## **OIL ANALYSIS REPORT**

## MARTY LIEBOWITZ EVAN/502894 VOLVO PENTA 1701290 - CENTER DIESEL ENGINE

Sample No: VPA060460

**Oil Type:** VOLVO VDS-4.5 Premium Motor Oil 15W40

| mple Date     17 Apr 2024          achine Hours     380          I Changed     Changed          I Changed     Changed          I CONDITION           IL CONDITION           Se Q 100°C     CSt     13.5          Se Quitor C     CSt     13.5          Se Quitor C     CSt     13.5          CONTAMINATION            CONTAMINATION     S3           Colon     %     S3          I fation (PA)     %     S3          cion     ppm     8          I fation   | Sample Number    |          | VPA060460   | <br> |  |
|---|------------------|----------|-------------|------|--|
| 380          I Hours     0          Changed     Changed          MCONDITION           MCONDITION           MCONDITION           Se (0 100°C     CSt     13.5          Se (0 10°C     St     58          CONTAMINATION            Statistion (PA)     %     53          Itation (PA)     %     53          Itatissium     ppm  | Sample Date      |          | 17 Apr 2024 | <br> |  |
| I Changed   Changed        mple Status   NORMAL        NI CONDITION         se Quinor C   CSt   113.5        se Number (BN)   mg KOH/g   9.2        control (PA)   %   58        CONTAMINATION         Control (PA)   %   59        tater   %   NEG        tation (PA)   %   59        filation (PA)   %   S3        ifation (PA)   %   S3         ifation (PA)   %   S3         ifation (PA)   %   S3         ifation (PA)   ppm   34 <th< td=""><td>Machine Hours</td><td></td><td>-</td><td><br/></td><td></td></th<>  | Machine Hours    |          | -           | <br> |  |
| mple Status     NORMAL          NL CONDITION           se © 100°C     CSt     13.5          se Number (BN)     mg KOH/g     9.2          cidation (PA)     %     58          contramination (PA)     %     59          cot %     %     0.1          cot %     %     S3          fifation (PA)     %     53          el     %     <1.0   | Dil Hours        |          | 0           | <br> |  |
| mple Status     NORMAL          NL CONDITION           se © 100°C     CSt     13.5          se Number (BN)     mg KOH/g     9.2          cidation (PA)     %     58          contramination (PA)     %     59          cot %     %     0.1          cot %     %     S3          fifation (PA)     %     53          el     %     <1.0          fifation (PA)     %     53          el     %     <1.0          didum     ppm     8          on     ppm     12      <   | Dil Changed      |          |             | <br> |  |
| Alt CONDITION       bit CONDITION       bit CONDITION       bit CONDITION       bit CONDITION       bit control       bit control       contr   | -                |          | -           | <br> |  |
| sc @ 100°C   cSt   13.5        se Number (BN)   mg KOH/g   9.2        cidation (PA)   %   58        contramination         contramination   %   58        contramination   %   58        contramination   %   59        tration (PA)   %   53        vgcol   %   NEG        ifation (PA)   %        vgcol   %        ifation (PA)   %        vgcol   %         ifation (PA)   % <td< th=""><th></th><th></th><th></th><th></th><th></th></td<>  |                  |          |             |      |  |
| se Number (BN)   mg KOH/g   9.2        cidation (PA)   %   58        contramination (PA)   %   0.1        ot %   %   0.1        ot %   %   59        fation (PA)   %   53        ycol   %   NEG        el   %   <1.0  | OIL CONDITION    |          |             |      |  |
| idiation (PA)     %     58          CONTAMINATION       Anter     %     NEG          colspan="2">Anter          colspan="2">S          fidition (PA)     %     53          colspan="2">S          get colspan="2">colspan="2">S       visit colspan="2">S       visit colspan="2">colspan="2" | /isc @ 100°C     | cSt      |             | <br> |  |
| CONTAMINATION       ater     %     NEG         ot %     %     0.1          ot %     %     59          itration (PA)     %     53          icon     %     53          ot %     NEG           ycol     %     53          opp     8           oildium     ppm     8          ot ppm     14           opper     ppm     12           on     ppm     13           on     ppm     33           on     ppm     45 <td>Base Number (BN)</td> <td>mg KOH/g</td> <td>9.2</td> <td><br/></td> <td></td>  | Base Number (BN) | mg KOH/g | 9.2         | <br> |  |
| ater   %   NEG        ot %   %   0.1        tration (PA)   %   59        ifation (PA)   %   53        vcol   %   NEG        el   %   <1.0   | Oxidation (PA)   | %        | 58          | <br> |  |
| ater   %   NEG        ot %   %   0.1        tration (PA)   %   59        ifation (PA)   %   53        vcol   %   NEG        el   %   <1.0   | CONTAMINATION    |          |             |      |  |
| ot %   %   0.1        tration (PA)   %   59        ifation (PA)   %   53        ifation (PA)   %   S3        ifation (PA)   %   NEG        el   %   <1.0  |                  |          |             |      |  |
| tration (PA)   %   59        lfation (PA)   %   53        ycol   %   NEG        el   %   <1.0   | Water            |          |             | <br> |  |
| Ifation (PA)   %   53        ycol   %   NEG        el   %   <1.0  | Soot %           |          |             | <br> |  |
| ycol     %     NEG          el     %     <1.0   | Nitration (PA)   |          |             | <br> |  |
| el   %   <1.0   | Sulfation (PA)   |          |             | <br> |  |
| icon   ppm   8        dium   ppm   4        tassium   ppm   4        WEAR METALS          wear   ppm   12         ad   ppm   12         ad   ppm   1         ad   ppm   7         uninum   ppm   3         olybdenum   ppm   45         anium   ppm   0         anganese   ppm   0         nadium   ppm   1155         nadium   ppm   1886  | Glycol           |          |             | <br> |  |
| dium   ppm   4        tassium   ppm   4        WEAR METALS         with the ppm   12        ad   ppm   11        ad   ppm   1        uninum   ppm   3        anium   ppm   0        anganese   ppm   0        andum   ppm   1155        MDITIVES  | Fuel             | %        |             | <br> |  |
| n   ppm   4        VEAR METALS         opper   ppm   39        opper   ppm   12        ad   ppm   11        ad   ppm   11        ad   ppm   1        uminum   ppm   1        uminum   ppm   3         uminum   ppm   45         objbdenum   ppm   0         anium   ppm   <1  | Silicon          | ppm      |             | <br> |  |
| WEAR METALS     wn   ppm   39        ad   ppm   12        ad   ppm   1        adminum   ppm   3        olybdenum   ppm   45        ckel   ppm   0        anganese   ppm   0        adjum   ppm   <1   | Sodium           | ppm      | _           | <br> |  |
| ppm     39          ad     ppm     12          ad     ppm     1          uminum     ppm     7          uminum     ppm     3          objbdenum     ppm     45          ckel     ppm     0          anganese     ppm     1          nadium     ppm     1155          agnesium  | Potassium        | ppm      | 4           | <br> |  |
| ppper     ppm     12          ad     ppm     1          n     ppm     <1  | WEAR METALS      |          |             |      |  |
| ppper     ppm     12          ad     ppm     1          n     ppm     <1  | ron              | ppm      | 39          | <br> |  |
| ad   ppm   1        n   ppm   <1  | Copper           |          |             | <br> |  |
| n   ppm   <1  | _ead             |          |             | <br> |  |
| uminum   ppm   7        urromium   ppm   3        oblybdenum   ppm   45        ckel   ppm   0        ckel   ppm   <1  | Гin              |          |             | <br> |  |
| nromium     ppm     3          blybdenum     ppm     45          ckel     ppm     0          aanium     ppm     <1  | Aluminum         |          |             | <br> |  |
| oblybdenum   ppm   45       ckel   ppm   0       aanium   ppm   <1  | Chromium         |          |             | <br> |  |
| ckel   ppm   0        anium   ppm   <1  | Volybdenum       |          |             | <br> |  |
| anium   ppm   <1  | Nickel           |          |             | <br> |  |
| ver     ppm     0          anganese     ppm     <1  | Titanium         |          |             | <br> |  |
| anganese     ppm     <1         nadium     ppm     <1   | Silver           |          |             | <br> |  |
| nadium     ppm     <1          NDDITIVES            Agnesium     ppm     1155          agnesium     ppm     886          nc     ppm     1085          osphorus     ppm     946  | Vanganese        |          |             | <br> |  |
| ADDITIVES       Icium     ppm     1155          agnesium     ppm     886          ac     ppm     1085          osphorus     ppm     946   | /anadium         |          |             | <br> |  |
| Icium     ppm     1155         agnesium     ppm     886          nc     ppm     1085          osphorus     ppm     946  | ADDITIVES        |          |             |      |  |
| agnesium     ppm     886          nc     ppm     1085          osphorus     ppm     946   |                  | nnm      | 1155        | <br> |  |
| oc     ppm     1085          osphorus     ppm     946   |                  |          |             |      |  |
| osphorus ppm <b>946</b>   | Zinc             |          |             |      |  |
|   |                  |          |             |      |  |
|   |                  |          |             |      |  |
|   | Barium<br>Boron  | ppm      |             |      |  |
|   |                  |          |             |      |  |

#### LLC - Coastal Marine - 152124 ve. NW ł LOW YANARELLA stalmarineengine.com 3703 8823

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ve action is recommended Resample at the next rval to monitor.Metal pical for a new breaking in. There is no of any contamination in BN result indicates that able alkalinity remaining ne condition of the oil is for the time in service.

Sean Felton Report Date: 24 Apr 2024 Contact/Location: WILLOW YANARELLA - VP794951

VP794951 10990940



# **OIL ANALYSIS REPORT**



#### GRAPHS

