



# CONSTRUCTION EQUIPMENT

## 674163 HERCULES VOLVO L110H 631563 - DIESEL ENGINE



**Sample No:** VCP440682  
**Oil Type:** VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3  
**Job No:** 674163 HERCULES



### SAMPLE INFORMATION

|               |                    |             |             |             |
|---------------|--------------------|-------------|-------------|-------------|
| Sample Number | <b>VCP440682</b>   | VCP431178   | VCP332232   | VCP328502   |
| Sample Date   | <b>21 Feb 2024</b> | 13 Nov 2023 | 10 Dec 2021 | 21 Oct 2021 |
| Machine Hours | <b>10670</b>       | 10231       | 5575        | 5152        |
| Oil Hours     | <b>500</b>         | 967         | 500         | 0           |
| Oil Changed   | <b>Changed</b>     | Changed     | Changed     | Changed     |
| Sample Status | <b>NORMAL</b>      | NORMAL      | NORMAL      | NORMAL      |

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### OIL CONDITION

|                  |          |             |      |      |      |
|------------------|----------|-------------|------|------|------|
| Visc @ 100°C     | cSt      | <b>13.7</b> | 13.8 | 14.0 | 13.3 |
| Base Number (BN) | mg KOH/g | <b>9.3</b>  | 8.9  | 10.6 | ---  |
| Oxidation (PA)   | %        | <b>67</b>   | 85   | 69   | 86   |

### 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>0.5</b>     | 0.9  | 0.6  | 1.1  |
| Nitration (PA) | %   | <b>70</b>      | 84   | 62   | 68   |
| Sulfation (PA) | %   | <b>57</b>      | 65   | 59   | 68   |
| Glycol         | %   | <b>NEG</b>     | NEG  | NEG  | NEG  |
| Fuel           | %   | <b>&lt;1.0</b> | <1.0 | <1.0 | <1.0 |
| Silicon        | ppm | <b>7</b>       | 9    | 4    | 6    |
| Sodium         | ppm | <b>2</b>       | 3    | 2    | 2    |
| Potassium      | ppm | <b>2</b>       | 1    | 0    | 8    |



### WEAR METALS

|            |     |              |    |    |    |
|------------|-----|--------------|----|----|----|
| Iron       | ppm | <b>14</b>    | 17 | 12 | 18 |
| Copper     | ppm | <b>1</b>     | 1  | 1  | 1  |
| Lead       | ppm | <b>&lt;1</b> | <1 | <1 | <1 |
| Tin        | ppm | <b>1</b>     | <1 | 1  | 0  |
| Aluminum   | ppm | <b>6</b>     | 7  | 4  | 7  |
| Chromium   | ppm | <b>1</b>     | 1  | <1 | <1 |
| Molybdenum | ppm | <b>53</b>    | 31 | 50 | 39 |
| Nickel     | ppm | <b>1</b>     | 0  | 0  | <1 |
| Titanium   | ppm | <b>&lt;1</b> | <1 | <1 | <1 |
| Silver     | ppm | <b>0</b>     | 0  | 1  | 0  |
| Manganese  | ppm | <b>1</b>     | <1 | <1 | <1 |
| Vanadium   | ppm | <b>&lt;1</b> | 0  | 0  | 0  |



### ADDITIVES

|            |     |             |      |      |      |
|------------|-----|-------------|------|------|------|
| Calcium    | ppm | <b>1354</b> | 1874 | 1329 | 1840 |
| Magnesium  | ppm | <b>773</b>  | 405  | 845  | 537  |
| Zinc       | ppm | <b>1221</b> | 1152 | 1198 | 1056 |
| Phosphorus | ppm | <b>965</b>  | 954  | 1041 | 908  |
| Barium     | ppm | <b>1</b>    | 0    | 0    | 0    |
| Boron      | ppm | <b>7</b>    | 21   | 14   | 26   |

**Depot:** VOLVO2990  
**Unique No:** 10900926  
**Signed:** Wes Davis  
**Report Date:** 29 Feb 2024



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## GRAPHS

