CONSTRUCTION EQUIPMENT

LIEBHERR LH30M 114790-1253 - Diesel Engine

Sample No: LH0288041

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Oil Type: PETRO CANADA 10W40

Sample Information

| Sample Number | LH0288041 | LH0280955 | LH0242113 | LH0260615 |
|---------------|-------------|-------------|-------------|-------------|
| Sample Date | 12 Apr 2024 | 19 Jan 2024 | 10 Oct 2023 | 02 Jun 2023 |
| Machine Hours | 9051 | 8550 | 7937 | 7165 |
| Oil Hours | 0 | 0 | 0 | 0 |
| Oil Changed | Changed | Changed | Changed | Not Changd |
| Sample Status | NORMAL | NORMAL | ABNORMAL | NORMAL |
| | | | | |

| Oil Condition | | | | | | | |
|----------------------|-------|-------------|--------|--------|--------|--|--|
| Visc @ 40°C | cSt | 84.7 | | | | | |
| Visc @ 100°C | cSt | 0 12.8 | 0 12.4 | 0 11.4 | 0 13.8 | | |
| Viscosity Index (VI) | Scale | 149 | | | | | |
| Oxidation (PA) | % | 63 | 66 | 75 | 56 | | |

| Contamination | | | | | | | |
|----------------|-----|------|------|------|------|--|--|
| Water | % | NEG | NEG | NEG | NEG | | |
| Soot % | % | 0 | 0 | 0 | 0 | | |
| Nitration (PA) | % | 64 | 70 | 75 | 45 | | |
| Sulfation (PA) | % | 52 | 52 | 58 | 50 | | |
| Glycol | % | NEG | NEG | 0.0 | NEG | | |
| Fuel | % | <1.0 | <1.0 | 03 | <1.0 | | |
| Silicon | ppm | 0 9 | 9 | 07 | 8 | | |
| Sodium | ppm | 01 | 01 | 2 | ○ <1 | | |
| Potassium | maa | 0 | 0 <1 | 0 17 | ○ <1 | | |

| Wear Metals | | | | | | | |
|-------------|-----|-------------|------|------|------|--|--|
| Iron | ppm | 03 | 0 4 | ○ 5 | 2 | | |
| Copper | ppm | ○ <1 | 0 2 | 6 | 03 | | |
| Lead | ppm | 0 | ○ <1 | 2 | ◯ <1 | | |
| Tin | ppm | 0 | ○ <1 | ◯ <1 | 0 | | |
| Aluminum | ppm | ○ <1 | 01 | 01 | 01 | | |
| Chromium | ppm | 0 | 0 | 0 | 0 | | |
| Molybdenum | ppm | 57 | 58 | 60 | 57 | | |
| Nickel | ppm | 0 | ○ <1 | 0 | 0 | | |
| Titanium | ppm | 0 | 0 | 0 | 0 | | |
| Silver | ppm | 0 | ○ <1 | ◯ <1 | 0 | | |
| Manganese | ppm | 0 | 0 | 0 | ◯ <1 | | |
| Vanadium | ppm | 0 | 0 | 0 | 0 | | |

| Additives | | | | | | | |
|------------|-----|-------------|--------|--------|--------|--|--|
| Calcium | ppm | 1059 | 0 1086 | 0 1141 | 0 1089 | | |
| Magnesium | ppm | 974 | 954 | 908 | ○ 949 | | |
| Zinc | ppm | 1191 | 0 1176 | 0 1151 | 0 1204 | | |
| Phosphorus | ppm | 0 1000 | 0 1011 | 920 | 0 1086 | | |
| Barium | ppm | 0 | 0 | ◯ <1 | 0 | | |
| Boron | ppm | ○ <1 | 0 1 | 6 | 01 | | |







DAVIS TRADING & SUPPLY LTD. 110 GRANT STREET VANCOUVER, BC CA V6A 2J6 Contact: Service Manager

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Diagnosis

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The condition of the oil is acceptable for the time in service.



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Graphs Lead (ppm) Iron (ppm) 20 T Severe 120-Severe 100 15 80 Abnormal Щ. 60 튭 10· d 40 5 20 0. 0 Jan30/20 Jan 19/24 Jan30/20 0ct21/22 -Jan 19/24 -Dec9/21 lun2/23 0ct21/22 lun30/71 lun30/21 Dec9/21 Jun2/23 Chromium (ppm) Aluminum (ppm) 16 7 14 6 12 5. 10 Abnormal ppm Abnorma ppm 8 6 2 2 0 0. 0ct21/22. Jan 19/24 Dec9/21 Jun2/23 Dec9/21 Jan30/20 Jan 19/24 Jun30/21 Jan 30/20 Jun30/21 0ct21/22 Jun2/23 Copper (ppm) Silicon (ppm) 350 25 T Severe 300 20 250 Abnorma 15. 는 200 전 150 ppm 10 100 Abno 5 50 0. 0 0ct21/22 -Jan30/20 -Dec9/21. Jan 19/24 -Dec9/21 0ct21/22 Jun2/23 Jan 19/24 Jun30/21 Jun2/23 Jan 30/20 lun30/7 Viscosity @ 100°C Soot % 18 6.0-17 Abnormal 5.0 16 4.0 () 15-00 14-13-13-Soot % Abnormal 2.0 Abnorm 12 1.0 11 10 0.0 Dec9/21. Jan 19/24 -Jan30/20 -0ct21/22 Jan30/20 Dec9/21. 0ct21/22 Jan 19/24 Jun30/21 Jun2/23 Jun30/21 Jun2/23

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