



OIL REPORT

LAB NUMBER: P13695

UNIT ID: 05 BEAVER

REPORT DATE: 12/1/2021

CLIENT ID: 116152

CODE: 1/75

PAYMENT: Bulk CC

UNIT

MAKE/MODEL: Cat C-13 ACERT
FUEL TYPE: Diesel
ADDITIONAL INFO:

OIL TYPE & GRADE: Shell Rotella T6 5W/40
OIL USE INTERVAL: 5,300 Miles

CLIENT

PHONE: [REDACTED]

FAX:

ALT PHONE:

EMAIL: [REDACTED]

COMMENTS

MICHAEL: Based on your notes, it sounds like this is the same oil from last time, just with more use. As you can see, copper is much higher. We think you're on the right track with the oil cooler. It may explain why copper is so high, but we aren't sure it shows a problem. Sometimes we find harmless oxides from the oil cooler, especially in young engines like this, but sometimes copper can show a crack or leak. Inspect the oil cooler for obvious issues, and if everything looks okay, change the oil and check back after 2K-5K miles again to monitor. All else looks okay to us!

| ELEMENTS IN PARTS PER MILLION | MI/HR on Oil | 5,300 | UNIT / LOCATION AVERAGES | 2,350 | | | | |
|-------------------------------|-------------------|------------|--------------------------------|-----------|-----------|--|--|-----------------------|
| | MI/HR on Unit | 51,200 | | 48,250 | 45,900 | | | UNIVERSAL AVERAGES |
| | Sample Date | 11/11/2021 | | 9/26/2019 | 11/1/2017 | | | |
| | Make Up Oil Added | 0 qts | | 0 qt | | | | |
| | ALUMINUM | 2 | 2 | 1 | 3 | | | 4 |
| | CHROMIUM | 1 | 1 | 1 | 1 | | | 1 |
| | IRON | 21 | 24 | 14 | 37 | | | 21 |
| | COPPER | 318 | 160 | 65 | 96 | | | 24 |
| | LEAD | 1 | 2 | 2 | 2 | | | 2 |
| | TIN | 1 | 1 | 0 | 1 | | | 1 |
| | MOLYBDENUM | 3 | 17 | 3 | 45 | | | 43 |
| | NICKEL | 0 | 0 | 0 | 0 | | | 0 |
| | MANGANESE | 0 | 0 | 0 | 0 | | | 0 |
| | SILVER | 1 | 1 | 1 | 2 | | | 0 |
| | TITANIUM | 0 | 0 | 1 | 0 | | | 1 |
| | POTASSIUM | 0 | 1 | 2 | 0 | | | 6 |
| | BORON | 142 | 95 | 135 | 8 | | | 58 |
| | SILICON | 7 | 7 | 6 | 7 | | | 7 |
| | SODIUM | 4 | 5 | 4 | 7 | | | 7 |
| | CALCIUM | 2072 | 1756 | 1760 | 1436 | | | 1749 |
| | MAGNESIUM | 131 | 357 | 113 | 828 | | | 533 |
| | PHOSPHORUS | 1021 | 1041 | 935 | 1167 | | | 1027 |
| | ZINC | 1146 | 1156 | 983 | 1340 | | | 1195 |
| | BARIUM | 0 | 0 | 0 | 0 | | | 0 |

Values
Should Be*

| PROPERTIES | SUS Viscosity @ 210°F | 68.9 | 66.78 | 70.9 | 69.7 | | | |
|------------|-----------------------|-------|-----------|-------|-------|--|--|--|
| | cSt Viscosity @ 100°C | 12.67 | 11.9-15.3 | 13.18 | 12.87 | | | |
| | Flashpoint in °F | 430 | 410 | 430 | 450 | | | |
| | Fuel % | <0.5 | <2.0 | <0.5 | <0.5 | | | |
| | Antifreeze % | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| | Water % | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| | Insolubles % | 0.2 | 0.6 | 0.1 | 0.3 | | | |
| | TBN | | | 6.4 | 7.0 | | | |
| | TAN | | | | | | | |
| | ISO Code | | | | | | | |

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

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