



# CONSTRUCTION EQUIPMENT

## VOLVO L110H 631237 - DIESEL ENGINE



**Sample No:** VCP414660  
**Oil Type:** VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3  
**Job No:**



### SAMPLE INFORMATION

|               |                    |             |             |             |
|---------------|--------------------|-------------|-------------|-------------|
| Sample Number | <b>VCP414660</b>   | VCP388913   | VCP373215   | VCP351172   |
| Sample Date   | <b>06 Sep 2023</b> | 02 Nov 2022 | 17 Jun 2022 | 03 Mar 2022 |
| Machine Hours | <b>9324</b>        | 8131        | 7658        | 7211        |
| Oil Hours     | <b>0</b>           | 500         | 1500        | 500         |
| Oil Changed   | <b>Changed</b>     | Changed     | Changed     | Changed     |
| Sample Status | <b>NORMAL</b>      | NORMAL      | NORMAL      | NORMAL      |

### RIPA AND ASSOCIATES

10149 FISHER AVENUE  
 TAMPA, FL  
 US 33619  
 Contact: PM Services  
 PMServices@ripaconstruction.com  
 T:  
 F:



### OIL CONDITION

|                  |          |             |      |      |      |
|------------------|----------|-------------|------|------|------|
| Visc @ 100°C     | cSt      | <b>13.0</b> | 13.5 | 13.4 | 13.3 |
| Base Number (BN) | mg KOH/g | <b>10.2</b> | 12.2 | 11.9 | 11.8 |
| Oxidation (PA)   | %        | <b>77</b>   | 89   | 87   | 84   |

### Diagnosis

Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



### CONTAMINATION

|                |     |                |      |      |      |
|----------------|-----|----------------|------|------|------|
| Water          | %   | <b>NEG</b>     | NEG  | NEG  | NEG  |
| Soot %         | %   | <b>0.3</b>     | 0.5  | 0.4  | 0.3  |
| Nitration (PA) | %   | <b>69</b>      | 72   | 68   | 67   |
| Sulfation (PA) | %   | <b>58</b>      | 67   | 65   | 63   |
| Glycol         | %   | <b>NEG</b>     | NEG  | NEG  | NEG  |
| Fuel           | %   | <b>&lt;1.0</b> | <1.0 | <1.0 | <1.0 |
| Silicon        | ppm | <b>6</b>       | 5    | 5    | 6    |
| Sodium         | ppm | <b>4</b>       | 2    | 1    | <1   |
| Potassium      | ppm | <b>&lt;1</b>   | 0    | <1   | 1    |



### WEAR METALS

|            |     |              |    |    |    |
|------------|-----|--------------|----|----|----|
| Iron       | ppm | <b>13</b>    | 14 | 11 | 11 |
| Copper     | ppm | <b>4</b>     | 1  | 2  | 2  |
| Lead       | ppm | <b>0</b>     | <1 | <1 | <1 |
| Tin        | ppm | <b>0</b>     | <1 | <1 | <1 |
| Aluminum   | ppm | <b>7</b>     | 8  | 5  | 5  |
| Chromium   | ppm | <b>&lt;1</b> | <1 | <1 | <1 |
| Molybdenum | ppm | <b>48</b>    | 41 | 42 | 43 |
| Nickel     | ppm | <b>0</b>     | 0  | 0  | 0  |
| Titanium   | ppm | <b>1</b>     | 0  | <1 | <1 |
| Silver     | ppm | <b>0</b>     | 0  | <1 | 0  |
| Manganese  | ppm | <b>&lt;1</b> | <1 | <1 | <1 |
| Vanadium   | ppm | <b>0</b>     | 0  | 0  | 0  |



### ADDITIVES

|            |     |             |      |      |      |
|------------|-----|-------------|------|------|------|
| Calcium    | ppm | <b>1808</b> | 1741 | 1699 | 1692 |
| Magnesium  | ppm | <b>484</b>  | 508  | 505  | 564  |
| Zinc       | ppm | <b>1268</b> | 1120 | 1163 | 1156 |
| Phosphorus | ppm | <b>1039</b> | 928  | 966  | 967  |
| Barium     | ppm | <b>0</b>    | 0    | 0    | 0    |
| Boron      | ppm | <b>26</b>   | 32   | 36   | 33   |

**Depot:** RIPTAM  
**Unique No:** 10683286  
**Signed:** Wes Davis  
**Report Date:** 07 Oct 2023



# CONSTRUCTION EQUIPMENT



## GRAPHS

