



OIL ANALYSIS REPORT

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

Machine Id  
**WESTERN STAR 35 - WESTERN STAR**

Component  
**Diesel Engine**

Fluid  
**FLEETLINE SUPERFLEET XHD 15W40 (10 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current            | History1    | History2    |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number  |     | Client Info |           | <b>LP0000530</b>   | LP0000798   | WC0661535   |
| Sample Date    |     | Client Info |           | <b>02 Jan 2024</b> | 06 Sep 2023 | 19 May 2023 |
| Machine Age    | mls | Client Info |           | <b>193265</b>      | 182389      | 167880      |
| Oil Age        | mls | Client Info |           | <b>10876</b>       | 12509       | 11299       |
| Filter Age     | mls | Client Info |           | <b>10876</b>       | 12509       | 11299       |
| Oil Changed    |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Filter Changed |     | Client Info |           | <b>Changed</b>     | Changed     | Changed     |
| Sample Status  |     |             |           | <b>NORMAL</b>      | NORMAL      | NORMAL      |

**WEAR**

All component wear rates are normal.

|              |        |             |      |              |      |      |
|--------------|--------|-------------|------|--------------|------|------|
| Iron         | ppm    | ASTM D5185m | >65  | <b>13</b>    | 23   | 17   |
| Chromium     | ppm    | ASTM D5185m | >5   | <b>&lt;1</b> | 2    | 1    |
| Nickel       | ppm    | ASTM D5185m | >3   | <b>0</b>     | 0    | 0    |
| Titanium     | ppm    | ASTM D5185m | >5   | <b>0</b>     | 0    | 0    |
| Silver       | ppm    | ASTM D5185m | >2   | <b>0</b>     | 0    | 0    |
| Aluminum     | ppm    | ASTM D5185m | >35  | <b>6</b>     | 9    | 8    |
| Lead         | ppm    | ASTM D5185m | >10  | <b>0</b>     | <1   | 0    |
| Copper       | ppm    | ASTM D5185m | >180 | <b>8</b>     | 17   | 4    |
| Tin          | ppm    | ASTM D5185m | >8   | <b>0</b>     | <1   | <1   |
| Vanadium     | ppm    | ASTM D5185m |      | <b>0</b>     | 0    | 0    |
| White Metal  | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |
| Yellow Metal | scalar | *Visual     | NONE | <b>NONE</b>  | NONE | NONE |

**CONTAMINATION**

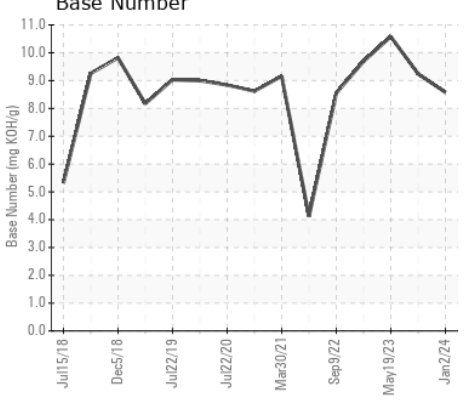
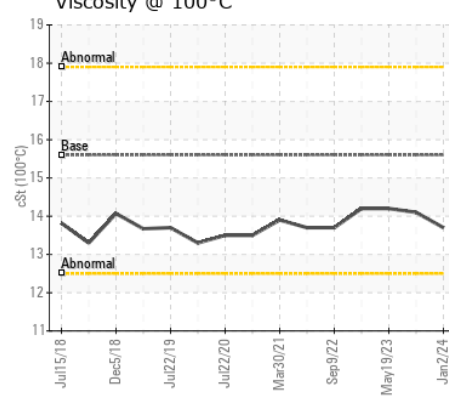
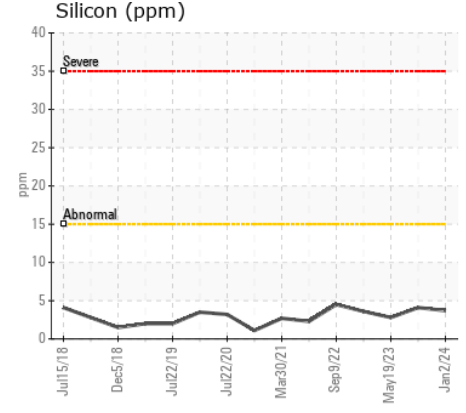
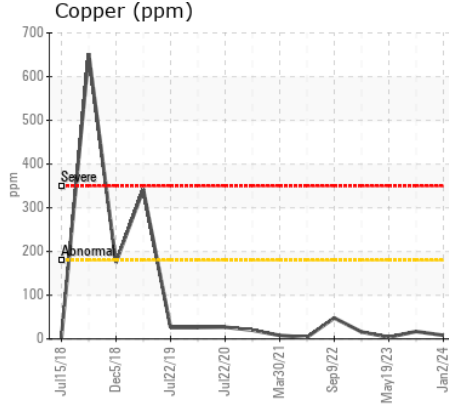
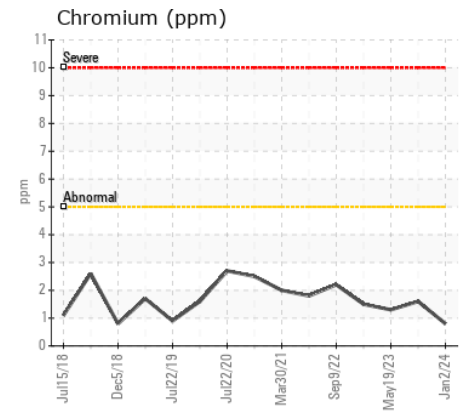
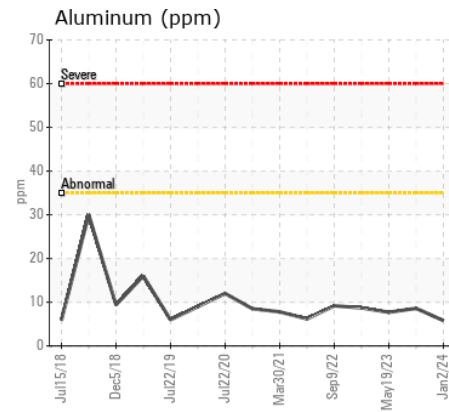
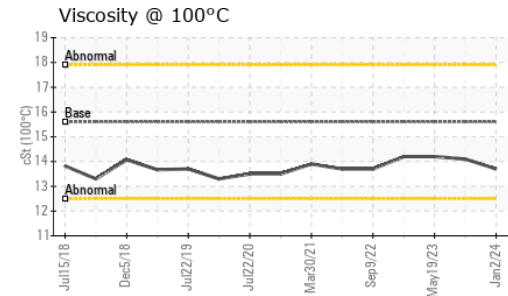
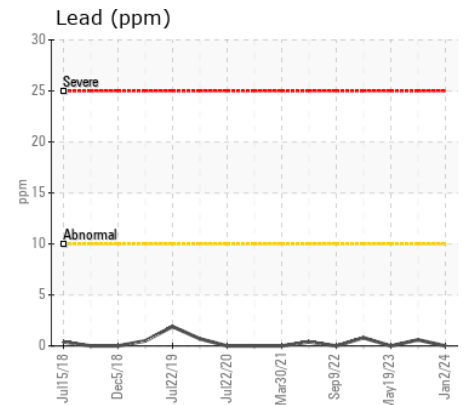
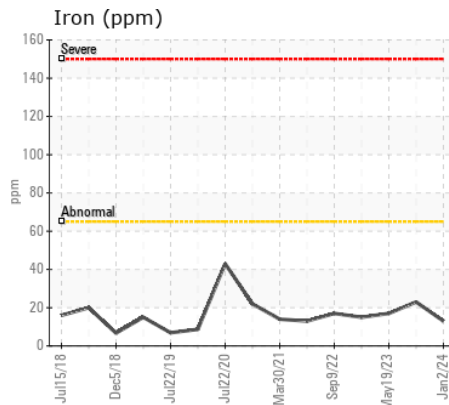
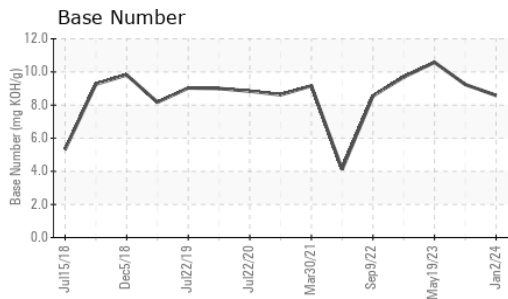
There is no indication of any contamination in the oil.

|                  |          |             |       |                |       |       |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon          | ppm      | ASTM D5185m | >15   | <b>4</b>       | 4     | 3     |
| Potassium        | ppm      | ASTM D5185m | >20   | <b>8</b>       | 11    | 3     |
| Fuel             |          | WC Method   | >3.0  | <b>&lt;1.0</b> | <1.0  | <1.0  |
| Water            |          | WC Method   | >0.2  | <b>NEG</b>     | NEG   | NEG   |
| Glycol           |          | WC Method   |       | <b>NEG</b>     | NEG   | NEG   |
| Soot %           | %        | *ASTM D7844 | >3    | <b>0.4</b>     | 0.6   | 0.4   |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | <b>7.8</b>     | 8.5   | 7.0   |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | <b>18.1</b>    | 19.8  | 19.3  |
| Silt             | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Debris           | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Sand/Dirt        | scalar   | *Visual     | NONE  | <b>NONE</b>    | NONE  | NONE  |
| Appearance       | scalar   | *Visual     | NORML | <b>NORML</b>   | NORML | NORML |
| Odor             | scalar   | *Visual     | NORML | <b>NORML</b>   | NORML | NORML |
| Emulsified Water | scalar   | *Visual     | >0.2  | <b>NEG</b>     | NEG   | NEG   |

**FLUID CONDITION**

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

|                  |          |             |      |              |      |       |
|------------------|----------|-------------|------|--------------|------|-------|
| Sodium           | ppm      | ASTM D5185m |      | <b>&lt;1</b> | 9    | 0     |
| Boron            | ppm      | ASTM D5185m |      | <b>7</b>     | 7    | 2     |
| Barium           | ppm      | ASTM D5185m |      | <b>0</b>     | 0    | 2     |
| Molybdenum       | ppm      | ASTM D5185m |      | <b>32</b>    | 68   | 63    |
| Manganese        | ppm      | ASTM D5185m |      | <b>0</b>     | <1   | <1    |
| Magnesium        | ppm      | ASTM D5185m |      | <b>413</b>   | 855  | 934   |
| Calcium          | ppm      | ASTM D5185m |      | <b>1721</b>  | 1448 | 1130  |
| Phosphorus       | ppm      | ASTM D5185m |      | <b>896</b>   | 1066 | 1040  |
| Zinc             | ppm      | ASTM D5185m |      | <b>1078</b>  | 1355 | 1270  |
| Sulfur           | ppm      | ASTM D5185m |      | <b>3255</b>  | 3845 | 3582  |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | <b>12.5</b>  | 15.2 | 14.5  |
| Base Number (BN) | mg KOH/g | ASTM D2896  |      | <b>8.58</b>  | 9.24 | 10.58 |
| Visc @ 100°C     | cSt      | ASTM D445   | 15.6 | <b>13.7</b>  | 14.1 | 14.2  |



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : LP0000530 **Received** : 10 Jan 2024  
**Lab Number** : 06057467 **Diagnosed** : 12 Jan 2024  
**Unique Number** : 10823416 **Diagnostician** : Sean Felton  
**Test Package** : MOB 2

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Certificate L2367  
 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)