



OIL ANALYSIS REPORT

| | |
|-----------------|---------------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |

Machine Id
2-270
 Component
Diesel Engine
 Fluid
DIESEL ENGINE OIL SAE 15W40 (--- QTS)

RECOMMENDATION

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

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | WC0895211 | WC0871771 | WC0834200 |
| Sample Date | | Client Info | | 02 Jul 2024 | 13 Mar 2024 | 07 Jan 2024 |
| Machine Age | hrs | Client Info | | 4649 | 3894 | 0 |
| Oil Age | hrs | Client Info | | 755 | 751 | 0 |
| Filter Age | hrs | Client Info | | 755 | 751 | 0 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >100 | 23 | 12 | 12 |
| Chromium | ppm | ASTM D5185m | >20 | 2 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | 5 | 4 | 6 |
| Lead | ppm | ASTM D5185m | >40 | 0 | 0 | <1 |
| Copper | ppm | ASTM D5185m | >330 | 14 | 14 | 33 |
| Tin | ppm | ASTM D5185m | >15 | 0 | <1 | 1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

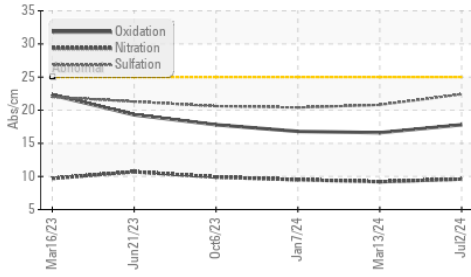
| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >25 | 16 | 5 | 6 |
| Potassium | ppm | ASTM D5185m | >20 | 18 | 25 | 14 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.3 | 0.2 | 0.2 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 9.6 | 9.2 | 9.5 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 22.4 | 20.8 | 20.4 |
| 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 |

FLUID CONDITION

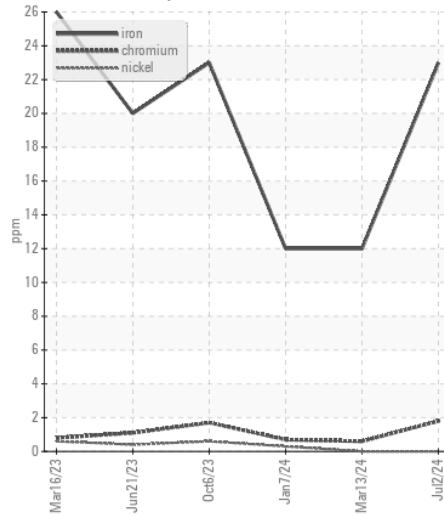
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| | | | | | | |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium | ppm | ASTM D5185m | >158 | 4 | 2 | 2 |
| Boron | ppm | ASTM D5185m | 250 | 16 | 36 | 25 |
| Barium | ppm | ASTM D5185m | 10 | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 100 | 19 | 46 | 10 |
| Manganese | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 450 | 700 | 748 | 773 |
| Calcium | ppm | ASTM D5185m | 3000 | 1598 | 1349 | 1341 |
| Phosphorus | ppm | ASTM D5185m | 1150 | 771 | 719 | 760 |
| Zinc | ppm | ASTM D5185m | 1350 | 844 | 838 | 866 |
| Sulfur | ppm | ASTM D5185m | 4250 | 3247 | 3244 | 2716 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 17.8 | 16.6 | 16.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 8.5 | 5.7 | 5.8 | 5.7 |
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | 13.5 | 13.1 | 13.0 |

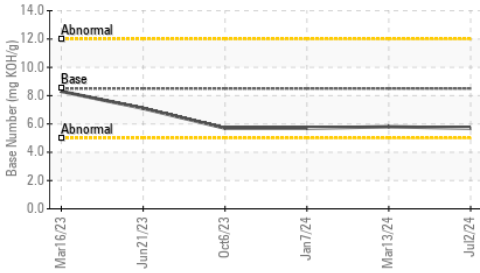
FT-IR (Direct Trend)



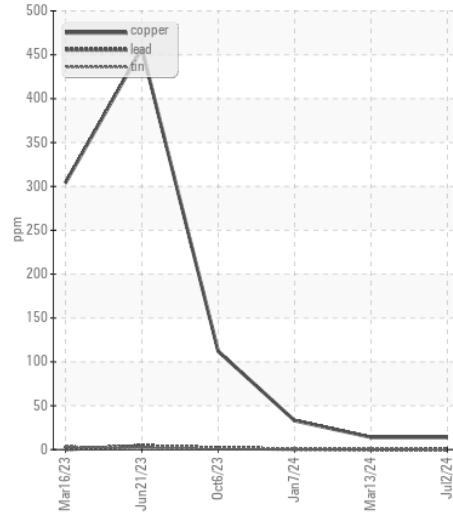
Ferrous Alloys



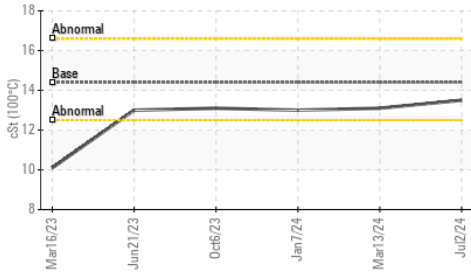
Base Number



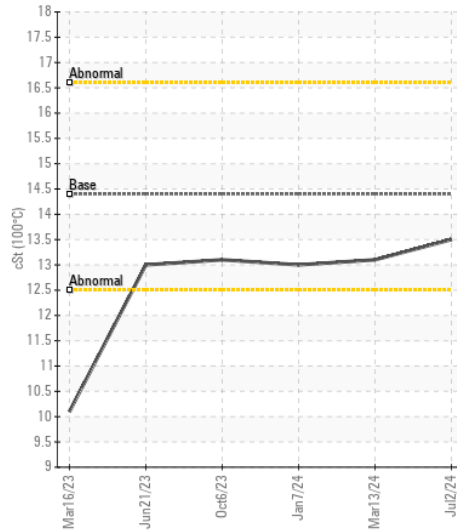
Non-ferrous Metals



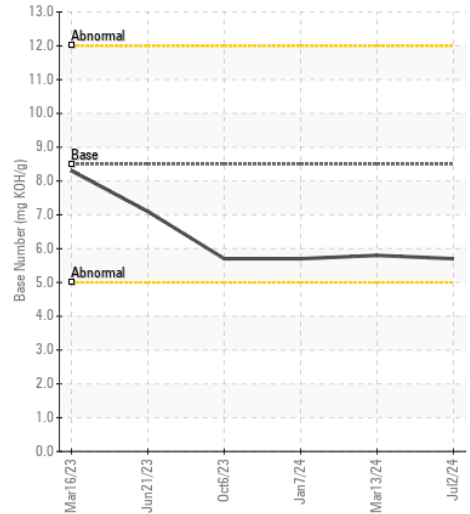
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : WC0895211

Lab Number : 06234300

Unique Number : 11123134

Test Package : FLEET

Received : 11 Jul 2024

Tested : 12 Jul 2024

Diagnosed : 12 Jul 2024 - Wes Davis

ALASKA WEST EXPRESS

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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)