

FUEL REPORT





Wachine Id YFF200165

Component **Diesel Fuel** DIESEL FUEL No. 2 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you follow the water drain-off procedure for this component. We recommend you service and check the fuel filters for mucous-like deposits. Check with fuel supplier for biocides available to destroy the microorganisms in the fuel system. We were unable to perform a particle count due to a high concentration of particles present in this sample.

Corrosion

All metal levels are normal indicating no corrosion in the system.

Contaminants

Moderate concentration of visible dirt/debris present in the fuel. Excessive free water present. There is a light concentration of Bacteria, Yeast and Fungus present in the sample.

Fuel Condition

The fuel is no longer serviceable due to the presence of contaminants. Sulfur value derived by ASTM D5453 method for ULSD validation. Sulfur level is acceptable for ULSD specification.

| SAMPLE INFORM | IATION | method | limit/base | current | history1 | history2 |
|------------------------|--------|----------------|------------|-------------|----------|----------|
| Sample Number | | Client Info | | KT0000475 | | |
| Sample Date | | Client Info | | 27 Feb 2023 | | |
| Machine Age | hrs | Client Info | | 64 | | |
| Sample Status | | | | SEVERE | | |
| PHYSICAL PROP | ERTIES | method | limit/base | current | history1 | history2 |
| Specific Gravity | | *ASTM D1298 | | 0.839 | | |
| Fuel Color | text | *Visual Screen | | Yllow | | |
| ASTM Color | scalar | *ASTM D1500 | | L1.5 | | |
| Visc @ 40°C | cSt | ASTM D445 | 4.1 | 2.72 | | |
| SULFUR CONTER | NT | method | limit/base | current | history1 | history2 |
| Sulfur | ppm | ASTM D5185m | | 0 | | |
| Sulfur (UVF) | ppm | ASTM D5453 | | 8 | | |
| DISTILLATION | | method | limit/base | current | history1 | history2 |
| Initial Boiling Point | °C | ASTM D86 | | 160 | | |
| 5% Distillation Point | °C | ASTM D86 | | 196 | | |
| 10% Distill Point | °C | ASTM D86 | | 209 | | |
| 15% Distillation Point | °C | ASTM D86 | | 218 | | |
| 20% Distill Point | °C | ASTM D86 | | 225 | | |
| 30% Distill Point | °C | ASTM D86 | | 240 | | |
| 40% Distill Point | °C | ASTM D86 | | 253 | | |
| 50% Distill Point | °C | ASTM D86 | | 266 | | |
| 60% Distill Point | °C | ASTM D86 | | 279 | | |
| 70% Distill Point | °C | ASTM D86 | | 292 | | |
| 80% Distill Point | °C | ASTM D86 | | 307 | | |
| 85% Distillation Point | °C | ASTM D86 | | 315 | | |
| 90% Distill Point | °C | ASTM D86 | | 324 | | |
| 95% Distillation Point | °C | ASTM D86 | | 336 | | |
| Final Boiling Point | °C | ASTM D86 | | 347 | | |
| Distillation Residue | % | ASTM D86 | | 1.4 | | |
| Distillation Loss | % | ASTM D86 | | -0.3 | | |
| IGNITION QUALIT | ΓY | method | limit/base | current | history1 | history2 |
| API Gravity | | ASTM D7777 | | 37.2 | | |
| Cetane Index | | ASTM D4737 | <40.0 | 50.2 | | |
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |

| CONTAMINANTS | 3 | method | limit/base | current | history1 | history2 |
|--------------|-----|-------------|------------|---------|----------|----------|
| Silicon | ppm | ASTM D5185m | <1.0 | <1 | | |
| Sodium | ppm | ASTM D5185m | <0.1 | <1 | | |
| Potassium | ppm | ASTM D5185m | <0.1 | <1 | | |
| Water | % | ASTM D6304 | <0.05 | 0.028 | | |
| ppm Water | ppm | ASTM D6304 | <500 | 289.4 | | |
| % Gasoline | % | *In-House | <0.50 | 0.0 | | |
| % Biodiesel | % | *In-House | <20.0 | 5.2 | | |



cSt (40°C)

cSt (40°C)

0. Feb27/23

FUEL REPORT

| Water (KF) | | | MICROBIAL | | method | limit/base | current | history1 | history2 |
|-----------------|------|---|--|---|--|------------------|--------------------|-------------------|----------------------------|
| Severe | | | Bacteria | CFU/ml | WC-Method | >=100000 | 0 | | |
| | | | Yeast | CFU/ml | WC-Method | >=100000 | <u> </u> | | |
| | | | Mold | Colonies | WC-Method | MODER | | | |
| | | | HEAVY METAL | S | method | limit/base | current | history1 | history2 |
| bnormal | | | Aluminum | ppm | ASTM D5185m | <0.1 | 0 | | |
| | | Feb27/23 - | Nickel | ppm | ASTM D5185m | <0.1 | 0 | | |
| | | Feb 2 | Lead | ppm | ASTM D5185m | | 0 | | |
| iscosity @ 40° | PC . | | Vanadium | ppm | ASTM D5185m | <0.1 | 0 | | |
| iscosity @ 40 | | | Iron | ppm | ASTM D5185m | <0.1 | 0 | | |
| | | | Calcium | ppm | ASTM D5185m | <0.1 | 0 | | |
| bso rmal | | | Magnesium | ppm | ASTM D5185m | <0.1 | 1 | | |
| | | | Phosphorus | ppm | ASTM D5185m | <0.1 | 1 | | |
| onormal | | | Zinc | ppm | ASTM D5185m | <0.1 | 0 | | |
| | | | SAMPLE IMAGE | ES | method | limit/base | current | history1 | history2 |
| | | 7/23 | | | | | | | |
| | | Feb27/23 | Color | | | | | no image | no image |
| iscosity @ 40° | °C | | | | | | | | |
| | | | | | | | | | |
| bao rmal | | | Bottom | | | | | no image | no image |
| | | | 20110111 | | | | | | |
| hnormal | | | | | | | | | |
| | | nonnonnonni | GRAPHS | | | | | | |
| | | | GRAPHS Fuel Distillation (| Curve | | | Pensky-Mart | ens Flash Point (| °C) |
| Abnormal | | | Fuel Distillation C | Curve | 8 8 | 1 | Pensky-Mart | ens Flash Point (| °C) |
| | | co.re | Fuel Distillation C | Curve | | ç | | ens Flash Point (| °C) |
| | | ст. | Fuel Distillation C | Curve | | ç | | ens Flash Point (| °C) |
| | | CT-0100 | Fuel Distillation C | Curve | | | 5 | ens Flash Point (| °C) |
| | | ст) ли | Fuel Distillation C | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | CULCT | Fuel Distillation C | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | CC LT J | Fuel Distillation C | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | CT-7709 | Fuel Distillation C | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Sample 380°C Sample 360°C Sample 340°C Sample 320°C Sample 300°C Sample 280°C Sample | Curve | / | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Fuel Distillation C 380°C - Sample 360°C - Sample 340°C - Sample 320°C - S | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Fuel Distillation C 380°C - Sample 360°C - Sample 340°C - Sample 320°C - S | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Sample 380°C Sample 360°C Sample 340°C Sample 320°C Sample 300°C Sample 280°C Sample | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Sample Sample 360°C Sample 360°C Sample 360°C Sample 340°C Sample 320°C Sample 300°C Sample 280°C Sample 280°C Sample 280°C Sample | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| °C) |
| | | | Fuel Distillation C 380°C - Sample 360°C - Sample 340°C - Sample 320°C - S | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Sample Sample 360°C Sample 360°C Sample 360°C Sample 340°C Sample 320°C Sample 300°C Sample 280°C Sample 280°C Sample 280°C Sample | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Sample 360°C Sample 360°C Sample 360°C Sample 320°C Sample 300°C Sample 280°C Sample 280°C Sample 280°C Sample 280°C Sample 200°C Sample 200°C Sample | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Fuel Distillation C 360°C 360°C 360°C 320°C 320°C 320°C 280°C 280°C 260°C 240°C 220°C | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Sample 360°C Sample 360°C Sample 360°C Sample 320°C Sample 300°C Sample 280°C Sample 280°C Sample 280°C Sample 280°C Sample 200°C Sample 200°C Sample | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Sample Sample 360°C Sample 360°C Sample 340°C Sample 320°C Sample 300°C Sample 300°C Sample 200°C Sample 200°C Sample 180°C Sample 160°C Sample | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Sample Sample 360°C Sample 360°C Sample 340°C Sample 320°C Sample 300°C Sample 220°C Sample 220°C Sample 300°C Sample 280°C Sample 280°C Sample 120°C Sample 180°C Sample | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Sample Sample 360°C Sample 360°C Sample 340°C Sample 320°C Sample 300°C Sample 320°C Sample 300°C Sample 280°C Sample 280°C Sample 280°C Sample 280°C Sample 280°C Sample 280°C Sample 120°C Sample | • | | | 10 5 0 -5 | ens Flash Point (| |
| | | | Fuel Distillation C 360°C 360°C 340°C 320°C 300°C 280°C 280°C 240°C 220°C 160°C 160°C 140°C 10°C 20°C 30° | Curve | | temperature °C | 10 5 0 -5 | ens Flash Point (| |
| | | | Fuel Distillation C 360°C 360°C 340°C 320°C 300°C 280°C 280°C 240°C 220°C 160°C 160°C 140°C 10°C 20°C 30° | 508 508 | | | 10 5 0 -5 | ens Flash Point (| |
| | | Laboratory | Fuel Distillation C 360°C 360°C 300°C 300°C 280°C 280°C 260°C 200°C 10 | encent Recovered 01 Madiso | n Ave., Cary | \$00 NC 27513 | | PANHANDLE IM | PLEMENT IN |
| | | Laboratory Sample No. | Fuel Distillation C 360°C 360°C 300°C 300°C 300°C 280°C 280°C 280°C 200°C 18 | Percent Recovered 01 Madiso Recei | n Ave., Cary ved :12 | , NC 27513 | | | PLEMENT IN 5, PO BOX 67 |
| | | Laboratory | Fuel Distillation C 360°C 360°C 360°C 300°C 300°C 280°C 280°C 280°C 280°C 280°C 280°C 200°C 180°C 16 | encent Recovered 01 Madiso | n Ave., Cary I ved : 12 d : 22 | \$00 NC 27513 | 123 | PANHANDLE IM | PLEMENT IN |

Test Package : DF-2 (Additional Tests: Bacteria, Screen) Certificate L2367 adrian@panhandleimplement.com 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)

Contact/Location: ADRIAN ? - PANDUM

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