

Machine Id LIEBHERR 34 Component Upper Diesel Engine Fluid SAE 5W30 (--- GAL)

| RECOMMENDATION | |
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Resample at the next service interval to monitor.

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All component wear rates are normal.

CONTAMINATION

There is no indication of any contamination in the oil.

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FLUID CONDITION

The condition of the oil is acceptable for the time in service.

| TestUOMMethodLimitAbCurrentHistory1History2Sample NumberClient InfoVC0685988Sample DateClient InfoInv 2023Machine AgehrsClient Info0Filter AgehrsClient InfoOFilter AgehrsClient InfoChangedFilter ChangedClient InfoChangedSample StatusClient InfoChangedIronppmASTMD5185(m)>50<1NickelppmASTMD5185(m)>5<1NickelppmASTMD5185(m)>5<1NickelppmASTMD5185(m)>30SilverppmASTMD5185(m)>30AluminumppmASTMD5185(m)>31LeadppmASTMD5185(m)>52SilconppmASTMD5185(m)>5<10SilconppmASTMD5185(m)>5<10SilconppmASTMD5185(m)>5<10SilconppmASTMD5185(m)>5<10SilconppmASTMD5185(m)>5<10SilconppmASTMD764>20Ast< | | | | | | | |
|--|-----------------|----------|---------------|-----------|-------------|----------|----------|
| Sample DateClient InfoInvo 2023Machine AgehrsClient Info17506Oil AgehrsClient Info0Filter AgehrsClient InfoChangedOil ChangedClient InfoChangedFilter ChangedClient InfoChangedFilter ChangedClient InfoChangedSample StatusClient InfoNORMALIronppmASTMD5185/m>50<1NickelppmASTMD5185/m>5<1NickelppmASTMD5185/m>5<1AluminumppmASTMD5185/m>301AluminumppmASTMD5185/m>52LeadppmASTMD5185/m>5010VandiumppmASTMD5185/m>5010SoliconppmASTMD5185/m>5010VatarwC Method501.0SoliconppmASTMD5185/m>20ASTVatarwC Method501.0SoliconppmASTMD784/m>3019.0Solifur | Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
| Machine AgehrsClient InfoII7506Oil AgehrsClient Info0Filter AgehrsClient InfoChangedOil ChangedClient InfoChangedFilter Changed0Client InfoChangedSample StatusNORMALIronppmASTM05185/m>50<1NickelppmASTM05185/m>5<1NickelppmASTM05185/m>5<1SilverppmASTM05185/m>301AluminumppmASTM05185/m>301CopperppmASTM05185/m>50<1VanadiumppmASTM05185/m>50<1SiliconppmASTM05185/m>6010FuelWC Method>0.2NEGSiliconppmASTM05185/m>20<1SulfationAbs/cmASTM05185/m>20<1Sulfationkas/cmASTM05185/m>20<1SulfationppmASTM05185/m>20<1Sulfationkas/cmASTM0762/m>20<1< | Sample Numbe | r | Client Info | | WC0685985 | | |
| Oil AgehrsClient Info0Filter AgehrsClient Info0Oil ChangedClient InfoChangedFilter Changed0Client InfoPSample StatusNORMALIronppmASTM05185(m)>1009NickelppmASTM05185(m)>5<1NickelppmASTM05185(m)>5<1SilverppmASTM05185(m)>30AluminumppmASTM05185(m)>301LeadppmASTM05185(m)>5<1VanadiumppmASTM05185(m)>50<1SiliconppmASTM05185(m)>6010SiliconppmASTM05185(m)>6010FuelWC Method>5<1.0WaterQQNEGSoliconppmASTM05185(m)>20<1SuifationAbs/cmASTM05185(m)>20<1SuifationAbs/cmASTM05185(m)>20<1SuifationAbs/cmASTM07624>20NEGSuifationAbs/cmA | Sample Date | | Client Info | | 21 Nov 2023 | | |
| Filter Age hrs Client Info 0 Oil Changed Client Info Changed Filter Changed Client Info Changed Sample Status NORMAL Iron ppm ASTM D5/85(m) >5 <1 Chromium ppm ASTM D5/85(m) >5 <1 Nickel ppm ASTM D5/85(m) >5 <1 Silver ppm ASTM D5/85(m) >3 0 Aluminum ppm ASTM D5/85(m) >30 1 Copper ppm ASTM D5/85(m) >30 1 Vanadium ppm ASTM D5/85(m) >60 10 Silicon ppm ASTM D5/85(m) >60 10 Solicon ppm ASTM D5/85(m) >60 10 Vanadium ppm ASTM D5/85(m) >20 1 <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>17506</th> <th></th> <th></th> | Machine Age | hrs | Client Info | | 17506 | | |
| Oil ChangedClient InfoChangedFilter ChangedClient InfoChangedSample StatusVVICNORMALIronppmASTM D5185(m)>1009ChromiumppmASTM D5185(m)>5<1NickelppmASTM D5185(m)>5<1TitaniumppmASTM D5185(m)>30SilverppmASTM D5185(m)>301LeadppmASTM D5185(m)>301CopperppmASTM D5185(m)>5<1VanadiumppmASTM D5185(m)>5<1SiliconppmASTM D5185(m)>5<10VanadiumppmASTM D5185(m)>20<1VanadiumppmASTM D5185(m)>5<1.0SiliconppmASTM D5185(m)>20<1WaterV/C Method>0.2NEGGlycolV/C Method>0.2NEGSodiumAbs/tmASTM D5185(m)ASTMSodiumAbs/tmASTM D5185(m)ASTMBoronppmASTM D5185(m)ASTM< | Oil Age | hrs | Client Info | | 0 | | |
| Filter Changed Sample StatusClient InfoChanged NORIMALIronppmASTM D5185(m)>1009ChromiumppmASTM D5185(m)>5<1NickelppmASTM D5185(m)>5<1NickelppmASTM D5185(m)>5<1SilverppmASTM D5185(m)>30AluminumppmASTM D5185(m)>301LeadppmASTM D5185(m)>50<1VanadiumppmASTM D5185(m)>5<1VanadiumppmASTM D5185(m)>5<1SiliconppmASTM D5185(m)>6010SuliconppmASTM D5185(m)>20<1VanadiumppmASTM D5185(m)>20<1SuliconppmASTM D5185(m)>20<1SuliconppmASTM D5185(m)>20<1SuliconppmASTM D5185(m)>20<1SuliconppmASTM D5185(m)>20<1SuliconppmASTM D5185(m)>20NEGSulifationAbs/.tmASTM D7624'>20R.6 <td< th=""><th>Filter Age</th><th>hrs</th><th>Client Info</th><th></th><th>0</th><th></th><th></th></td<> | Filter Age | hrs | Client Info | | 0 | | |
| Sample Status NORMAL Iron ppm ASTM D5185(m) >100 9 Iron ppm ASTM D5185(m) >5 <1 Nickel ppm ASTM D5185(m) >5 <1 Nickel ppm ASTM D5185(m) >5 <1 Titanium ppm ASTM D5185(m) >3 0 Aluminum ppm ASTM D5185(m) >3 0 Lead ppm ASTM D5185(m) >30 1 Copper ppm ASTM D5185(m) >5 <1 Yanadium ppm ASTM D5185(m) >5 <1 Silicon ppm ASTM D5185(m) >60 10 Silicon ppm ASTM D5185(m) >20 <1 Silicon ppm ASTM D5185(m) >20 <10 Fuel WC | Oil Changed | | Client Info | | Changed | | |
| Iron ppm ASTM D5185(m) >100 9 Chromium ppm ASTM D5185(m) >5 <1 Nickel ppm ASTM D5185(m) >5 <1 Titanium ppm ASTM D5185(m) >3 0 Silver ppm ASTM D5185(m) >3 0 Aluminum ppm ASTM D5185(m) >30 1 Lead ppm ASTM D5185(m) >5 <1 Vanadium ppm ASTM D5185(m) >50 <1 Silicon ppm ASTM D5185(m) >60 10 Vanadium ppm ASTM D5185(m) >60 10 | Filter Change | b | Client Info | | Changed | | |
| Chromium ppm ASTM D5185(m) >5 <1 | Sample Status | 5 | | | NORMAL | | |
| Chromium ppm ASTM D5185(m) >5 <1 | Iron | | | . 100 | 0 | | |
| Nickel ppm ASTM D5185(m) >5 <1 $$ Titanium ppm ASTM D5185(m) >3 0 $$ Silver ppm ASTM D5185(m) >3 0 $$ Aluminum ppm ASTM D5185(m) >15 2 $$ Lead ppm ASTM D5185(m) >30 1 $$ Copper ppm ASTM D5185(m) >125 5 $$ Tin ppm ASTM D5185(m) >50 <1 $$ Vanadium ppm ASTM D5185(m) >60 10 $$ Silicon ppm ASTM D5185(m) >60 10 $$ $$ Silicon ppm ASTM D5185(m) >60 10 $$ $$ Water ppm ASTM D5185(m) >60 10 $$ $$ Glycol $$ WC Method >0.2 NEG $$ $$ < | | | | | | | |
| Titanium ppm ASTM D5185(m) O Silver ppm ASTM D5185(m) >3 O Aluminum ppm ASTM D5185(m) >15 2 Lead ppm ASTM D5185(m) >10 Copper ppm ASTM D5185(m) >125 5 Yanadium ppm ASTM D5185(m) >5 <1 Vanadium ppm ASTM D5185(m) >60 10 Vanadium ppm ASTM D5185(m) >20 <1 Vanadium ppm ASTM D5185(m) >20 <1 Silicon ppm ASTM D5185(m) >20 <1 Water WC Method >0.2 NEG Soti % % ASTM D7145 >30 19.9 | | | · / | | | | |
| Silver ppm ASTM D5185(m) >3 0 Aluminum ppm ASTM D5185(m) >15 2 Lead ppm ASTM D5185(m) >15 2 Copper ppm ASTM D5185(m) >125 5 Tin ppm ASTM D5185(m) >5 <1 | | | () | >5 | | | |
| Aluminum ppm ASTM D5185(m) >15 2 Lead ppm ASTM D5185(m) >30 1 Copper ppm ASTM D5185(m) >125 5 Tin ppm ASTM D5185(m) >5 <1 Vanadium ppm ASTM D5185(m) >50 <1 Silicon ppm ASTM D5185(m) >60 10 Potassium ppm ASTM D5185(m) >20 <1 Fuel WC Method >5 <1.0 Water WC Method >0.2 NEG Soot % % ASTM D784* >3 0.1 Sodium Abs/rmm ASTM D71624* >20 8.6 Boron ppm <td< th=""><th></th><th></th><th></th><th>0</th><th></th><th></th><th></th></td<> | | | | 0 | | | |
| Lead ppm ASTM D5185(m) >30 1 Copper ppm ASTM D5185(m) >125 5 Tin ppm ASTM D5185(m) >5 <1 | | | | | - | | |
| Copper ppm ASTM D5185(m) >125 5 Tin ppm ASTM D5185(m) >5 <1 Vanadium ppm ASTM D5185(m) >60 10 Silicon ppm ASTM D5185(m) >60 10 Potassium ppm ASTM D5185(m) >20 <1 Fuel WC Method >5 <1.0 Glycol WC Method >0.2 NEG Soot % % ASTM D7844* >3 0.1 Soot % % ASTM D7624* >20 8.6 Sulfation Abs/rm ASTM D71415* >30 19.9 Sodium ppm ASTM D5185(m) 4 Boron ppm ASTM D5185(m) | | ppm | | | | | |
| Tin ppm ASTM D5185(m) >5 <1 | | | | | | | |
| Vanadium ppm ASTM D5185(m) 0 Silicon ppm ASTM D5185(m) >60 10 Potassium ppm ASTM D5185(m) >20 <1 Fuel WC Method >5 <1.0 Water QW C Method >0.2 NEG Glycol WC Method >0.2 NEG Soot % % ASTM D7844* >3 0.1 Soot % % ASTM D7844* >3 0.1 Sulfation Abs/cm ASTM D7624* >20 8.6 Sulfation Abs/.1mm ASTM D71624* >30 19.9 Sodium ppm ASTM D5185(m) 4 Boron ppm ASTM D5185(m) 0 M | | ppm | | | | | |
| Silicon ppm ASTM D5185(m) >60 10 Potassium ppm ASTM D5185(m) >20 <1 | | ppm | () | >5 | | | |
| Potassium ppm ASTM D5185(m) >20 <1 | Vanadium | ppm | ASTM D5185(m) | | 0 | | |
| Potassium ppm ASTM D5185(m) >20 <1 | Silicon | maa | ASTM D5185(m) | >60 | 10 | | |
| Fuel WC Method >5 <1.0 | | | () | | | | |
| GlycolWC MethodNEGSoot %%ASTM D7844*>30.1NitrationAbs/cmASTM D7624*>208.6SulfationAbs/1mmASTM D7624*>3019.9SulfationAbs/1mmASTM D7145*>3019.9Emulsified WaterscalarVisual*>0.2NEGSodiumppmASTM D5185(m)4BoronppmASTM D5185(m)0BariumppmASTM D5185(m)0MolybdenumppmASTM D5185(m)0MagnesiumppmASTM D5185(m)0PhosphorusppmASTM D5185(m)907ZincppmASTM D5185(m)11039SulfurppmASTM D5185(m)1178SulfurppmASTM D5185(m)117.2 | Fuel | | WC Method | >5 | <1.0 | | |
| Soot %%ASTM D7844*>30.1NitrationAbs/cmASTM D7624*>208.6SulfationAbs/.1mmASTM D7415*>3019.9Emulsified WaterscalarVisual*>0.2NEGSodiumppmASTM D5185(m)4BoronppmASTM D5185(m)4BariumppmASTM D5185(m)0MolybdenumppmASTM D5185(m)0MagnesiemppmASTM D5185(m)0MagnesiumppmASTM D5185(m)0PhosphorusppmASTM D5185(m)1039ZincppmASTM D5185(m)1178SulfurppmASTM D5185(m)117.2 | Water | | WC Method | >0.2 | NEG | | |
| Soot %%ASTM D7844*>30.1NitrationAbs/cmASTM D7624*>208.6SulfationAbs/.1mmASTM D7415*>3019.9Emulsified WaterscalarVisual*>0.2NEGSodiumppmASTM D5185(m)4BoronppmASTM D5185(m)4BariumppmASTM D5185(m)0MolybdenumppmASTM D5185(m)0MagnesiemppmASTM D5185(m)0MagnesiumppmASTM D5185(m)0PhosphorusppmASTM D5185(m)1039ZincppmASTM D5185(m)1178SulfurppmASTM D5185(m)117.2 | Glycol | | WC Method | | NEG | | |
| NitrationAbs/cmASTM D7624*>208.6SulfationAbs/.1mmASTM D7415*>3019.9Emulsified WaterscalarVisual*>0.2NEGSodiumppmASTM D5185(m)4BoronppmASTM D5185(m)4BariumppmASTM D5185(m)0MolybdenumppmASTM D5185(m)0MaganeseppmASTM D5185(m)0MagnesiumppmASTM D5185(m)0PhosphorusppmASTM D5185(m)0PhosphorusppmASTM D5185(m)1039ZincppmASTM D5185(m)1178SulfurppmASTM D5185(m)2936OxidationAbs/.1mmASTM D7141*>2517.2 | | % | ASTM D7844* | >3 | 0.1 | | |
| Emulsified WaterscalarVisual*>0.2NEGSodiumppmASTM D5185(m)4BoronppmASTM D5185(m)34BariumppmASTM D5185(m)0MolybdenumppmASTM D5185(m)60ManganeseppmASTM D5185(m)0MagnesiumppmASTM D5185(m)0CalciumppmASTM D5185(m)1039PhosphorusppmASTM D5185(m)1039ZincppmASTM D5185(m)1178SulfurppmASTM D5185(m)2936OxidationAbs./1mASTM D7141*>2517.2 | Nitration | Abs/cm | | >20 | 8.6 | | |
| Emulsified WaterscalarVisual*>0.2NEGSodiumppmASTM D5185(m)4BoronppmASTM D5185(m)34BariumppmASTM D5185(m)0MolybdenumppmASTM D5185(m)60ManganeseppmASTM D5185(m)0MagnesiumppmASTM D5185(m)0CalciumppmASTM D5185(m)9007PhosphorusppmASTM D5185(m)1039ZincppmASTM D5185(m)1178SulfurppmASTM D5185(m)2936OxidationAbs./1mASTM D7141*>2517.2 | Sulfation | Abs/.1mm | ASTM D7415* | >30 | 19.9 | | |
| Boron ppm ASTM D5185(m) 34 Barium ppm ASTM D5185(m) 0 Molybdenum ppm ASTM D5185(m) 0 Molybdenum ppm ASTM D5185(m) 0 Manganese ppm ASTM D5185(m) 0 Magnesium ppm ASTM D5185(m) 0 Calcium ppm ASTM D5185(m) 1039 Phosphorus ppm ASTM D5185(m) 1039 Zinc ppm ASTM D5185(m) 1039 Sulfur ppm ASTM D5185(m) 1178 Oxidation Abs/.1mm ASTM D5185(m) 2936 | Emulsified Wate | r scalar | Visual* | >0.2 | | | |
| Boron ppm ASTM D5185(m) 34 Barium ppm ASTM D5185(m) 0 Molybdenum ppm ASTM D5185(m) 0 Molybdenum ppm ASTM D5185(m) 0 Manganese ppm ASTM D5185(m) 0 Magnesium ppm ASTM D5185(m) 0 Calcium ppm ASTM D5185(m) 1039 Phosphorus ppm ASTM D5185(m) 1039 Zinc ppm ASTM D5185(m) 1039 Sulfur ppm ASTM D5185(m) 1178 Oxidation Abs/.1mm ASTM D5185(m) 2936 | | | | | | | |
| Barium ppm ASTM D5185(m) 0 Molybdenum ppm ASTM D5185(m) 60 Manganese ppm ASTM D5185(m) 0 Magnesium ppm ASTM D5185(m) 0 Calcium ppm ASTM D5185(m) 907 Phosphorus ppm ASTM D5185(m) 1039 Zinc ppm ASTM D5185(m) 1178 Sulfur ppm ASTM D5185(m) 2236 Oxidation Abs/.1mm ASTM D7414* >25 17.2 | | ppm | | | 4 | | |
| Molybdenum ppm ASTM D5185(m) 60 Manganese ppm ASTM D5185(m) 0 Magnesium ppm ASTM D5185(m) 0 Magnesium ppm ASTM D5185(m) 0 Calcium ppm ASTM D5185(m) 907 Phosphorus ppm ASTM D5185(m) 1039 Zinc ppm ASTM D5185(m) 1039 Sulfur ppm ASTM D5185(m) 1178 Oxidation Abs/.1mm ASTM D7414*<>25 17.2 | Boron | ppm | ASTM D5185(m) | | 34 | | |
| Manganese ppm ASTM D5185(m) 0 Magnesium ppm ASTM D5185(m) 1039 Calcium ppm ASTM D5185(m) 907 Phosphorus ppm ASTM D5185(m) 1039 Zinc ppm ASTM D5185(m) 1039 Sulfur ppm ASTM D5185(m) 1039 Oxidation ASTM D5185(m) 1039 | Barium | ppm | | | | | |
| Magnesium ppm ASTM D5185(m) 1039 Calcium ppm ASTM D5185(m) 907 Phosphorus ppm ASTM D5185(m) 1039 Zinc ppm ASTM D5185(m) 1178 Sulfur ppm ASTM D5185(m) 2936 Oxidation Abs/.1mm ASTM D7414* >25 17.2 | Molybdenum | ppm | ASTM D5185(m) | | 60 | | |
| Calcium ppm ASTM D5185(m) 907 Phosphorus ppm ASTM D5185(m) 1039 Zinc ppm ASTM D5185(m) 1178 Sulfur ppm ASTM D5185(m) 2936 Oxidation Abs/.1mm ASTM D7414* >25 17.2 | Manganese | ppm | ASTM D5185(m) | | 0 | | |
| Phosphorus ppm ASTM D5185(m) 1039 Zinc ppm ASTM D5185(m) 1178 Sulfur ppm ASTM D5185(m) 2936 Oxidation Abs/.1mm ASTM D7414* >25 17.2 | Magnesium | ppm | ASTM D5185(m) | | 1039 | | |
| Zinc ppm ASTM D5185(m) 1178 Sulfur ppm ASTM D5185(m) 2936 Oxidation Abs/.1mm ASTM D7414* >25 17.2 | Calcium | ppm | ASTM D5185(m) | | 907 | | |
| Sulfur ppm ASTM D5185(m) 2936 Oxidation Abs/.1mm ASTM D7414* >25 17.2 | Phosphorus | ppm | ASTM D5185(m) | | 1039 | | |
| Oxidation Abs/.1mm ASTM D7414* >25 17.2 | Zinc | ppm | ASTM D5185(m) | | 1178 | | |
| | Sulfur | ppm | ASTM D5185(m) | | 2936 | | |
| Visc @ 100°C cSt ASTM D7279(m) 11.0 11.7 | Oxidation | Abs/.1mm | ASTM D7414* | >25 | 17.2 | | |
| | Visc @ 100°C | cSt | ASTM D7279(m) | 11.0 | 11.7 | | |

Contact/Location: Adam ? - DES337STO





