

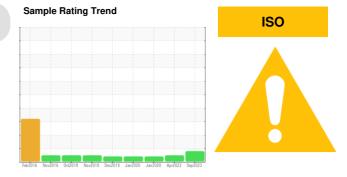
# **PROBLEM SUMMARY**

# [450203444]

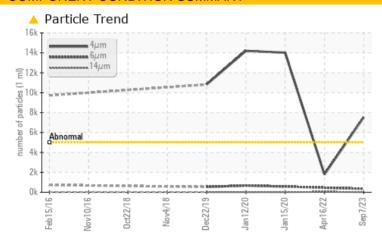
# TA-66610 OHPU TANK SAMPLE

**Sealing System** 

**NOT GIVEN (--- GAL)** 



### **COMPONENT CONDITION SUMMARY**



#### RECOMMENDATION

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We recommend you service the filters on this component. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

| <b>PROBI</b> | _EMATIC ' | TEST | RESULTS |
|--------------|-----------|------|---------|
|              |           |      |         |

| Sample Status   |              |           | ATTENTION   | NORMAL   | ABNORMAL          |
|-----------------|--------------|-----------|-------------|----------|-------------------|
| Particles >4µm  | ASTM D7647   | >5000     | <b>7533</b> | 1790     | <b>1</b> 4017     |
| Oil Cleanliness | ISO 4406 (c) | >19/17/14 | <u> </u>    | 18/16/13 | <u>^</u> 21/16/11 |

Customer Id: TERHAM Sample No.: PC0052027 Lab Number: 02584674 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Bill Quesnel CLS,OMA II,MLA-III,LLA-I +1 (289)291-4641 x4641

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To change component or sample information: Gloria Gonzalez +1 (289)291-4643 x4643 gloria.gonzalez@wearcheck.com

#### RECOMMENDED ACTIONS

| Action               | Status | Date | Done By | Description   |
|----------------------|--------|------|---------|---|
| Change Filter        |        |      | ?       | We recommend you service the filters on this component.   |
| Alert                |        |      | ?       | Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. |
| Information Required |        |      | ?       | Please specify the brand, type, and viscosity of the oil on your next sample. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.  |

#### HISTORICAL DIAGNOSIS

#### Nontra



Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.



#### ISO



#### 15 Jan 2020 Diag: Kevin Marson

16 Apr 2022 Diag: Kevin Marson

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. Particles >4µm are abnormally high. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.



#### ISO



#### 12 Jan 2020 Diag: Kevin Marson

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We recommend you service the filters on this component. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample. All component wear rates are normal. Particles >4µm are abnormally high. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.





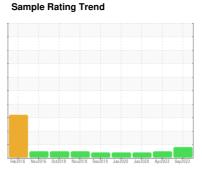
# **OIL ANALYSIS REPORT**

[450203444]

# TA-66610 OHPU TANK SAMPLE

**Sealing System** 

**NOT GIVEN (--- GAL)** 





## **DIAGNOSIS**

#### Recommendation

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. We recommend you service the filters on this component. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

#### Wear

All component wear rates are normal.

#### Contamination

There is a light amount of silt (particulates < 14 microns in size) present in the fluid.

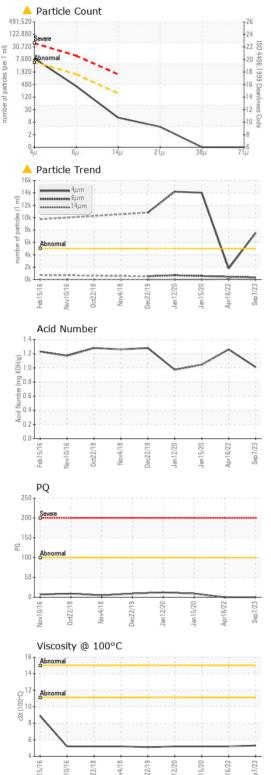
#### **Fluid Condition**

The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

| Of the LL into Orth  | MATION   | method   | limit/base  | current   | history1   | history2  |
|--|--|--|---|---|--|---|
| Sample Number  |  | Client Info  |   | PC0052027   | PC0040590  | PC0016456   |
| Sample Date  |  | Client Info  |   | 07 Sep 2023   | 16 Apr 2022  | 15 Jan 2020   |
| Machine Age  | hrs  | Client Info  |   | 0   | 0  | 0   |
| Oil Age  | hrs  | Client Info  |   | 0   | 0  | 0   |
| Oil Changed  |  | Client Info  |   | N/A   | N/A  | N/A   |
| Sample Status  |  |  |   | ATTENTION   | NORMAL   | ABNORMAL  |
| WEAR METAL   | S  | method   | limit/base  | current   | history1   | history2  |
| PQ   |  | ASTM D8184*  |   | 0   | 0  | 9   |
| Iron   | ppm  | ASTM D5185(m)  | >100  | 2   | 2  | 2   |
| Chromium   | ppm  | ASTM D5185(m)  | >3  | 0   | 0  | <1  |
| Nickel   | ppm  | ASTM D5185(m)  | >8  | <1  | 0  | <1  |
| Titanium   | ppm  | ASTM D5185(m)  |   | 0   | <1   | <1  |
| Silver   | ppm  | ASTM D5185(m)  |   | 0   | 0  | <1  |
| Aluminum   | ppm  | ASTM D5185(m)  | >3  | <1  | <1   | <1  |
| Lead   | ppm  | ASTM D5185(m)  |   | <1  | <1   | <1  |
| Copper   | ppm  | ASTM D5185(m)  | >3  | <1  | <1   | <1  |
| Tin  | ppm  | ASTM D5185(m)  |   | 0   | 0  | 0   |
| Antimony   | ppm  | ASTM D5185(m)  |   | 0   | 0  | <1  |
| Vanadium   | ppm  | ASTM D5185(m)  |   | 0   | 0  | 0   |
| Beryllium  | ppm  | ASTM D5185(m)  |   | 0   | 0  | 0   |
| Cadmium  | ppm  | ASTM D5185(m)  |   | 0   | 0  | 0   |
| ADDITIVES  |  | method   | limit/base  | current   | history1   | history2  |
| Boron  | ppm  | ASTM D5185(m)  |   | 114   | 115  | 130   |
| Barium   | ppm  | ASTM D5185(m)  |   | 0   | 0  | <1  |
|  | le le  | 70 TW D3 T03(III)  |   | U   | 0  | < 1   |
| Molybdenum   | ppm  | ASTM D5185(m)  |   | <1  | 0  | 0   |
| Molybdenum<br>Manganese  |  | 1 /  |   | -   |  |   |
|  | ppm  | ASTM D5185(m)  |   | <1  | 0  | 0   |
| Manganese  | ppm  | ASTM D5185(m) ASTM D5185(m)  |   | <1<br>0   | 0  | 0<br><1   |
| Manganese<br>Magnesium   | ppm<br>ppm   | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)  |   | <1<br>0<br>1<br>57<br>288   | 0<br>0<br><1   | 0<br><1<br><1   |
| Manganese<br>Magnesium<br>Calcium  | ppm<br>ppm<br>ppm  | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)  |   | <1<br>0<br>1<br>57  | 0<br>0<br><1<br>51   | 0<br><1<br><1<br>54   |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur   | ppm<br>ppm<br>ppm<br>ppm   | ASTM D5185(m)  |   | <1<br>0<br>1<br>57<br>288<br>24<br>878                            | 0<br>0<br><1<br>51<br>274<br>22<br>907   | 0 <1 <1 <1 54 287 22 927  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc  | ppm<br>ppm<br>ppm<br>ppm<br>ppm                                    | ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)  |   | <1<br>0<br>1<br>57<br>288<br>24                                   | 0<br>0<br><1<br>51<br>274<br>22  | 0 <1 <1 <1 54 287 22  |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185(m)  | limit/base  | <1<br>0<br>1<br>57<br>288<br>24<br>878                            | 0<br>0<br><1<br>51<br>274<br>22<br>907   | 0 <1 <1 <1 54 287 22 927  |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | ASTM D5185(m)  |   | <1<br>0<br>1<br>57<br>288<br>24<br>878                            | 0<br>0<br><1<br>51<br>274<br>22<br>907<br><1   | 0 <1 <1 <2 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4 <4                               |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185(m)  |   | <1<br>0<br>1<br>57<br>288<br>24<br>878<br><1                      | 0<br>0<br><1<br>51<br>274<br>22<br>907<br><1<br>history1   | 0 <1 <1 <2 <1 <2 <1 <2 <1 <2 <1 <2 <1 <2 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | ASTM D5185(m)  |   | <1<br>0<br>1<br>57<br>288<br>24<br>878<br><1<br>current           | 0<br>0<br><1<br>51<br>274<br>22<br>907<br><1<br>history1   | 0 <1 <1 <2 <1 <2 <1 <2 <1 <2 <1 <2 <1 <2 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINAN Silicon Sodium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185(m)  | >25   | <1<br>0<br>1<br>57<br>288<br>24<br>878<br><1<br>current<br>3      | 0<br>0<br><1<br>51<br>274<br>22<br>907<br><1<br>history1<br>2  | 0 <1 <1 <1 54 287 22 927 <1 history2 2  |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINAN Silicon Sodium Potassium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185(m)  | >25<br>>20  | <1<br>0<br>1<br>57<br>288<br>24<br>878<br><1<br>current<br>3<br>3 | 0<br>0<br><1<br>51<br>274<br>22<br>907<br><1<br>history1<br>2<br>2   | 0 <1 <1 <2 <1 <1 <2 <1 <1 <2 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1             |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINAN Silicon Sodium Potassium  FLUID CLEANI  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185(m)  | >25<br>>20<br>limit/base                                  | <1 0 1 57 288 24 878 <1 current 3 3 18                            | 0<br>0<br><1<br>51<br>274<br>22<br>907<br><1<br>history1<br>2<br>2   | 0 <1 <1 <1 54 287 22 927 <1 history2 2 1 <1 history2                            |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINAN Silicon Sodium Potassium  FLUID CLEANI Particles >4µm                                 | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185(m)  MASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)  ASTM D5185(m)  | >25<br>>20<br>limit/base<br>>5000                         | <1 0 1 57 288 24 878 <1 current 3 3 18 current  ^ 7533            | 0<br>0<br><1<br>51<br>274<br>22<br>907<br><1<br>history1<br>2<br>2<br>1<br>history1<br>1790                    | 0   |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINAN Silicon Sodium Potassium  FLUID CLEANI Particles >4µm Particles >6µm                  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185(m)  METHOD  ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7647                                  | >25<br>>20<br>limit/base<br>>5000<br>>1300                | <1 0 1 57 288 24 878 <1 current 3 3 18 current  ^ 7533 353        | 0 0 <1 51 274 22 907 <1 history1 2 2 1 history1 1790 456   | 0   |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINAN Silicon Sodium Potassium  FLUID CLEANI Particles >4µm Particles >6µm Particles >14µm  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185(m)  MASTM D5185(m)  ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7647 ASTM D7647 | >25<br>>20<br>limit/base<br>>5000<br>>1300<br>>160        | <1 0 1 57 288 24 878 <1 current 3 3 18 current  ^ 7533 353 11     | 0<br>0<br><1<br>51<br>274<br>22<br>907<br><1<br>history1<br>2<br>2<br>1<br>history1<br>1790<br>456<br>52       | 0 <1 <1 <1 54 287 22 927 <1 history2 2 1 <1 history2   ▲ 14017 571 11           |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium  CONTAMINAN Silicon Sodium Potassium  FLUID CLEANI Particles >4µm Particles >14µm Particles >21µm | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | ASTM D5185(m)  MASTM D5185(m)  MASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647                    | >25<br>>20<br>limit/base<br>>5000<br>>1300<br>>160<br>>40 | <1 0 1 57 288 24 878 <1 current 3 3 18 current  ^ 7533 353 11 4   | 0<br>0<br><1<br>51<br>274<br>22<br>907<br><1<br>history1<br>2<br>2<br>1<br>history1<br>1790<br>456<br>52<br>12 | 0 <1 <1 <1 54 287 22 927 <1 history2 2 1 <1 history2   ▲ 14017 571 11 4         |



# **OIL ANALYSIS REPORT**



| FLUID DEGRAD            | NOITAC   | method        | limit/base | current | history1 | history2 |
|-------------------------|----------|---------------|------------|---------|----------|----------|
| Acid Number (AN)        | mg KOH/g | ASTM D974*    |            | 1.01    | 1.26     | 1.046    |
| 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     |
| Debris                  | scalar   | Visual*       | NONE       | NONE    | VLITE    | NONE     |
| Sand/Dirt               | scalar   | Visual*       | NONE       | NONE    | NONE     | NONE     |
| Appearance              | scalar   | Visual*       | NORML      | NORML   | NORML    | NORML    |
| Odor                    | scalar   | Visual*       | NORML      | NORML   | NORML    | NORML    |
| <b>Emulsified Water</b> | scalar   | Visual*       |            | NEG     | NEG      | NEG      |
| Free Water              | scalar   | Visual*       |            | NEG     | NEG      | NEG      |
| FLUID PROPE             | RTIES    | method        | limit/base | current | history1 | history2 |
| Visc @ 40°C             | cSt      | ASTM D7279(m) |            | 24.6    | 24.4     | 24.1     |
| Visc @ 100°C            | cSt      | ASTM D7279(m) |            | 5.3     | 5.2      | 5.2      |
| Viscosity Index (VI)    | Scale    | ASTM D2270*   |            | 156     | 150      | 153      |
| SAMPLE IMAG             | ES       | method        | limit/base | current | history1 | history2 |
| Color                   |          |               |            |         |          |          |
| Bottom                  |          |               |            |         |          |          |



ISO 17025:2017
Accredited
Laboratory

Laboratory Sample No. Lab Number Unique Number

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 : PC0052027 Received : 22 Sep 2023

: PC0052027 Received : 02584674 Diagnosed : 5645739 Diagnostici

: 22 Sep 2023 d : 26 Sep 2023 cian : Bill Quesnel

Unique Number : 5645739 Diagnostician : Bill Quesnel
Test Package : IND 2 (Additional Tests: KV100, PQ, PRTCOUNT, VI)

To discuss this sample report, contact Customer Service at 1-800-268-2131.

Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

Suncor - Terra Nova Projects Scotia Centre, 235 Water Strret St. John's, NL

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F: (709)724-2835