



OIL ANALYSIS REPORT

| | |
|-----------------|---------------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |

Area
TPR-Houston Port
 Machine Id
513177 LIEBHERR 118831
 Component
Rear Left Planetary
 Fluid
LIEBHERR GEAR BASIC 90 LS (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | DJJ0023425 | DJJ0018818 | DJJ0018860 |
| Sample Date | | Client Info | | 01 Apr 2024 | 22 Jan 2024 | 24 Feb 2023 |
| Machine Age | hrs | Client Info | | 10682 | 10024 | 8372 |
| Oil Age | hrs | Client Info | | 500 | 0 | 0 |
| Filter Age | hrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | Changed | N/A | Changed |
| Filter Changed | | Client Info | | Changed | N/A | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|-------|
| Iron | ppm | ASTM D5185m | >500 | 10 | 11 | 6 |
| Chromium | ppm | ASTM D5185m | >10 | <1 | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >10 | <1 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| Silver | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >25 | 2 | <1 | <1 |
| Lead | ppm | ASTM D5185m | >25 | 1 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >75 | 3 | 8 | 4 |
| Tin | ppm | ASTM D5185m | >10 | <1 | <1 | 0 |
| Vanadium | ppm | ASTM D5185m | | <1 | 0 | 0 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | LIGHT |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

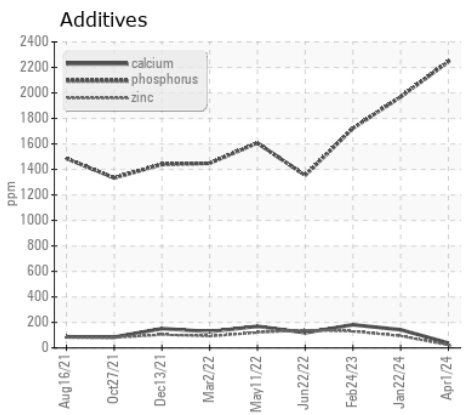
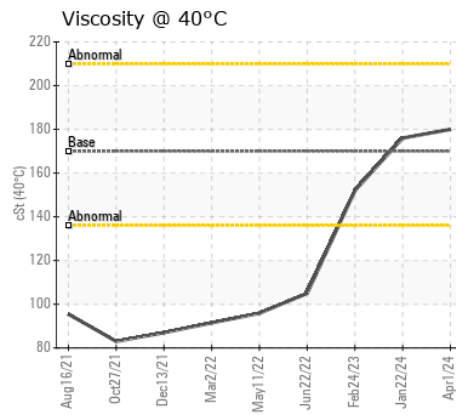
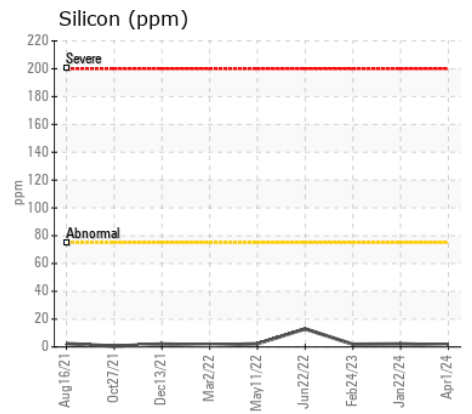
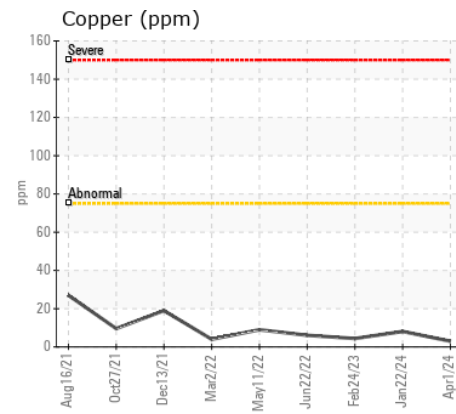
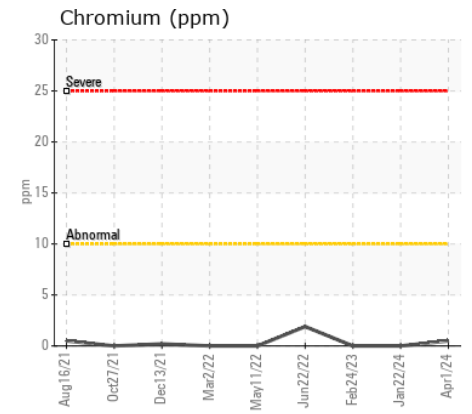
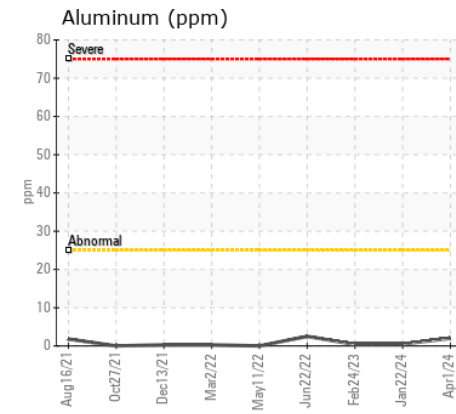
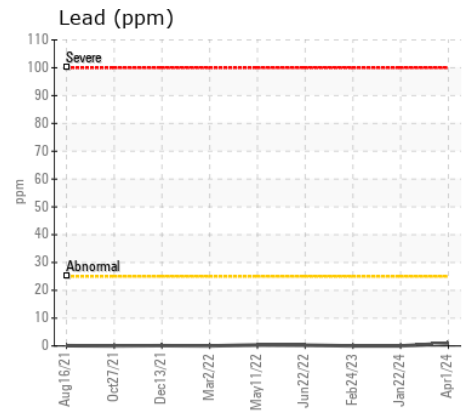
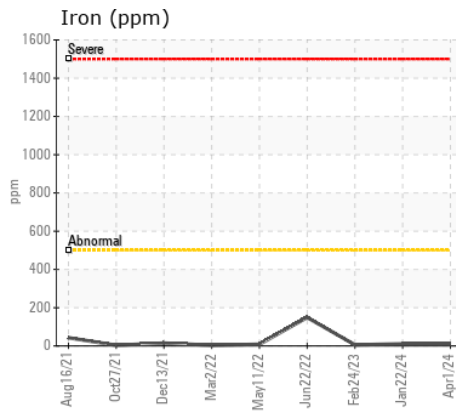
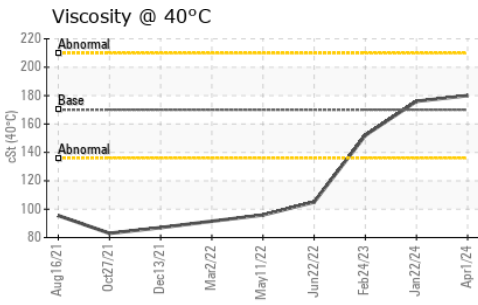
There is no indication of any contamination in the oil.

| | | | | | | |
|------------------|--------|-------------|-------|--------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >75 | 1 | 2 | 2 |
| Potassium | ppm | ASTM D5185m | >20 | <1 | <1 | 0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | VLITE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | NEG |

FLUID CONDITION

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

| | | | | | | |
|-------------|-----|-------------|-------|--------------|-------|-------|
| Sodium | ppm | ASTM D5185m | | 0 | 2 | <1 |
| Boron | ppm | ASTM D5185m | 0 | 15 | 61 | 94 |
| Barium | ppm | ASTM D5185m | 0 | 2 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | 0 | 2 | 10 | 16 |
| Manganese | ppm | ASTM D5185m | 0 | 1 | <1 | 0 |
| Magnesium | ppm | ASTM D5185m | <1 | 11 | 59 | 76 |
| Calcium | ppm | ASTM D5185m | <1 | 39 | 143 | 182 |
| Phosphorus | ppm | ASTM D5185m | 2143 | 2246 | 1969 | 1722 |
| Zinc | ppm | ASTM D5185m | <1 | 22 | 94 | 130 |
| Sulfur | ppm | ASTM D5185m | 23468 | 30169 | 22316 | 24233 |
| Visc @ 40°C | cSt | ASTM D445 | 170 | 180 | 176 | 152 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : DJJ0023425 **Received** : 18 Apr 2024
Lab Number : 06153529 **Tested** : 19 Apr 2024
Unique Number : 10983607 **Diagnosed** : 22 Apr 2024 - Sean Felton
Test Package : MOBCE

TEXAS PORT RECYCLING - HOUSTON PORT
 8945 MANCHESTER ST
 HOUSTON, TX
 US 77012
 Contact: Dale Shaw
 dale.shaw@tmrecycling.com
 T:
 F: (713)921-5545

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)