



|                 |               |
|-----------------|---------------|
| WEAR            | <b>NORMAL</b> |
| CONTAMINATION   | <b>NORMAL</b> |
| FLUID CONDITION | <b>NORMAL</b> |



Machine Id  
**VOLVO L220H 3437**  
Component  
**Diesel Engine**  
Fluid  
**VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3 (14 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|----------|
| Sample Number  |     | Client Info |           | <b>ML0000470</b>   | VCP424631   | ---      |
| Sample Date    |     | Client Info |           | <b>25 Jan 2024</b> | 19 Oct 2023 | ---      |
| Machine Age    | hrs | Client Info |           | <b>3487</b>        | 2835        | ---      |
| Oil Age        | hrs | Client Info |           | <b>0</b>           | 500         | ---      |
| Filter Age     | hrs | Client Info |           | <b>0</b>           | 0           | ---      |
| Oil Changed    |     | Client Info |           | <b>Changed</b>     | Changed     | ---      |
| Filter Changed |     | Client Info |           | <b>Changed</b>     | Changed     | ---      |
| Sample Status  |     |             |           | <b>NORMAL</b>      | NORMAL      | ---      |

**WEAR**

All component wear rates are normal.

|              |        |             |      |              |      |     |
|--------------|--------|-------------|------|--------------|------|-----|
| Iron         | ppm    | ASTM D5185m | >100 | <b>4</b>     | 6    | --- |
| Chromium     | ppm    | ASTM D5185m | >10  | <b>&lt;1</b> | 0    | --- |
| Nickel       | ppm    | ASTM D5185m | >10  | <b>0</b>     | 0    | --- |
| Titanium     | ppm    | ASTM D5185m |      | <b>0</b>     | 0    | --- |
| Silver       | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | --- |
| Aluminum     | ppm    | ASTM D5185m | >10  | <b>&lt;1</b> | 1    | --- |
| Lead         | ppm    | ASTM D5185m | >20  | <b>0</b>     | <1   | --- |
| Copper       | ppm    | ASTM D5185m | >15  | <b>&lt;1</b> | <1   | --- |
| Tin          | ppm    | ASTM D5185m | >10  | <b>&lt;1</b> | <1   | --- |
| Vanadium     | ppm    | ASTM D5185m |      | <b>0</b>     | 0    | --- |
| White Metal  | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | --- |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | --- |

**CONTAMINATION**

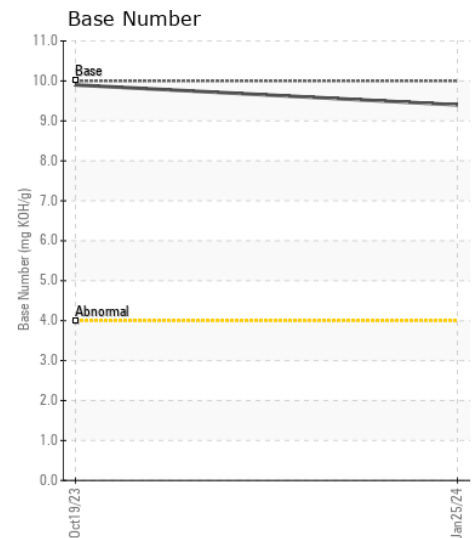
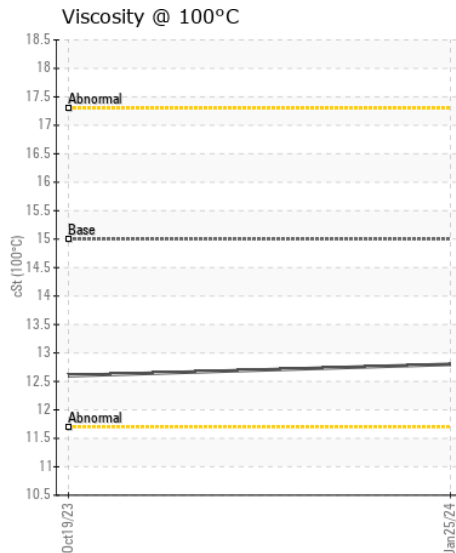
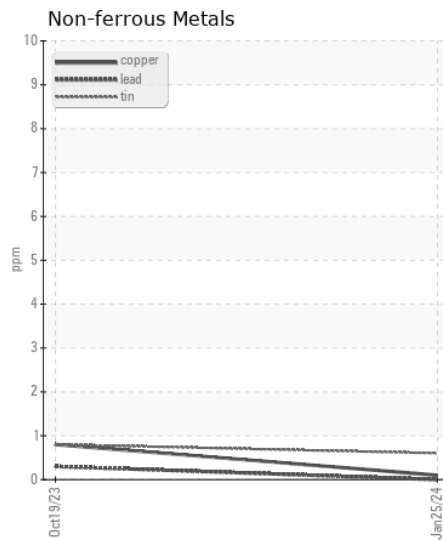
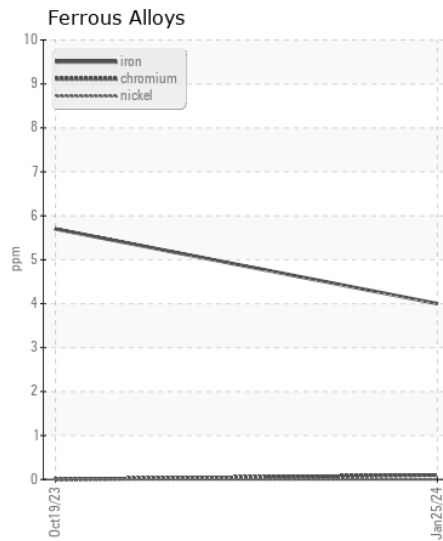
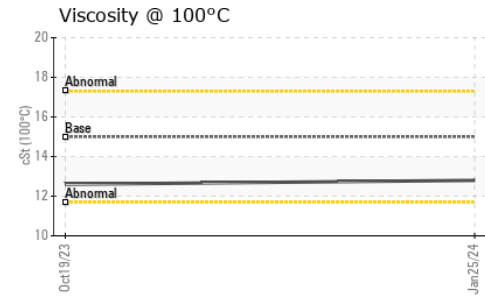
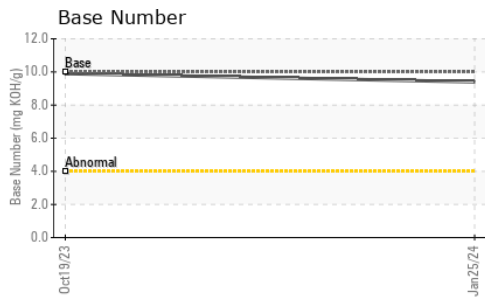
There is no indication of any contamination in the oil.

|                  |          |             |       |                |       |     |
|------------------|----------|-------------|-------|----------------|-------|-----|
| Silicon          | ppm      | ASTM D5185m | >20   | <b>5</b>       | 7     | --- |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>0</b>       | 2     | --- |
| Fuel             |          | WC Method   | >6.0  | <b>&lt;1.0</b> | <1.0  | --- |
| Water            |          | WC Method   | >0.1  | <b>NEG</b>     | NEG   | --- |
| Glycol           |          | WC Method   |       | <b>NEG</b>     | NEG   | --- |
| Soot %           | %        | *ASTM D7844 | >3    | <b>0.1</b>     | 0.1   | --- |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>7.6</b>     | 7.6   | --- |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>22.1</b>    | 22.4  | --- |
| Silt             | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | --- |
| Debris           | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | --- |
| Sand/Dirt        | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | --- |
| Appearance       | scalar   | *Visual     | NORML | <b>NORML</b>   | NORML | --- |
| Odor             | scalar   | *Visual     | NORML | <b>NORML</b>   | NORML | --- |
| Emulsified Water | scalar   | *Visual     | >0.1  | <b>NEG</b>     | 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 |      | <b>2</b>     | 2    | --- |
| Boron            | ppm      | ASTM D5185m | 2.5  | <b>42</b>    | 31   | --- |
| Barium           | ppm      | ASTM D5185m | 0.0  | <b>0</b>     | 0    | --- |
| Molybdenum       | ppm      | ASTM D5185m | 0.7  | <b>39</b>    | 37   | --- |
| Manganese        | ppm      | ASTM D5185m | 0.0  | <b>&lt;1</b> | <1   | --- |
| Magnesium        | ppm      | ASTM D5185m | 256  | <b>526</b>   | 490  | --- |
| Calcium          | ppm      | ASTM D5185m | 2057 | <b>1544</b>  | 1540 | --- |
| Phosphorus       | ppm      | ASTM D5185m | 935  | <b>950</b>   | 896  | --- |
| Zinc             | ppm      | ASTM D5185m | 1223 | <b>1113</b>  | 1046 | --- |
| Sulfur           | ppm      | ASTM D5185m | 4079 | <b>2792</b>  | 2640 | --- |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>20.5</b>  | 21.0 | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896  | 10   | <b>9.4</b>   | 9.9  | --- |
| Visc @ 100°C     | cSt      | ASTM D445   | 15.0 | <b>12.8</b>  | 12.6 | --- |



Certificate L2367

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

**Sample No.** : ML0000470

**Lab Number** : 06082928

**Unique Number** : 10870373

**Test Package** : CONST ( Additional Tests: TBN )

**Received** : 07 Feb 2024

**Tested** : 08 Feb 2024

**Diagnosed** : 09 Feb 2024 - Don Baldrige

**MCCLUNG-LOGAN EQUIPMENT CO - CHESAPEAKE**

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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)