



# VOLVO PENTA

## OIL ANALYSIS REPORT

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

Area  
**TUG 3123 CB LLC [SR00100447]**

Machine Id  
**VOLVO PENTA A1178654**

Component  
**Diesel Engine**

Fluid  
**VOLVO VDS-4.5 Premium Motor Oil 15W40 (3 GAL)**

### RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current     | History1 | History2 |
|----------------|-----|-------------|-----------|-------------|----------|----------|
| Sample Number  |     | Client Info |           | VPA062582   | ---      | ---      |
| Sample Date    |     | Client Info |           | 17 Jun 2024 | ---      | ---      |
| Machine Age    | hrs | Client Info |           | 95          | ---      | ---      |
| Oil Age        | hrs | Client Info |           | 95          | ---      | ---      |
| Filter Age     | hrs | Client Info |           | 0           | ---      | ---      |
| Oil Changed    |     | Client Info |           | Changed     | ---      | ---      |
| Filter Changed |     | Client Info |           | Changed     | ---      | ---      |
| Sample Status  |     |             |           | NORMAL      | ---      | ---      |

### WEAR

Metal levels are typical for a new component breaking in.

|              |        |             |      |      |     |     |
|--------------|--------|-------------|------|------|-----|-----|
| Iron         | ppm    | ASTM D5185m | >80  | 27   | --- | --- |
| Chromium     | ppm    | ASTM D5185m | >6   | 3    | --- | --- |
| Nickel       | ppm    | ASTM D5185m | >2   | 1    | --- | --- |
| Titanium     | ppm    | ASTM D5185m | >2   | 0    | --- | --- |
| Silver       | ppm    | ASTM D5185m | >2   | 0    | --- | --- |
| Aluminum     | ppm    | ASTM D5185m | >20  | 25   | --- | --- |
| Lead         | ppm    | ASTM D5185m | >95  | 3    | --- | --- |
| Copper       | ppm    | ASTM D5185m | >85  | 15   | --- | --- |
| Tin          | ppm    | ASTM D5185m | >9   | 3    | --- | --- |
| Vanadium     | ppm    | ASTM D5185m |      | 0    | --- | --- |
| White Metal  | scalar | *Visual     | NONE | NONE | --- | --- |
| Yellow Metal | scalar | *Visual     | NONE | NONE | --- | --- |

### CONTAMINATION

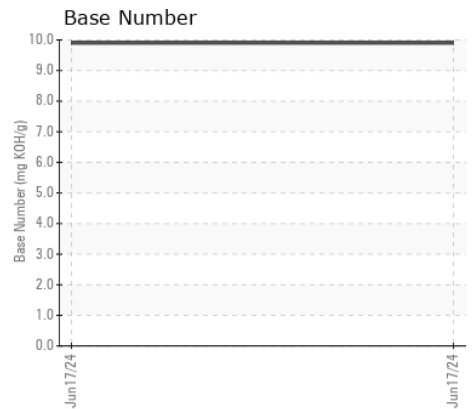
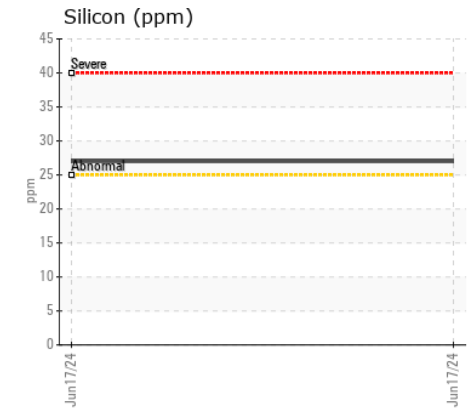
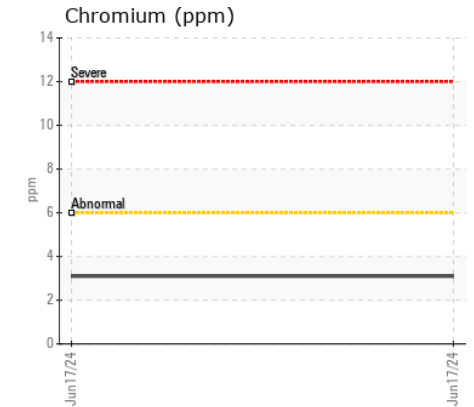
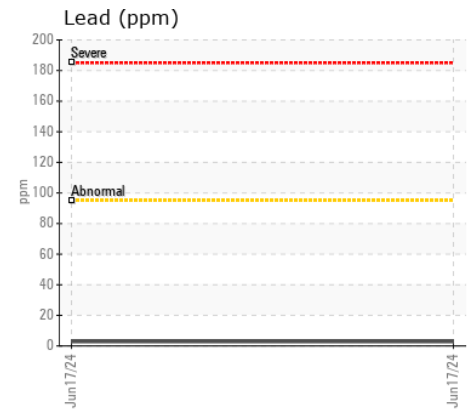
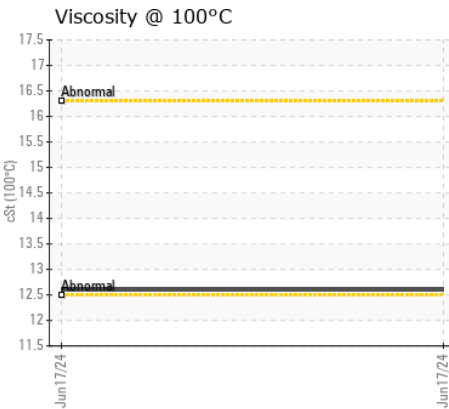
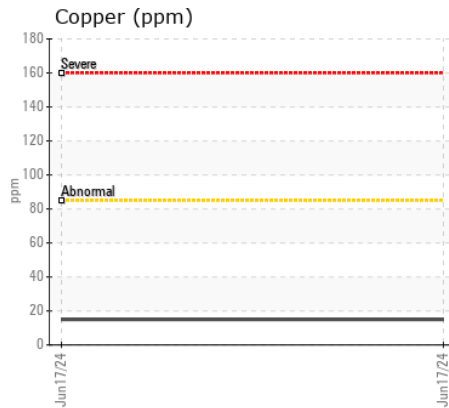
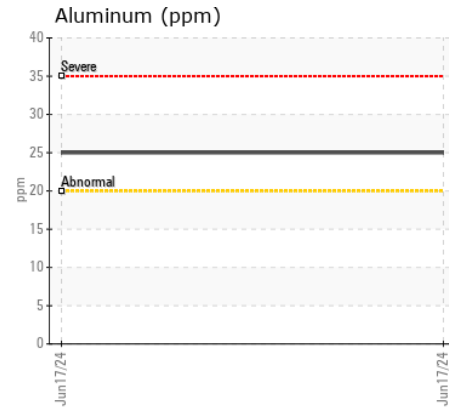
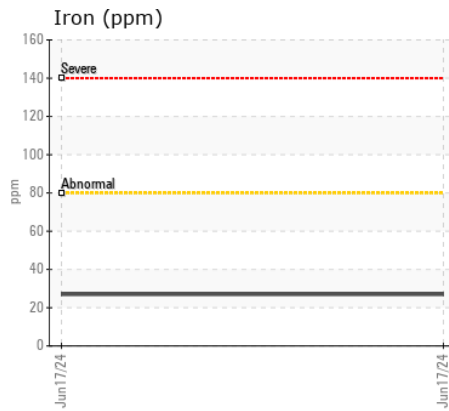
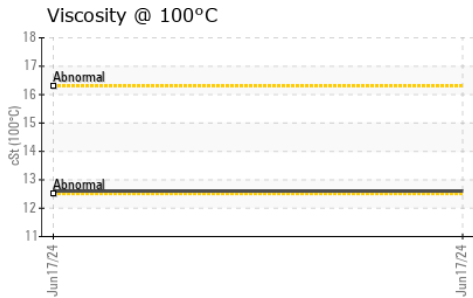
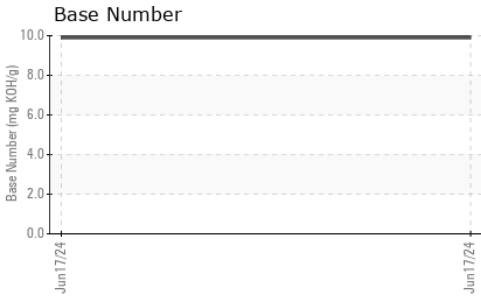
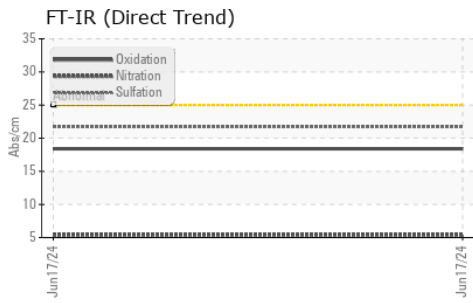
There is no indication of any contamination in the oil.

|                  |          |             |       |       |     |     |
|------------------|----------|-------------|-------|-------|-----|-----|
| Silicon          | ppm      | ASTM D5185m | >25   | 27    | --- | --- |
| Potassium        | ppm      | ASTM D5185m | >20   | 4     | --- | --- |
| Fuel             |          | WC Method   | >4.0  | <1.0  | --- | --- |
| Water            |          | WC Method   | >0.1  | NEG   | --- | --- |
| Glycol           |          | WC Method   |       | NEG   | --- | --- |
| Soot %           | %        | *ASTM D7844 |       | 0.4   | --- | --- |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | 5.4   | --- | --- |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | 21.7  | --- | --- |
| Silt             | scalar   | *Visual     | NONE  | NONE  | --- | --- |
| Debris           | scalar   | *Visual     | NONE  | NONE  | --- | --- |
| Sand/Dirt        | scalar   | *Visual     | NONE  | NONE  | --- | --- |
| Appearance       | scalar   | *Visual     | NORML | NORML | --- | --- |
| Odor             | scalar   | *Visual     | NORML | NORML | --- | --- |
| Emulsified Water | scalar   | *Visual     | >0.1  | NEG   | --- | --- |

### FLUID CONDITION

The condition of the oil is acceptable for the time in service.

|                  |          |             |     |      |     |     |
|------------------|----------|-------------|-----|------|-----|-----|
| Sodium           | ppm      | ASTM D5185m |     | 4    | --- | --- |
| Boron            | ppm      | ASTM D5185m |     | 55   | --- | --- |
| Barium           | ppm      | ASTM D5185m |     | <1   | --- | --- |
| Molybdenum       | ppm      | ASTM D5185m |     | 41   | --- | --- |
| Manganese        | ppm      | ASTM D5185m |     | 2    | --- | --- |
| Magnesium        | ppm      | ASTM D5185m |     | 522  | --- | --- |
| Calcium          | ppm      | ASTM D5185m |     | 1648 | --- | --- |
| Phosphorus       | ppm      | ASTM D5185m |     | 928  | --- | --- |
| Zinc             | ppm      | ASTM D5185m |     | 1124 | --- | --- |
| Sulfur           | ppm      | ASTM D5185m |     | 3440 | --- | --- |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25 | 18.4 | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896  |     | 9.9  | --- | --- |
| Visc @ 100°C     | cSt      | ASTM D445   |     | 12.6 | --- | --- |



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : VPA062582 **Received** : 25 Jun 2024  
**Lab Number** : 06220475 **Tested** : 26 Jun 2024  
**Unique Number** : 11098672 **Diagnosed** : 27 Jun 2024 - Don Baldrige  
**Test Package** : MOB 1 ( Additional Tests: TBN )

**Pacific Power Group - VP981534**  
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 Kent, WA  
 US 98032  
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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)