

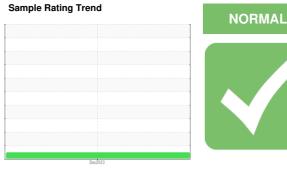
**OIL ANALYSIS REPORT** 

NO UNIT PC0078497

Component

**Diesel Engine** 

**DIESEL ENGINE OIL SAE 15W40 (--- GAL)** 



## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) DIESEL ENGINE OIL SAE 15W40. Please confirm. Please specify the component make and model with your next sample.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### **Fluid Condition**

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

| SAMPLE INFORMATION   method   limit/base   current   history1   history2   |               |        |               |                    | Dec2023     |          |          |
|--|---------------|--------|---------------|--------------------|-------------|----------|----------|
| Sample Date   Client Info   O5 Dec 2023         Machine Age   hrs   Client Info   O         Oil Age   hrs   Client Info   O         Oil Changed   Client Info   N/A         Sample Status   NORMAL         CONTAMINATION   method   imit/base   current   history1   history2     Fuel   WC Method   S5   <1.0         Water   WC Method   >0.2   NEG         Glycol   WC Method   NEG         Wear METALS   method   imit/base   current   history1   history2     Iron   ppm   ASTM DS185(m)   >100   19         Chromium   ppm   ASTM DS185(m)   >20   1         Nickel   ppm   ASTM DS185(m)   >20   1         Silver   ppm   ASTM DS185(m)   >3   <1         Aluminum   ppm   ASTM DS185(m)   >3   <1         Aluminum   ppm   ASTM DS185(m)   >3   <1         Lead   ppm   ASTM DS185(m)   >40   3         Copper   ppm   ASTM DS185(m)   >40   3         Antimony   ppm   ASTM DS185(m)   >40   3         Antimony   ppm   ASTM DS185(m)   >15   <1         Antimony   ppm   ASTM DS185(m)   0         Beryllium   ppm   ASTM DS185(m)   0         ASTM DS185(m)   0         ASTM DS185(m)   0         ADDITIVES   method   limit/base   current   history1   history2     ASTM DS185(m)   100   61         ADDITIVES   method   limit/base   current   history1   history2     ASTM DS185(m)   450   985         ASTM DS185(m)   450   985         ASTM DS185(m)   450   985         Calcium   ppm   ASTM DS185(m)   450   985         Calcium   ppm   ASTM DS185(m)   450   985         CONTAMINANTS   method   limit/base   current   history1   history2     CONTAMINANTS   method   limit/base   current   history1   history2     CONTAMINANTS   method   limit/base   current   history1   history2     Sodium   ppm   ASTM DS185(m)   500           INFRA-RED   method   limit/base   current   history1   history2     Sodi % % ASTM DS185(m)   500   90 | SAMPLE INFOR  | MATION | method        | limit/base         | current     | history1 | history2 |
| Machine Age         hrs         Client Info         0             Oil Age         hrs         Client Info         0             Oil Changed         Client Info         N/A             Sample Status         NORMAL             CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0             Water         WC Method         NEG             Glycol         WC Method         NEG             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM 051856m)         >100         19             Chromium         ppm         ASTM 051856m)         >20         1             Nickel         ppm         ASTM 051856m)         >3         <1             Aluminum         ppm         ASTM 051856m)         >20         2   | Sample Number |        | Client Info   |                    | PC0078497   |          |          |
| Oil Age         hrs         Client Info         N/A  | Sample Date   |        | Client Info   |                    | 05 Dec 2023 |          |          |
| Oil Changed   Client Info   N/A       NORMAL   | Machine Age   | hrs    | Client Info   |                    | 0           |          |          |
| Sample Status  | Oil Age       | hrs    | Client Info   |                    | 0           |          |          |
| CONTAMINATION         method         limit/base         current         history1         history2           Fuel         WC Method         >5         <1.0             Water         WC Method         >0.2         NEG             Glycol         WC Method         NEG             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         >100         19             Chromium         ppm         ASTM D5185(m)         >20         1             Nickel         ppm         ASTM D5185(m)         >4         0             Silver         ppm         ASTM D5185(m)         >20         2             Lead         ppm         ASTM D5185(m)         >33         1             Copper         ppm         ASTM D5185(m)         >33         1             Vanadium         ppm         ASTM D5185(m)         0             Cadmium </th <th></th> <th></th> <th>Client Info</th> <th></th> <th></th> <th></th> <th></th>   |               |        | Client Info   |                    |             |          |          |
| Fuel   | Sample Status |        |               |                    | NORMAL      |          |          |
| Water         WC Method         >0.2         NEG             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185(m)         >100         19             Chromium         ppm         ASTM D5185(m)         >20         1             Nickel         ppm         ASTM D5185(m)         >4         0             Silver         ppm         ASTM D5185(m)         >3         <1  | CONTAMINAT    | ION    | method        | limit/base         | current     | history1 | history2 |
| Select   | Fuel          |        | WC Method     | >5                 | <1.0        |          |          |
| WEAR METALS  | Water         |        | WC Method     | >0.2               | NEG         |          |          |
| Iron   | Glycol        |        | WC Method     |                    | NEG         |          |          |
| Chromium   | WEAR METAL    | S      | method        | limit/base         | current     | history1 | history2 |
| Nickel   | Iron          | ppm    | ASTM D5185(m) | >100               | 19          |          |          |
| Titanium         ppm         ASTM D5185(m)         0             Silver         ppm         ASTM D5185(m)         >3         <1  | Chromium      | ppm    | . ,           | >20                | 1           |          |          |
| Silver   | Nickel        | ppm    | ASTM D5185(m) | >4                 |             |          |          |
| Aluminum   |               | ppm    | ASTM D5185(m) |                    | -           |          |          |
| Lead   | Silver        |        | . ,           |                    |             |          |          |
| Copper   |               | ppm    | . ,           |                    |             |          |          |
| Tin         ppm         ASTM D5185(m)         >15         <1   |               |        |               |                    |             |          |          |
| Antimony         ppm         ASTM D5185(m)         0             Vanadium         ppm         ASTM D5185(m)         0             Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         250         2             Barium         ppm         ASTM D5185(m)         10         <1             Molybdenum         ppm         ASTM D5185(m)         100         61             Magnesium         ppm         ASTM D5185(m)         450         985             Calcium         ppm         ASTM D5185(m)         3000         1086             Phosphorus         ppm         ASTM D5185(m)         1350         1225             Sulfur         ppm         ASTM D5185(m)         4250         2493   |               |        | ( /           |                    |             |          |          |
| Vanadium         ppm         ASTM D5185(m)         0             Beryllium         ppm         ASTM D5185(m)         0             Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         250         2             Barium         ppm         ASTM D5185(m)         10         <1  |               |        | . ,           | >15                |             |          |          |
| Beryllium  | •             |        | . ,           |                    |             |          |          |
| Cadmium         ppm         ASTM D5185(m)         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185(m)         250         2             Barium         ppm         ASTM D5185(m)         10         <1             Molybdenum         ppm         ASTM D5185(m)         100         61             Magnese         ppm         ASTM D5185(m)         450         985             Galcium         ppm         ASTM D5185(m)         3000         1086             Phosphorus         ppm         ASTM D5185(m)         150         988             Zinc         ppm         ASTM D5185(m)         1350         1225             Sulfur         ppm         ASTM D5185(m)         4250         2493             Lithium         ppm         ASTM D5185(m)         >25         13 <th< td=""><td></td><td></td><td>. ,</td><td></td><th></th><td></td><td></td></th<>   |               |        | . ,           |                    |             |          |          |
| ADDITIVES   method   limit/base   current   history1   history2  | •             |        | , ,           |                    | -           |          |          |
| Boron  |               | ррпп   |               |                    |             |          |          |
| Barium   |               |        |               |                    |             | history1 | history2 |
| Molybdenum         ppm         ASTM D5185(m)         100         61             Manganese         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         450         985             Calcium         ppm         ASTM D5185(m)         3000         1086             Phosphorus         ppm         ASTM D5185(m)         1150         988             Zinc         ppm         ASTM D5185(m)         1350         1225             Sulfur         ppm         ASTM D5185(m)         4250         2493             Lithium         ppm         ASTM D5185(m)         4250         2493             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         13             Sodium         ppm         ASTM D5185(m)         >20         <1  |               |        |               |                    |             |          |          |
| Manganese         ppm         ASTM D5185(m)         0             Magnesium         ppm         ASTM D5185(m)         450         985             Calcium         ppm         ASTM D5185(m)         3000         1086             Phosphorus         ppm         ASTM D5185(m)         1150         988             Zinc         ppm         ASTM D5185(m)         1350         1225             Sulfur         ppm         ASTM D5185(m)         4250         2493             Lithium         ppm         ASTM D5185(m)         <1   |               |        | . ,           |                    |             |          |          |
| Magnesium         ppm         ASTM D5185(m)         450         985             Calcium         ppm         ASTM D5185(m)         3000         1086             Phosphorus         ppm         ASTM D5185(m)         1150         988             Zinc         ppm         ASTM D5185(m)         1350         1225             Sulfur         ppm         ASTM D5185(m)         4250         2493             Lithium         ppm         ASTM D5185(m)         4250         2493             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         13             Sodium         ppm         ASTM D5185(m)         >158         6             Potassium         ppm         ASTM D5185(m)         >20         <1             INFRA-RED         method         limit/base         current         history1         history2           Soot %         % <td< th=""><th>,</th><th></th><th>. ,</th><th>100</th><th></th><th></th><th></th></td<>  | ,             |        | . ,           | 100                |             |          |          |
| Calcium         ppm         ASTM D5185(m)         3000         1086             Phosphorus         ppm         ASTM D5185(m)         1150         988             Zinc         ppm         ASTM D5185(m)         1350         1225             Sulfur         ppm         ASTM D5185(m)         4250         2493             Lithium         ppm         ASTM D5185(m)         <1             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         13             Sodium         ppm         ASTM D5185(m)         >158         6             Potassium         ppm         ASTM D5185(m)         >20         <1             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7624*         >3         0.9             Nitration         Abs/cm         ASTM D7624*   | ŭ             |        | . ,           | 450                |             |          |          |
| Phosphorus         ppm         ASTM D5185(m)         1150         988             Zinc         ppm         ASTM D5185(m)         1350         1225             Sulfur         ppm         ASTM D5185(m)         4250         2493             Lithium         ppm         ASTM D5185(m)         <1   |               |        |               |                    |             |          |          |
| Zinc         ppm         ASTM D5185(m)         1350         1225             Sulfur         ppm         ASTM D5185(m)         4250         2493             Lithium         ppm         ASTM D5185(m)         <1   |               |        | . ,           |                    |             |          |          |
| Sulfur         ppm         ASTM D5185(m)         4250         2493             Lithium         ppm         ASTM D5185(m)         4250         2493             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         13             Sodium         ppm         ASTM D5185(m)         >158         6             Potassium         ppm         ASTM D5185(m)         >20         <1             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.9             Nitration         Abs/cm         ASTM D7624*         >20         9.0   | •             |        |               |                    |             |          |          |
| Lithium         ppm         ASTM D5185(m)         <1   |               |        |               |                    |             |          |          |
| CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185(m)         >25         13             Sodium         ppm         ASTM D5185(m)         >158         6             Potassium         ppm         ASTM D5185(m)         >20         <1             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.9             Nitration         Abs/cm         ASTM D7624*         >20         9.0  |               |        | . ,           | 4230               |             |          |          |
| Silicon         ppm         ASTM D5185(m)         >25         13             Sodium         ppm         ASTM D5185(m)         >158         6             Potassium         ppm         ASTM D5185(m)         >20         <1  |               |        | , ,           | limit/base         |             | history1 | history2 |
| Sodium         ppm         ASTM D5185(m)         >158         6             Potassium         ppm         ASTM D5185(m)         >20         <1             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         ASTM D7844*         >3         0.9             Nitration         Abs/cm         ASTM D7624*         >20         9.0  |               |        |               |                    |             |          |          |
| Potassium         ppm         ASTM D5185(m)         >20         <1   |               |        |               |                    |             |          |          |
| Soot %         %         ASTM D7844*         >3         0.9             Nitration         Abs/cm         ASTM D7624*         >20         9.0   |               |        | . ,           |                    |             |          |          |
| Soot %         %         ASTM D7844*         >3         0.9             Nitration         Abs/cm         ASTM D7624*         >20         9.0   | INFRA-RED     |        | method_       | limi <u>t/başe</u> | current     | history1 | history2 |
| Nitration         Abs/cm         ASTM D7624*         >20         9.0   |               | %      |               |                    |             |          |          |
|  |               |        |               |                    |             |          |          |
|  |               |        |               |                    |             |          |          |



# **OIL ANALYSIS REPORT**





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number **Unique Number** 

: 5694256

: PC0078497 : 02601171

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Received

Diagnosed Diagnostician Test Package : MOB 1 (Additional Tests: KV40, VI)

: 06 Dec 2023 : 06 Dec 2023 : Wes Davis

**HAMILTON FIRE DEPT** MECHANICAL DIV., 177 BAY STREET NORTH HAMILTON, ON

**CA L8R 2P8** Contact: Jenny-Lynn Pellegrino jenny-lynn.pellegrino@hamilton.ca

T: (905)546-2424 F: (905)961-9116

To discuss this sample report, contact Customer Service at 1-800-268-2131. Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab.

Validity of results and interpretation are based on the sample and information as supplied.