

OIL ANALYSIS REPORT



DIAGNOSIS

Recommendation

We advise that you check for the source of water entry. We advise that you follow the water drain-off procedure for this component. Resample at the next service interval to monitor.

Wear

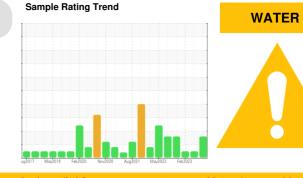
All component wear rates are normal.

Contamination

Free water present.

Fluid Condition

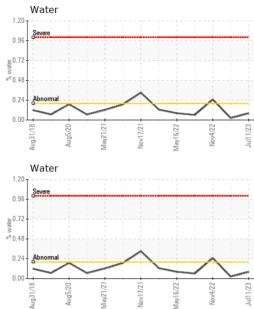
The AN level is acceptable for this fluid.

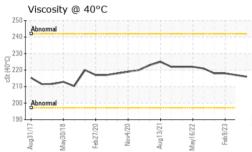


| SAMPLE INFORM | IATION | method | limit/base | current | history1 | history2 |
|---|--|--|----------------------------------|--|--|---|
| Sample Number | | Client Info | | HPL0003599 | HPL0002779 | HPL0001857 |
| Sample Date | | Client Info | | 11 Jul 2023 | 05 May 2023 | 09 Feb 2023 |
| Machine Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Age | hrs | Client Info | | 7020 | 5400 | 3780 |
| Oil Changed | | Client Info | | Not Changd | Not Changd | Not Changd |
| Sample Status | | | | ABNORMAL | NORMAL | NORMAL |
| WEAR METALS | | method | limit/base | current | history1 | history2 |
| Iron | ppm | ASTM D5185m | >200 | 107 | 101 | 92 |
| Chromium | ppm | ASTM D5185m | >10 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >10 | 0 | <1 | 0 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | 1 | <1 | 0 |
| Lead | ppm | ASTM D5185m | >50 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >200 | <1 | <1 | <1 |
| Tin | ppm | ASTM D5185m | >10 | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| | | | | | | |
| ADDITIVES | | method | limit/base | current | history1 | history2 |
| ADDITIVES Boron | ppm | method ASTM D5185m | limit/base | current 0 | <mark>history1</mark> 0 | <mark>history2</mark> 0 |
| | ppm ppm | | limit/base | | | 0 |
| Boron | | ASTM D5185m | limit/base | 0 | 0 | 0 |
| Boron Barium | ppm | ASTM D5185m ASTM D5185m | limit/base | 0 0 | 0 | 0 |
| Boron Barium Molybdenum | ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 0 0 0 | 0 0 <1 | 0 0 0 0 |
| Boron Barium Molybdenum Manganese | ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 0 0 0 2 | 0 0 <1 1 | 0 0 0 1 |
| Boron Barium Molybdenum Manganese Magnesium | ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 0 0 0 2 2 | 0 0 <1 1 <1 | 0 0 0 1 <1 |
| Boron Barium Molybdenum Manganese Magnesium Calcium | ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 0 0 2 2 23 | 0 0 <1 1 <1 22 | 0 0 1 <1 15 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus | ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 0 0 2 2 23 145 | 0 0 <1 1 <1 22 130 | 0 0 1 <1 15 129 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 0 0 2 2 23 145 0 | 0 0 <1 1 <1 22 130 2 | 0 0 1 <1 15 129 0 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | | 0 0 2 2 23 145 0 22587 | 0 0 <1 1 <1 22 130 2 18256 history1 2 | 0 0 1 <1 15 129 0 19446 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS | ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m | limit/base | 0 0 2 2 23 145 0 22587 current | 0 0 <1 1 <1 22 130 2 18256 history1 | 0 0 1 <1 15 129 0 19446 history2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m | limit/base | 0 0 2 2 23 145 0 22587 current | 0 0 <1 1 <1 22 130 2 18256 history1 2 | 0 0 0 1 <1 15 129 0 19446 history2 2 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium | ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >50 | 0 0 2 2 23 145 0 22587 22587 current 1 0 | 0 0 <1 1 <1 22 130 2 18256 history1 2 0 | 0 0 0 1 <1 15 129 0 19446 history2 2 <1 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >50 >20 >0.2 | 0 0 2 2 23 145 0 22587 22587 current 1 0 22587 | 0 0 <1 1 <1 22 130 2 18256 history1 2 0 <1 | 0 0 0 1 <1 5 129 0 19446 history2 2 <1 0 |
| Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Water | ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm | ASTM D5185m ASTM D5185m | limit/base >50 >20 >0.2 | 0 0 2 2 23 145 0 22587 current 1 0 <1 0.080 | 0 0 <1 1 <1 22 130 2 18256 history1 2 0 <1 | 0 0 0 1 <1 15 129 0 19446 history2 2 <1 0 0 0.025 |



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| | | 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 |
| \wedge | \wedge | Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| \sim | \sim \sim | Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| May11/21 Nov17/21 May16/22 | Nov4/22 Jul11/23 | Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Nov | Nov | Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| | | Emulsified Water | scalar | *Visual | >0.2 | 0.2% | NEG | 0.2% |
| | | Free Water | scalar | *Visual | | <u> </u> | NEG | NEG |
| | | FLUID PROPERT | IES | method | limit/base | current | history1 | history2 |
| | | Visc @ 40°C | cSt | ASTM D445 | | 216 | 217 | 218 |
| | | SAMPLE IMAGES | 6 | method | limit/base | current | history1 | history2 |
| 12/12/12/12/12/12/12/12/12/12/12/12/12/1 | 22/how | Color | | | | no image | | no image |
| C | | Bottom | | | | no image | | no image |
| | <u> </u> | GRAPHS | | | | Load (ppm) | | |
| | | Iron (ppm) | | | 200 | Lead (ppm) | | |
| | | E 400 - Severe 200 - Abnormal | | | 톱 100 | Severe | | |
| Nov4/20 - | ay 1 6/2 2 | B 200 - Abnormal | | | | Abnormal | | |
| Nov4/20 Aug13/21 | May16/22 Feb9/23 | Aug31/17 | Nov4/20 - | May16/22 - | (| Aug31/17 | Nov4/20 Aug13/21 | May16/22 |
| | | ⁸ 분 문 Aluminum (ppm) | Nc | May | | Chromium (p | | May Fe |
| | | 100- | | | 30 | | риц у | |
| | | 50 Abnormal | | | | | | |
| | | Abnormal | | | ع ²⁰ 10 |) - Abnormal | | |
| | | 20 | 20- 21- | 22 | | | 20- | 22 |
| | | Aug31/17 May30/18 Feb27/20 | Nov4/20 Aug13/21 | May16/22 Feb9/23 | | Aug31/17 May30/18 Feb27/20 | Nov4/20 Aug13/21 | May16/22 Feb9/23 |
| | | 4 2 1 | Au | M | | | A, h | N I |
| | | Copper (ppm) | | | 150 | Silicon (ppm) | | |
| | 1 | E 400 Severe | | | E 100 |)- | | |
| | | B ₂₀₀ Abnormal | | | [₽] 50 | Abnormal | | |
| | | 20 18 20 20 20 20 20 20 20 20 20 20 20 20 20 | 21 | 22 | | 11-1-1 | 20 | 22 |
| | | Aug31/17 May30/18 Feb27/20 | Nov4/20 Aug13/21 | May16/22 Feh9/23 | | Aug31/17 May30/18 Feb27/20 | Nov4/20 Aug13/21 | May16/22 Feb9/23 |
| | | ∝ ≊ ٿ Viscosity @ 40°C | A. | × | | | A T | × |
| | | 300 | | | 40,100 Acid Number Acid Number | Acid Number | | |
| | | G 200 - Abnormal Abnormal Abnormal | | | ພ 0.50 | | | |
| | 1140- | | | | a 0.50 | | \sim | |
| | | | 20- | 22 | 2 0.00 | 717 | 20- | 22 - |
| | | Aug31/17 May30/18 Feb27/20 | Nov4/20 Aug13/21 | May16/22 | 4 | Aug31/17 May30/18 - Feb27/20 - | Nov4/20 Aug13/21 | May16/22 Feb9/23 |
| * - Denotes test | methods that a | : WearCheck USA - 5 : HPL0003599 F : 05900126 C : 10561482 C : MOB 2 (Additional T contact Customer Servit are outside of the ISO 17 | son Ave., Ca d : 17 , ed : 19 , ician : Dor [:]) <i>00-237-136</i> 5 | Jul 2023 Jul 2023 n Baldridge 9. | | | | |

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