

OIL ANALYSIS REPORT

VOLVO PENTA

STEVE MALONE DILLON NORTHERN LIGHTS 8442-5201 - STARBOARD GENSET

Sample No: VPA060403

Oil Type: VOLVO ULTRA DIESEL ENGINE OIL 15W40 VDS-3

SAMPLE INFORMATION

| | | | | |
|---------------|--------------------|-------------|-------------|-----|
| Sample Number | VPA060403 | VPA056422 | VPA042098 | --- |
| Sample Date | 11 Sep 2023 | 14 Jun 2023 | 26 Sep 2022 | --- |
| Machine Hours | 0 | 1348 | 2085 | --- |
| Oil Hours | 0 | 0 | 25 | --- |
| Oil Changed | Changed | Not Changd | N/A | --- |
| Sample Status | NORMAL | NORMAL | NORMAL | --- |

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OIL CONDITION

| | | | | | |
|------------------|----------|-------------|------|------|-----|
| Visc @ 100°C | cSt | 13.7 | 13.7 | 13.9 | --- |
| Base Number (BN) | mg KOH/g | 8.2 | 8.2 | 10.9 | --- |
| Oxidation (PA) | % | 62 | 67 | 65 | --- |

CONTAMINATION

| | | | | | |
|----------------|-----|----------------|------|------|-----|
| Soot % | % | 0.1 | 0.1 | 0.1 | --- |
| Nitration (PA) | % | 50 | 45 | 57 | --- |
| Sulfation (PA) | % | 60 | 62 | 64 | --- |
| Glycol | % | NEG | NEG | NEG | --- |
| Fuel | % | <1.0 | <1.0 | <1.0 | --- |
| Silicon | ppm | 10 | 8 | 7 | --- |
| Sodium | ppm | 3 | <1 | 0 | --- |
| Potassium | ppm | <1 | 3 | 2 | --- |

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.

WEAR METALS

| | | | | | |
|------------|-----|--------------|-----|-----|-----|
| Iron | ppm | 4 | 0 | 4 | --- |
| Copper | ppm | <1 | 2 | <1 | --- |
| Lead | ppm | 0 | 0 | <1 | --- |
| Tin | ppm | <1 | <1 | 0 | --- |
| Aluminum | ppm | 5 | 4 | 3 | --- |
| Chromium | ppm | 0 | <1 | <1 | --- |
| Molybdenum | ppm | 123 | 109 | 113 | --- |
| Nickel | ppm | 0 | 0 | 0 | --- |
| Titanium | ppm | <1 | 0 | 0 | --- |
| Silver | ppm | 0 | 0 | 0 | --- |
| Manganese | ppm | <1 | 1 | <1 | --- |
| Vanadium | ppm | 0 | <1 | 0 | --- |

ADDITIVES

| | | | | | |
|------------|-----|-------------|------|------|-----|
| Calcium | ppm | 1682 | 1572 | 1527 | --- |
| Magnesium | ppm | 689 | 689 | 601 | --- |
| Zinc | ppm | 902 | 948 | 872 | --- |
| Phosphorus | ppm | 755 | 761 | 726 | --- |
| Barium | ppm | 0 | 0 | 0 | --- |
| Boron | ppm | 419 | 323 | 340 | --- |

Depot: VP794951
Unique No: 10648341
Signed: Sean Felton
Report Date: 19 Sep 2023

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GRAPHS

