 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 | 250 10 100 450 3000 1150 1350 4250 limit/base | <1 4 63 0 917 1061 920 1236 2729 current | 0 0 69 <1 1220 1340 1170 1515 3574 history1 | <1 0 63 <1 1012 1228 1045 1383 3230 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 | 250 10 100 450 3000 1150 1350 4250 limit/base >30 | <1 4 63 0 917 1061 920 1236 2729 current 5 | 0 0 69 <1 1220 1340 1170 1515 3574 history1 13 | <1 0 63 <1 1012 1228 1045 1383 3230 history2 9 |
| 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 | 250 10 100 450 3000 1150 1350 4250 limit/base >30 | <1 4 63 0 917 1061 920 1236 2729 current 5 0 | 0 0 69 <1 1220 1340 1170 1515 3574 history1 13 2 | <1 0 63 <1 1012 1228 1045 1383 3230 history2 9 2 |
| 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 | 250 10 100 450 3000 1150 1350 4250 limit/base >30 | <1 4 63 0 917 1061 920 1236 2729 current 5 0 5 current 0.6 | 0 0 69 <1 1220 1340 1170 1515 3574 history1 13 2 2 | <1 0 63 <1 1012 1228 1045 1383 3230 history2 9 2 4 4 history2 0.8 |
| 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 | ASTM D5185m ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 limit/base >30 20 limit/base | <1 4 63 0 917 1061 920 1236 2729 current 5 0 5 current 0.6 8.4 | 0 0 69 <1 1220 1340 1170 1515 3574 history1 13 2 2 2 history1 0.6 8.7 | <1 0 63 <1 1012 1228 1045 1383 3230 history2 9 2 4 history2 0.8 9.5 |
| 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 | ASTM D5185m ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 limit/base >30 20 limit/base | <1 4 63 0 917 1061 920 1236 2729 current 5 0 5 current 0.6 | 0 0 69 <1 1220 1340 1170 1515 3574 history1 13 2 2 2 history1 0.6 | <1 0 63 <1 1012 1228 1045 1383 3230 history2 9 2 4 4 history2 0.8 |
| 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 ppm ppm | ASTM D5185m ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 limit/base >30 limit/base >33 | <1 4 63 0 917 1061 920 1236 2729 current 5 0 5 current 0.6 8.4 | 0 0 69 <1 1220 1340 1170 1515 3574 history1 13 2 2 2 history1 0.6 8.7 | <1 0 63 <1 1012 1228 1045 1383 3230 history2 9 2 4 history2 0.8 9.5 |
| 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 | ASTM D5185m ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 imit/base >30 •20 imit/base >3 >20 >30 | <1 4 63 0 917 1061 920 1236 2729 current 5 0 5 current 0.6 8.4 20.1 | 0 0 69 <1 1220 1340 1170 1515 3574 history1 13 2 2 history1 0.6 8.7 19.8 | <1 0 63 <1 1012 1228 1045 1383 3230 history2 9 2 4 history2 0.8 9.5 21.9 |



OIL ANALYSIS REPORT

VISUAL



| | | VISUAL | | method | limit/base | current | history i | nisto | ory2 |
|-----------------------------|---------------------|--------------------------------------|---------------------|---|--|-------------------------|----------------------|---|------------|
| | | White Metal | scalar | *Visual | NONE | NONE | NONE | NONE | E |
| | | Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE | Ε |
| | | Precipitate | scalar | *Visual | NONE | NONE | NONE | NONE | E |
| | | Silt | scalar | *Visual | NONE | NONE | NONE | NONE | E |
| | | Debris | scalar | *Visual | NONE | NONE | NONE | NONE | E |
| | | Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE | E |
| May26/22 | Jan4/23 Aug14/23 | Appearance | scalar | *Visual | NORML | NORML | NORML | NOR | ML |
| May2 | Jan Aug1 | Odor | scalar | *Visual | NORML | NORML | NORML | NORM | ML |
| | | Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | NEG | |
| | | Free Water | scalar | *Visual | | NEG | NEG | NEG | |
| | | FLUID PROPE | RTIES | method | limit/base | current | history1 | histo | ory2 |
| | | Visc @ 100°C | cSt | ASTM D445 | 10.9 | 11.6 | 11.7 | 12.0 | |
| | | GRAPHS | | | | | | | |
| | | Ferrous Alloys | | | | | | | |
| 22 | 23 | iron | | | | | | | |
| May26/22 | Jan4/23 Aug14/23 | 25 - nickel | | ~~ | | | | | |
| 2 | A | 20 | | | | | | | |
| | | <u>۾</u> 15 - | | | | | | | |
| | | 10- | | | | | | | |
| | | | | | | | | | |
| | | 5- | | | | | | | |
| | | | | | Annanan Annana Annana A | | | | |
| | | Jan 30/20 Nov1 2/20 Aug 24/21 | May26/22 | Jan4/23 | Aug 1 1/ 23 | | | | |
| | | | | 7 | - Meri | | | | |
| | | Non-ferrous Metal | S | | | | | | |
| | | copper | | | | | | | |
| | | sessesses tin | | $\sim \sim$ | | | | | |
| | | 10- | ~/ | | | | | | |
| | | Edd | V | | | | | | |
| | | 6 | | | | | | | |
| | | 4 | | | | | | | |
| | | 2- | | | | | | | |
| | | | C C | Department of the local data | Andrease and | | | | |
| | | Jan 30/20 Nov 1 2/20 Aug 24/21 | May26/22 | Jan4/23 | Aug 1 1/ 23 | | | | |
| | | | | , in the second s | line. | | | | |
| | | Viscosity @ 100°C | | | | Base Number | | | |
| | | 16 | | | 14.0 | | | | |
| | | 15- | | | 12.0 | | 1 1 1 | | - |
| | | 14 | | | (B)H010.0 8.0 9.0 mmp 8.0 9.0 9.0 8 8 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 | Rane | | | |
| | | 2013 Honormal | | | <u>ل</u> 8.0 | Base | | | |
| | | | | | e 6.0 | Abnormal | \sim | and the second se | |
| | | 11- Base | | | 2 4.C |)- | | | |
| | | Abnormal | | | 2.0 | | | | |
| | | 8 | | | 0.0 | | | | |
| | | 0/20 2/20 | 5/22 | Jan4/23 - | 0.0 | | 6/22 | Jan4/23 - | 4/23. |
| | | Jan 30/20 Nov 1 2/20 Aug 24/21 | May26/22 | Jan | Aug 14/23 | Jan 30/20 Nov 1 2/20 | Aug24/21 May26/22 | Jan | Aug14/23 . |
| | | | 4 | | | . 6 | 2 | | |
| d | Laboratory | : WearCheck USA - 5 | | | | | | | |
| TAB | Sample No. | | Received Diagnos | | Nov 2023 Nov 2023 | | 171 | 7 East Loo | |
| REDITED | Lab Number | | | | LUBBOC | | | | |
| G LABORATORY | Unique Number | · : 10726054 I | | Quarter | US 7 | | | | |
| G LABORATORY | | | | | | | (:ontor | Y. BU 0 1-1 | |
| icate L2367 liscuss this | Test Package | : FLEET contact Customer Servi | ice at 1-8 | 100-237-136 | 7. | | | ct: RITA GA @mclaneco | |

Contact/Location: RITA GARCIA - MCLLUB