WEAR CONTAMINATION **FLUID CONDITION**

NORMAL SEVERE NORMAL

[HAG-3100219629]

250023965

Diesel Engine

15W20 (--- GAL)

| DE | \sim | $\mathbf{A} \mathbf{A} \mathbf{A}$ | A C N | ID / | 1 T I | \sim | ХΠ |
|----|--------|------------------------------------|-------|-------------|--------------|--------|----|
| RE | UU | IMIN | m = r | <i>1U F</i> | 4 1 1 | U | N |

We advise that you check the fuel injection system. We advise that you check for the source of the coolant leak. Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. We recommend that you drain the oil from the component if this has not already been done. We advise that you flush the component thoroughly before re-filling with oil. We recommend an early resample to monitor this condition.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|---------------|-----------|-------------|----------|----------|
| Sample Number | | Client Info | | WA0019269 | | |
| Sample Date | | Client Info | | 23 Sep 2023 | | |
| Machine Age | hrs | Client Info | | 873 | | |
| Oil Age | hrs | Client Info | | 0 | | |
| Filter Age | hrs | Client Info | | 0 | | |
| Oil Changed | | Client Info | | N/A | | |
| Filter Changed | | Client Info | | N/A | | |
| Sample Status | | | | SEVERE | | |
| Iron | ppm | ASTM D5185(m) | >80 | 92 | | |

WEAR

Metal levels are typical for a new component breaking in.

| Chromium | ppm | ASTM D5185(m) | >6 | 1 | |
|----------|-----|---------------|-----|----|------|
| Nickel | ppm | ASTM D5185(m) | >2 | <1 | |
| Titanium | ppm | ASTM D5185(m) | >2 | 0 | |
| Silver | ppm | ASTM D5185(m) | >2 | 0 | |
| Aluminum | ppm | ASTM D5185(m) | >20 | 5 | |
| Lead | ppm | ASTM D5185(m) | >95 | 7 | |
| Copper | ppm | ASTM D5185(m) | >85 | 11 | |
| Tin | ppm | ASTM D5185(m) | >9 | 0 | |
| Vanadium | ppm | ASTM D5185(m) | | 0 | |

CONTAMINATION

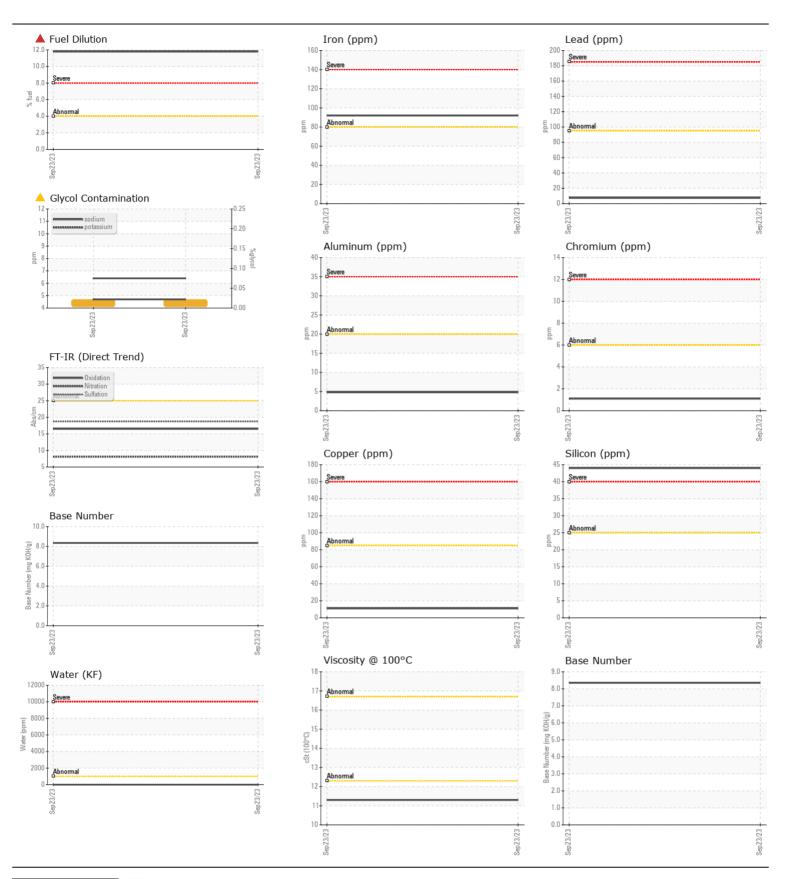
Test for glycol is positive. There is a high amount of fuel present in the oil. There is a light concentration of glycol present in the oil. There is a moderate concentration of water present in the oil. Tests confirm the presence of fuel in the oil.

| | | | | | |
|------------------|----------|---------------|------|-------------|------|
| Silicon | ppm | ASTM D5185(m) | >25 | 44 | |
| Potassium | ppm | ASTM D5185(m) | >20 | <u>^</u> 6 | |
| Fuel | % | ASTM D7593* | >4.0 | 11.8 | |
| Water | % | ASTM D6304* | >0.1 | NEG | |
| Glycol | % | ASTM D7922* | | <u> </u> | |
| Soot % | % | ASTM D7844* | | 0 | |
| Nitration | Abs/cm | ASTM D7624* | >20 | 8.1 | |
| Sulfation | Abs/.1mm | ASTM D7415* | >30 | 18.7 | |
| Emulsified Water | scalar | Visual* | >0.1 | .2 % | |
| | | | | | |
| Sodium | ppm | ASTM D5185(m) | | 5 | |
| Davas | | ACTM DE10E(m) | | 150 | |

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil.

| | Nitration | Abs/cm | ASTM D7624* | >20 | 8.1 | | |
|--|------------------|----------|---------------|-----------|-------------|---------------|---------|
| | Sulfation | Abs/.1mm | ASTM D7415* | >30 | 18.7 | | |
| | Emulsified Water | scalar | Visual* | >0.1 | .2 % | | |
| | | | | | | | |
| | Sodium | ppm | ASTM D5185(m) | | 5 | | |
| | Boron | ppm | ASTM D5185(m) | | 150 | | |
| | Barium | ppm | ASTM D5185(m) | | 0 | | |
| | Molybdenum | ppm | ASTM D5185(m) | | 0 | | |
| | Manganese | ppm | ASTM D5185(m) | | 1 | | |
| | Magnesium | ppm | ASTM D5185(m) | | 13 | | |
| | Calcium | ppm | ASTM D5185(m) | | 1842 | | |
| | Phosphorus | ppm | ASTM D5185(m) | | 888 | | |
| | Zinc | ppm | ASTM D5185(m) | | 934 | | |
| | Sulfur | ppm | ASTM D5185(m) | | 2704 | | |
| | Oxidation | Abs/.1mm | ASTM D7414* | >25 | 16.5 | | |
| | Base Number (BN) | mg KOH/g | ASTM D2896* | | 8.35 | | |
| | Visc @ 100°C | cSt | ASTM D7279(m) | | 11.3 | | |
| | | | (| Contact/I | contion: Co | arion Managar | IEI OTI |





CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 : WA0019269

Received : 02631874 **Tested**

: 30 Apr 2024 Unique Number : 5773027 Diagnosed : 30 Apr 2024 - Kevin Marson Test Package : MOB 2 (Additional Tests: FuelDilution, Glycol, KF, PercentFuel)

: 29 Apr 2024

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.

J-F LAROSE 1740-5 DES JIOIETTES ST LAZARE, QC

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