

OIL ANALYSIS REPORT

Area **Pillen Family Farms** Shag 07

Diesel Engine Fluid DIESEL ENGINE OIL SAE 40 (--- GAL)

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

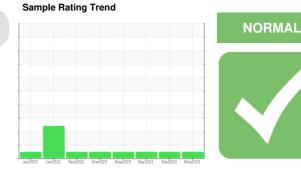
Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

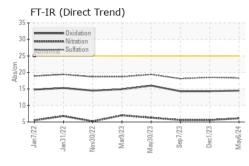
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

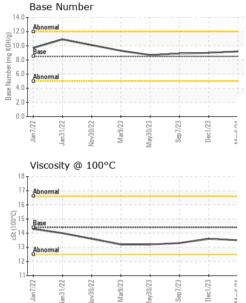


| SAMPLE INFORM | IATION | method | limit/base | current | history1 | history2 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sample Number | | Client Info | | SBP0006871 | SBP0006270 | SBP0001001 |
| Sample Date | | Client Info | | 06 May 2024 | 01 Dec 2023 | 07 Sep 2023 |
| Machine Age | hrs | Client Info | | 350 | 0 | 0 |
| Oil Age | hrs | Client Info | | 350 | 0 | 0 |
| Oil Changed | | Client Info | | Not Changd | N/A | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |
| CONTAMINATION | ٨ | method | limit/base | current | history1 | history2 |
| Fuel | | WC Method | >5 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| WEAR METALS | | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >100 | 5 | 4 | 2 |
| Chromium | ppm | ASTM D5185m | >20 | 0 | <1 | 0 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | 0 | <1 | 0 |
| Silver | ppm | ASTM D5185m | >3 | <1 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Lead | ppm | ASTM D5185m | >40 | <1 | <1 | 0 |
| Copper | ppm | ASTM D5185m | >330 | <1 | 1 | <1 |
| Tin | ppm | ASTM D5185m | >15 | 0 | <1 | 0 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Cadmium | nnm | ASTM D5185m | | • | 0 | 0 |
| Caumum | ppm | ASTIVI DOTODITI | | 0 | 0 | 0 |
| ADDITIVES | ppin | method | limit/base | current | 0 history1 | history2 |
| | ppm | | limit/base 250 | | - | - |
| ADDITIVES | | method | | current | history1 | history2 |
| ADDITIVES Boron | ppm | method ASTM D5185m | 250 | current <1 | history1 27 | history2 2 |
| ADDITIVES Boron Barium | ppm ppm | method ASTM D5185m ASTM D5185m | 250 10 | current <1 0 | history1 27 0 | history2 2 0 |
| ADDITIVES Boron Barium Molybdenum | ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 | current <1 0 62 | history1 27 0 61 | history2 2 0 62 |
| ADDITIVES Boron Barium Molybdenum Manganese | ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 100 | <pre>current <1 0 62 <1</pre> | history1 27 0 61 <1 | history2 2 0 62 <1 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 100 450 | current <1 0 62 <1 1113 | history1 27 0 61 <1 899 | history2 2 0 62 <1 1026 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 100 450 3000 | <1 0 62 <1 1113 1272 | history1 27 0 61 <1 899 1226 | history2 2 0 62 <1 1026 1107 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm ppm ppm | Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 100 450 3000 1150 | <1 0 62 <1 1113 1272 1215 | history1 27 0 61 <1 899 1226 1054 | history2 2 0 62 <1 1026 1107 1154 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 100 450 3000 1150 1350 | current <1 0 62 <1 1113 1272 1215 1489 | history1 27 0 61 <1 899 1226 1054 1269 | history2 2 0 62 <1 1026 1107 1154 1379 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 | Current <1 0 62 <1 1113 1272 1215 1489 4223 | history1 27 0 61 <1 899 1226 1054 1269 3282 | history2 2 0 62 <1 1026 1107 1154 1379 3423 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS | ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 | current <1 0 62 <1 1113 1272 1215 1489 4223 current | history1 27 0 61 <1 899 1226 1054 1269 3282 history1 | history2 2 0 62 <1 1026 1107 1154 1379 3423 history2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINANTS Silicon | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 limit/base | current <1 0 62 <1 1113 1272 1215 1489 4223 current 2 | history1 27 0 61 <1 899 1226 1054 1269 3282 history1 3 | history2 2 0 62 <1 1026 1107 1154 1379 3423 history2 3 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 | <1 0 62 <1 1113 1272 1215 1489 4223 current 2 0 | history1 27 0 61 <1 899 1226 1054 1269 3282 history1 3 2 | history2 2 0 62 <1 1026 1107 1154 1379 3423 history2 3 2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 | <1 0 62 <1 1113 1272 1215 1489 4223 current 2 0 <1 | history1 27 0 61 <1 899 1226 1054 1269 3282 history1 3 2 1 | history2 2 0 62 <1 1026 1107 1154 1379 3423 history2 3 2 2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 20 Imit/base >216 >20 Imit/base | <1 0 62 <1 1113 1272 1215 1489 4223 current 2 0 <1 | history1 27 0 61 <1 899 1226 1054 1269 3282 history1 3 2 1 story1 | history2 2 0 62 <1 1026 1107 1154 1379 3423 history2 3 2 2 history2 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % | ppm | method ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 limit/base >3 | <1 0 62 <1 1113 1272 1215 1489 4223 current 2 0 <1 2 0 <1 0.1 | history1 27 0 61 <1 899 1226 1054 1269 3282 history1 3 2 1 history1 0.1 | history2 2 0 62 <1 1026 1107 1154 1379 3423 history2 3 2 history2 3 2 history2 0.1 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 i mit/base >25 >216 >20 i mit/base >3 >20 | <1 0 62 <1 1113 1272 1215 1489 4223 current 2 0 <1 current 0 <1 | history1 27 0 61 <1 899 1226 1054 1269 3282 history1 3 2 1 history1 3 2 1 0.1 5.6 | history2 2 0 62 <1 1026 1107 1379 3423 history2 3 2 history2 3 2 history2 0.1 5.6 |
| ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | method ASTM D5185m ASTM D5185m | 250 10 100 450 3000 1150 1350 4250 Imit/base >216 >216 >20 Imit/base >3 >20 >30 | <1 0 62 <1 1113 1272 1215 1489 4223 current 2 0 <1 2 0 <1 0.1 6.1 18.3 | history1 27 0 61 <1 899 1226 1054 1269 3282 history1 3 2 1 history1 0.1 5.6 18.5 | history2 2 0 62 <1 1026 1107 1154 1379 3423 history2 3 2 history2 0.1 5.6 18.1 |



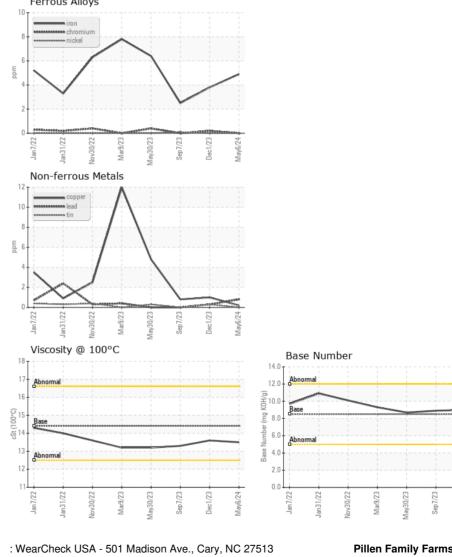
OIL ANALYSIS REPORT





| VISUAL | | method | limit/base | current | history1 | history2 |
|------------------|--------|-----------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | NONE | NONE |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG | NEG |
| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
| Visc @ 100°C | cSt | ASTM D445 | 14.4 | 13.5 | 13.6 | 13.3 |
| | | | | | | |

GRAPHS Ferrous Alloys



Laboratory Pillen Family Farms - 722828 Sample No. : SBP0006871 26741 NE-91 Received : 28 May 2024 Lab Number : 06193306 Tested : 30 May 2024 Humphrey, NE US 61357 Unique Number : 11050058 Diagnosed : 30 May 2024 - Wes Davis Test Package : FLEET Contact: Troy Runge Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. troyfr@pillenfamilyfarms.com T: (308)390-6733 * - 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)

Report Id: PILHUM [WUSCAR] 06193306 (Generated: 05/30/2024 08:33:30) Rev: 1

Submitted By: JUSTIN HANSON

Page 2 of 2

F:

Dec1/23

May6/24