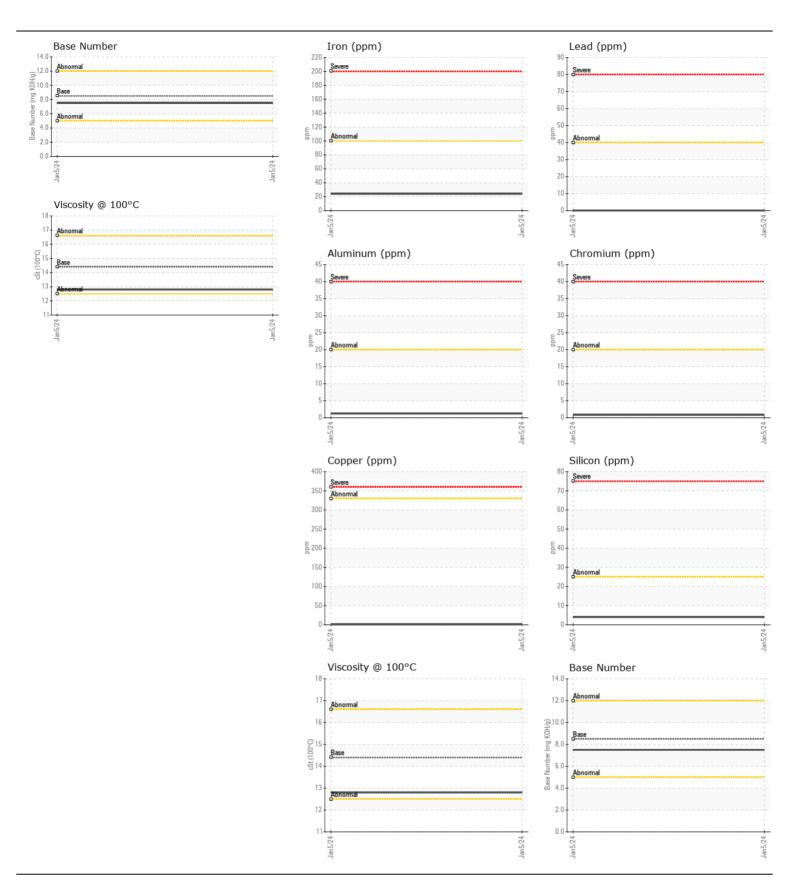
WEAR CONTAMINATION **FLUID CONDITION** **NORMAL NORMAL NORMAL**

Machine Id

COLUMBIA 1109

Component Diesel Engine

| Sample Number Client Info WC0678830 Component wear rates are normal. Sample Number Client Info Changed Client Info Changed Cha | DIESEL ENGINE OIL SAE 15W40 (GAL) | | | | | | | |
|--|---|----------------|------|--------------|-----------------|-------------|----------|----------|
| Sample Number Client Into Component Client Into Changed Changed Client Into Changed Client Into Changed Client Into Changed Changed Client Into Changed Client Into Changed Client Into Changed Client Into Changed Ch | RECOMMENDATION | Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
| Machine Age hrs Client Info 2362 | | Sample Number | | Client Info | | WC0878830 | | |
| Col Age hrs Client Info O | Resample at the next service interval to monitor. | Sample Date | | Client Info | | 05 Jan 2024 | | |
| Filter Age | | Machine Age | hrs | Client Info | | 2362 | | |
| Cit Changed Cit Cit Changed Cit Changed | | Oil Age | hrs | Client Info | | 0 | | |
| Filter Changed Sample Status | | Filter Age | hrs | Client Info | | 0 | | |
| Part | | Oil Changed | | Client Info | | Changed | | |
| Iron | | Filter Changed | | Client Info | | Changed | | |
| Component wear rates are normal. Chromium ppm ASTM Diffstm 20 | | Sample Status | | | | NORMAL | | |
| Component wear rates are normal. Chromium ppm ASTM Diffstm 20 | VEAR | Iron | ppm | ASTM D5185m | >100 | 24 | | |
| Nickel STM D6185m 4.4 0 | All component wear rates are normal. | Chromium | | ASTM D5185m | >20 | | | |
| Titanium ppm ASTM D5185m <1 | | | | | | | | |
| Silver ppm ASTM D6185m >3 0 Lead ppm ASTM D6185m >20 1 Lead ppm ASTM D6185m >20 1 Lead ppm ASTM D6185m >40 0 Lead ppm ASTM D6185m >40 0 Copper ppm ASTM D6185m >41 Vanadium ppm ASTM D6185m >15 <1 Vanadium ppm ASTM D6185m >25 <1 Vanadium ppm ASTM D6185m >25 <1 Value Potassium ppm ASTM D6185m >20 <1 Value WC Method >5 <1 Vater WC Method >5 <1 Glycol WC Method >5 <1 Sulfation Abs/tmm 'ASTM D784 >3 0.6 Sulfation Abs/tmm 'ASTM D785 >3 0.6 Sulfation Abs/tmm 'ASTM D785 >3 0.6 Sulfation Abs/tmm 'ASTM D785 >3 0.6 Sulfation Abs/tmm ASTM D6185m >0 0.6 Sulfation Abs/tmm ASTM D6185m 0.0 0.0 | | | | | | | | |
| Aluminum ppm ASTM D5185m >20 1 Lead ppm ASTM D5185m >40 0 Copper ppm ASTM D5185m >330 <1 Tin ppm ASTM D5185m >330 <1 White Metal scalar *Visual NONE NONE White Metal scalar *Visual NONE NONE NONE NONE Potassium ppm ASTM D5185m >25 4 Fuel WC Method >0 >1 Fuel WC Method >0 >1 Water WC Method >0 >1 Water WC Method >0 >1 Giycol WC Method >0 >1 >1 Soot | | | | | >3 | | | |
| Lead | | | | | | | | |
| Copper | | | | | | | | |
| Tin | | | | | | - | | |
| Vanadium ppm ASTM D5185m <1 | | | | | | | | |
| White Metal Scalar *Visual NONE NO | | | | ASTM D5185m | | | | |
| Vellow Metal Scalar Visual NONE NONE NOTAMINATION Potassium ppm ASTM D5185m >20 <1 Potassium ppm ASTM D5185m >20 <1 WC Method 55 <1.0 Wt Method NEG Glycol WC Method NEG Soit Asistmm | | | | | NONE | | | |
| Potassium ppm ASTM D5185m >20 <1 | | | | | | | | |
| Potassium ppm ASTM D5185m >20 <1 Fuel WC Method >5 <1.0 Water WC Method >0.2 NEG Glycol WC Method NEG Soot % % "ASTM D7844 >3 0.6 Nitration Abs/cm "ASTM D7842 >20 9.4 Sulfation Abs/mm "ASTM D7843 NONE NONE NONE Silt scalar "Visual NONE NONE NONE Debris scalar "Visual NONE NONE NONE Appearance scalar "Visual NORML NORML NORML Odor scalar "Visual NORML NORML NORML NORML Debris scalar "Visual NORML NORML NORML NORML Debris scalar "Visual NORML NORML NORML Debris scalar "Visual NORML NORML NORML NORML NORML Debris scalar "Visual NORML NORM | CONTAMINATION | Silicon | nnm | ΔSTM D5185m | -25 | 4 | | |
| Fuel WC Method >5 < <1.0 | CONTAMINATION | | | | | | | |
| Water WC Method >0.2 NEG | There is no indication of any contamination in the oil. | | ррпп | | | | | |
| Glycol Scot % % *ASTM D7844 \$-3 0.6 | | | | | | | | |
| Soot % | | | | | <i>></i> 0.2 | | | |
| Nitration Abs/cm *ASTM D7624 >20 9.4 Sulfation Abs/mm *ASTM D7415 >30 19.2 Silt Scalar *Visual NONE NONE NONE Debris Scalar *Visual NONE NONE NONE Sand/Dirt Scalar *Visual NONE NONE NONE Appearance Scalar *Visual NORML NOR | | | 0/_ | | ~3 | | | |
| Sulfation | | | | | | | | |
| Silt scalar *Visual NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE Sand/Dirt scalar *Visual NONE NONE Sand/Dirt scalar *Visual NORML NORML NORML NORML Scalar *Visual NORML NORML | | | | | | | | |
| Debris Scalar *Visual NONE NONE NONE Sand/Dirt Scalar *Visual NONE NORML NORM | | | | | | | | |
| Sand/Dirt Scalar *Visual NONE NONE NONE Appearance Scalar *Visual NORML NORM | | | | | | | | |
| Appearance Scalar *Visual NORML NORML NORML Emulsified Water Scalar *Visual NORML NORML NORML Emulsified Water Scalar *Visual NORML | | | | | | | | |
| Codor Scalar *Visual NORML N | | | | | | | | |
| Emulsified Water scalar *Visual >0.2 NEG | | | | | | | | |
| Boron ppm ASTM D5185m 250 66 | | | | | | | | |
| Boron ppm ASTM D5185m 250 66 | I LUD CONDITION | 0 " | | | | | | |
| Barium ppm ASTM D5185m 10 0 Molybdenum ppm ASTM D5185m 100 51 Manganese ppm ASTM D5185m 450 887 Magnesium ppm ASTM D5185m 3000 1038 Calcium ppm ASTM D5185m 1150 965 Zinc ppm ASTM D5185m 1350 1134 Sulfur ppm ASTM D5185m 4250 2859 Sulfur ppm ASTM D5185m 4250 2859 Base Number (BN) mg KOH/g ASTM D2896 8.5 7.5 | LUID CONDITION | | | | | | | |
| The condition of the oil is suitable for further service. | The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service. | | | | | | | |
| Manganese ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m 450 887 Calcium ppm ASTM D5185m 3000 1038 Phosphorus ppm ASTM D5185m 1150 965 Zinc ppm ASTM D5185m 1350 1134 Sulfur ppm ASTM D5185m 4250 2859 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 7.5 | | | | | | | | |
| Magnesium ppm ASTM D5185m 450 887 Calcium ppm ASTM D5185m 3000 1038 Phosphorus ppm ASTM D5185m 1150 965 Zinc ppm ASTM D5185m 1350 1134 Sulfur ppm ASTM D5185m 4250 2859 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 7.5 | | | | | 100 | | | |
| Calcium ppm ASTM D5185m 3000 1038 Phosphorus ppm ASTM D5185m 1150 965 Zinc ppm ASTM D5185m 1350 1134 Sulfur ppm ASTM D5185m 4250 2859 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 7.5 | | | | | 450 | | | |
| Phosphorus ppm ASTM D5185m 1150 965 Zinc ppm ASTM D5185m 1350 1134 Sulfur ppm ASTM D5185m 4250 2859 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 7.5 | | • | | | | | | |
| Zinc ppm ASTM D5185m 1350 1134 Sulfur ppm ASTM D5185m 4250 2859 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 7.5 | | | | | | | | |
| Sulfur ppm ASTM D5185m 4250 2859 Oxidation Abs/.1mm *ASTM D7414 >25 16.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 7.5 | | | | | | | | |
| Oxidation Abs/.1mm *ASTM D7414 >25 16.2 Base Number (BN) mg KOH/g ASTM D2896 8.5 7.5 | | | | | | | | |
| Base Number (BN) mg KOH/g ASTM D2896 8.5 7.5 | | | | | | | | |
| | | | | | | | | |
| VISC @ 100°C CST ASIM D445 14.4 12.8 | | () | | | | | | |
| | | visc@ 100°C | COI | A5 I WI D445 | 14.4 | 12.8 | | |







Laboratory Sample No. Lab Number

: 06075409 : 10857500 **Unique Number**

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0878830 Recieved : 31 Jan 2024 : 01 Feb 2024 Diagnosed Diagnostician : Wes Davis

Test Package : MOB 1 (Additional Tests: TBN) 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) **CONCRETE SERVICE CO**

161 BUILDERS BLVD FAYETTEVILLE, NC US 28301

Contact: Service Manager

T:

F: