# OIL ANALYSIS REPORT

Sample Rating Trend


DIRT

Machine Id
**Fel241280**
Component
**Diesel Engine**
Fluid
**{not provided} (--- GAL)**

## DIAGNOSIS

**Recommendation**
No corrective action is recommended at this time. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

**Wear**
Metal levels are typical for a new component breaking in.

**Contamination**
Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.

**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.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **PCA0122781** | --- | --- |
| Sample Date | | Client Info | | **21 Jun 2024** | --- | --- |
| Machine Age | hrs | Client Info | | **541** | --- | --- |
| Oil Age | hrs | Client Info | | **541** | --- | --- |
| Oil Changed | | Client Info | | **N/A** | --- | --- |
| Sample Status | | | | **ABNORMAL** | --- | --- |

| CONTAMINATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Water | | WC Method | >0.2 | **NEG** | --- | --- |
| Glycol | | WC Method | | **NEG** | --- | --- |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Iron | ppm | ASTM D5185m | >100 | **32** | --- | --- |
| Chromium | ppm | ASTM D5185m | >20 | **<1** | --- | --- |
| Nickel | ppm | ASTM D5185m | >4 | **8** | --- | --- |
| Titanium | ppm | ASTM D5185m | | **0** | --- | --- |
| Silver | ppm | ASTM D5185m | >3 | **<1** | --- | --- |
| Aluminum | ppm | ASTM D5185m | >20 | **6** | --- | --- |
| Lead | ppm | ASTM D5185m | >40 | **0** | --- | --- |
| Copper | ppm | ASTM D5185m | >330 | **139** | --- | --- |
| Tin | ppm | ASTM D5185m | >15 | **3** | --- | --- |
| Vanadium | ppm | ASTM D5185m | | **0** | --- | --- |
| Cadmium | ppm | ASTM D5185m | | **0** | --- | --- |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | | **236** | --- | --- |
| Barium | ppm | ASTM D5185m | | **0** | --- | --- |
| Molybdenum | ppm | ASTM D5185m | | **125** | --- | --- |
| Manganese | ppm | ASTM D5185m | | **4** | --- | --- |
| Magnesium | ppm | ASTM D5185m | | **668** | --- | --- |
| Calcium | ppm | ASTM D5185m | | **1383** | --- | --- |
| Phosphorus | ppm | ASTM D5185m | | **641** | --- | --- |
| Zinc | ppm | ASTM D5185m | | **878** | --- | --- |
| Sulfur | ppm | ASTM D5185m | | **2261** | --- | --- |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >25 | ▲ **100** | --- | --- |
| Sodium | ppm | ASTM D5185m | | **2** | --- | --- |
| Potassium | ppm | ASTM D5185m | >20 | **11** | --- | --- |
| Fuel | % | ASTM D3524 | >5 | **0.3** | --- | --- |

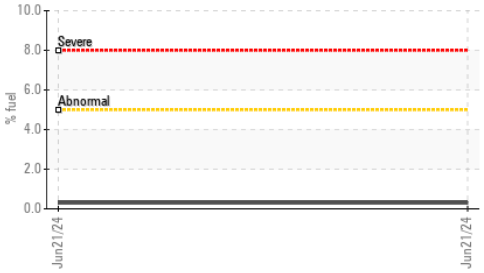
| INFRA-RED | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Soot % | % | *ASTM D7844 | >3 | **0.4** | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 | >20 | **9.5** | --- | --- |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | **24.7** | --- | --- |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | **22.8** | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | **8.15** | --- | --- |

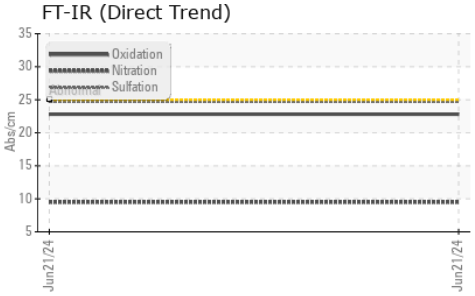
OIL DIAGNOSTICS

# OIL ANALYSIS REPORT

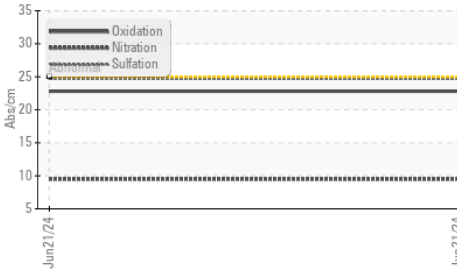
Fuel Dilution



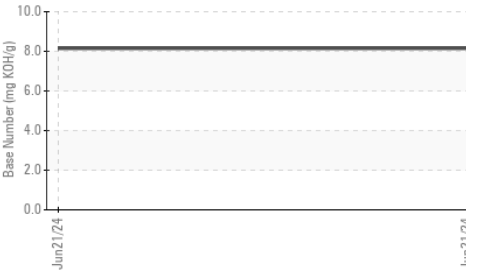

FT-IR (Direct Trend)



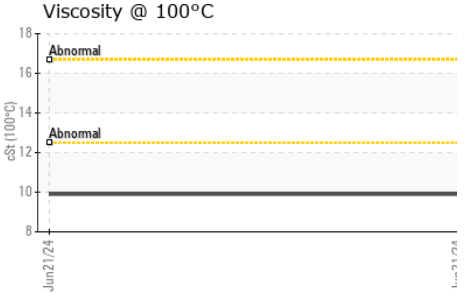

FT-IR (Direct Trend)




Base Number




Viscosity @ 100°C

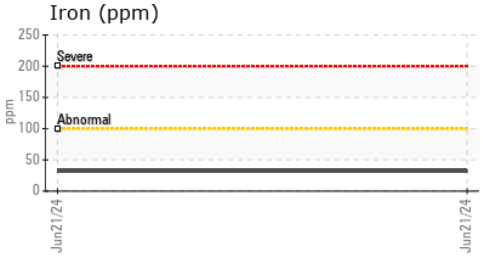



| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | --- | --- |
| Precipitate | scalar | *Visual | NONE | **NONE** | --- | --- |
| Silt | scalar | *Visual | NONE | **NONE** | --- | --- |
| Debris | scalar | *Visual | NONE | **NONE** | --- | --- |
| Sand/Dirt | scalar | *Visual | NONE | **NONE** | --- | --- |
| Appearance | scalar | *Visual | NORML | **NORML** | --- | --- |
| Odor | scalar | *Visual | NORML | **NORML** | --- | --- |
| Emulsified Water | scalar | *Visual | >0.2 | **NEG** | --- | --- |
| Free Water | scalar | *Visual | | **NEG** | --- | --- |

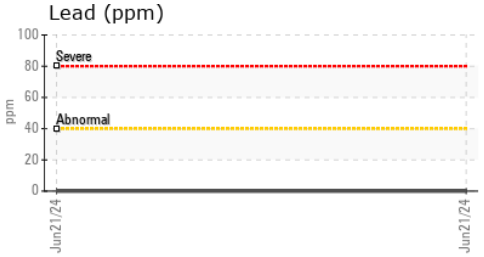
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 100°C | cSt | ASTM D445 | | **9.9** | --- | --- |

## GRAPHS

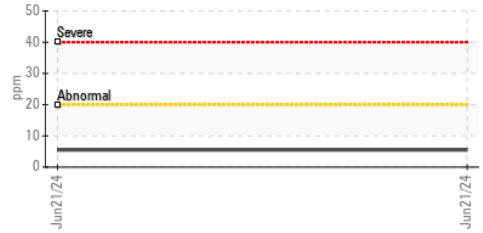
Iron (ppm)




Lead (ppm)

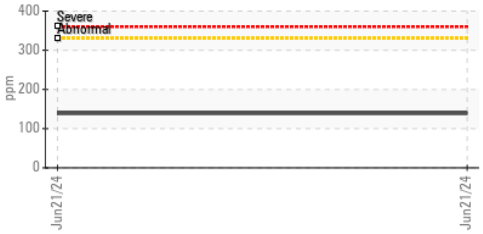



Aluminum (ppm)

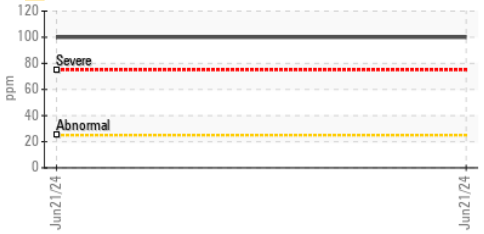



Chromium (ppm)


Copper (ppm)

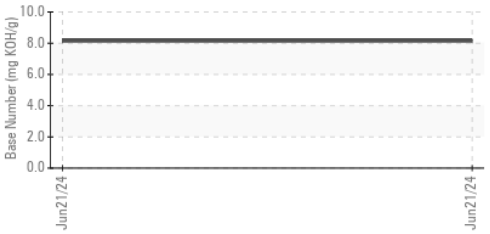



Silicon (ppm)




Viscosity @ 100°C


Base Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : PCA0122781 **Received** : 26 Jun 2024
**Lab Number** : 06221429 **Tested** : 01 Jul 2024
**Unique Number** : 11099626 **Diagnosed** : 01 Jul 2024 - Jonathan Hester
**Test Package** : MOB 2 ( Additional Tests: FuelDilution, PercentFuel )

*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)*

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Report Id: WINNORMA [WUSCAR] 06221429 (Generated: 07/02/2024 02:19:30) Rev: 1

**Submitted By: P Cohen**