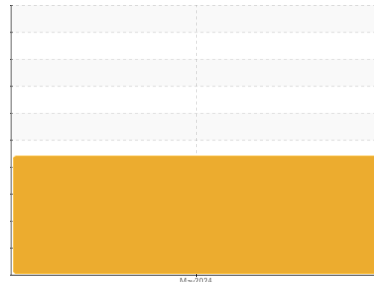




# PROBLEM SUMMARY

## Sample Rating Trend



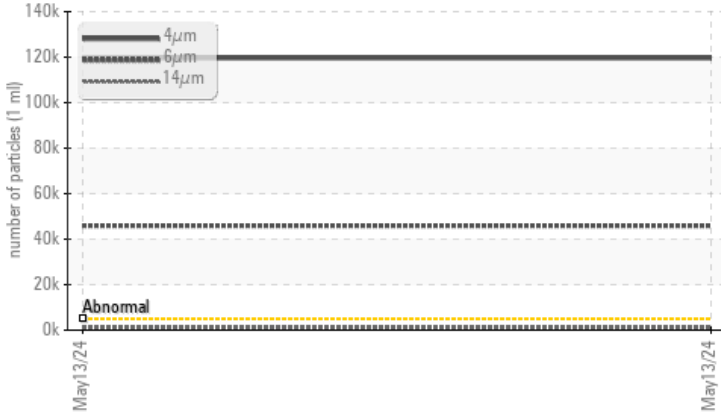
ISO



Machine Id  
**PALFINGER 476449 - CSX-FOSTORIA**  
 Component  
**Hydraulic System**  
 Fluid  
**AW HYDRAULIC OIL ISO 32 (--- LTR)**

## COMPONENT CONDITION SUMMARY

### ▲ Particle Trend



## RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. Please specify the brand, type, and viscosity of the oil on your next sample.

## PROBLEMATIC TEST RESULTS

| Sample Status   |              |           | SEVERE     | --- | --- |
|-----------------|--------------|-----------|------------|-----|-----|
| Particles >4µm  | ASTM D7647   | >5000     | ▲ 119590   | --- | --- |
| Particles >6µm  | ASTM D7647   | >1300     | ▲ 45884    | --- | --- |
| Particles >14µm | ASTM D7647   | >160      | ▲ 1011     | --- | --- |
| Particles >21µm | ASTM D7647   | >40       | ▲ 211      | --- | --- |
| Oil Cleanliness | ISO 4406 (c) | >19/17/14 | ▲ 24/23/17 | --- | --- |

Customer Id: PALTIF  
 Sample No.: WC0911886  
 Lab Number: 06235878  
 Test Package: CONST



To manage this report scan the QR code

To discuss the diagnosis or test data:  
 Wes Davis +1 905-569-8600 x223  
[wesd@wearcheck.ca](mailto:wesd@wearcheck.ca)

To change component or sample information:  
 Customer Service +1 1-800-237-1369  
[customerservice@wearcheck.com](mailto:customerservice@wearcheck.com)

## RECOMMENDED ACTIONS

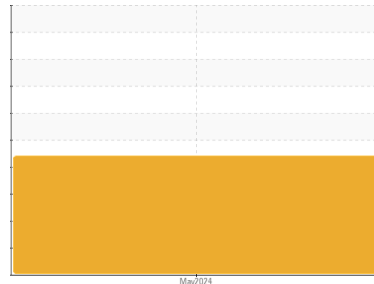
| Action               | Status | Date | Done By | Description  |
|----------------------|--------|------|---------|--|
| Change Filter        | ---    | ---  | ?       | We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.   |
| Resample             | ---    | ---  | ?       | Resample in 30-45 days to monitor this situation.  |
| Information Required | ---    | ---  | ?       | Please specify the brand, type, and viscosity of the oil on your next sample.  |
| Check Breathers      | ---    | ---  | ?       | The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. |
| Check Dirt Access    | ---    | ---  | ?       | We advise that you check all areas where contaminants can enter the system.  |
| Filter Fluid         | ---    | ---  | ?       | We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.   |

## HISTORICAL DIAGNOSIS



# OIL ANALYSIS REPORT

Sample Rating Trend



ISO



Machine Id

## PALFINGER 476449 - CSX-FOSTORIA

Component

### Hydraulic System

Fluid

### AW HYDRAULIC OIL ISO 32 (--- LTR)

#### DIAGNOSIS

##### ▲ Recommendation

We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. 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 high amount of particulates (2 to 100 microns in size) present in the oil.

##### Fluid Condition

The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

#### SAMPLE INFORMATION

|               | method      | limit/base  | current            | history1 | history2 |
|---------------|-------------|-------------|--------------------|----------|----------|
| Sample Number | Client Info |             | <b>WC0911886</b>   | ---      | ---      |
| Sample Date   | Client Info |             | <b>13 May 2024</b> | ---      | ---      |
| Machine Age   | hrs         | Client Info | <b>3995</b>        | ---      | ---      |
| Oil Age       | hrs         | Client Info | <b>0</b>           | ---      | ---      |
| Oil Changed   | Client Info |             | <b>Not Chngd</b>   | ---      | ---      |
| Sample Status |             |             | <b>SEVERE</b>      | ---      | ---      |

#### CONTAMINATION

|       | method    | limit/base | current    | history1 | history2 |
|-------|-----------|------------|------------|----------|----------|
| Water | WC Method | >0.1       | <b>NEG</b> | ---      | ---      |

#### WEAR METALS

|          | method | limit/base      | current      | history1 | history2 |
|----------|--------|-----------------|--------------|----------|----------|
| Iron     | ppm    | ASTM D5185m >20 | <b>3</b>     | ---      | ---      |
| Chromium | ppm    | ASTM D5185m >10 | <b>&lt;1</b> | ---      | ---      |
| Nickel   | ppm    | ASTM D5185m >10 | <b>&lt;1</b> | ---      | ---      |
| Titanium | ppm    | ASTM D5185m     | <b>&lt;1</b> | ---      | ---      |
| Silver   | ppm    | ASTM D5185m     | <b>0</b>     | ---      | ---      |
| Aluminum | ppm    | ASTM D5185m >10 | <b>2</b>     | ---      | ---      |
| Lead     | ppm    | ASTM D5185m >10 | <b>2</b>     | ---      | ---      |
| Copper   | ppm    | ASTM D5185m >75 | <b>6</b>     | ---      | ---      |
| Tin      | ppm    | ASTM D5185m >10 | <b>&lt;1</b> | ---      | ---      |
| Vanadium | ppm    | ASTM D5185m     | <b>0</b>     | ---      | ---      |
| Cadmium  | ppm    | ASTM D5185m     | <b>&lt;1</b> | ---      | ---      |

#### ADDITIVES

|            | method | limit/base       | current      | history1 | history2 |
|------------|--------|------------------|--------------|----------|----------|
| Boron      | ppm    | ASTM D5185m 5    | <b>2</b>     | ---      | ---      |
| Barium     | ppm    | ASTM D5185m 5    | <b>0</b>     | ---      | ---      |
| Molybdenum | ppm    | ASTM D5185m 5    | <b>1</b>     | ---      | ---      |
| Manganese  | ppm    | ASTM D5185m      | <b>&lt;1</b> | ---      | ---      |
| Magnesium  | ppm    | ASTM D5185m 25   | <b>10</b>    | ---      | ---      |
| Calcium    | ppm    | ASTM D5185m 200  | <b>157</b>   | ---      | ---      |
| Phosphorus | ppm    | ASTM D5185m 300  | <b>383</b>   | ---      | ---      |
| Zinc       | ppm    | ASTM D5185m 370  | <b>512</b>   | ---      | ---      |
| Sulfur     | ppm    | ASTM D5185m 2500 | <b>1079</b>  | ---      | ---      |

#### CONTAMINANTS

|           | method | limit/base      | current  | history1 | history2 |
|-----------|--------|-----------------|----------|----------|----------|
| Silicon   | ppm    | ASTM D5185m >20 | <b>5</b> | ---      | ---      |
| Sodium    | ppm    | ASTM D5185m     | <b>0</b> | ---      | ---      |
| Potassium | ppm    | ASTM D5185m >20 | <b>2</b> | ---      | ---      |

#### FLUID CLEANLINESS

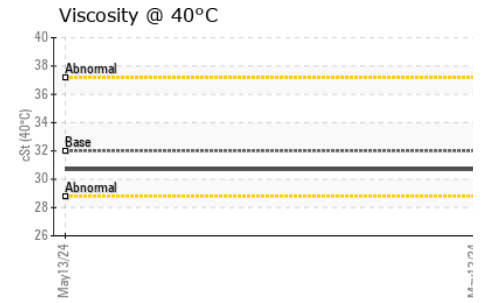
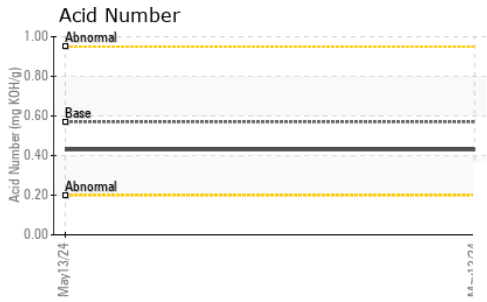
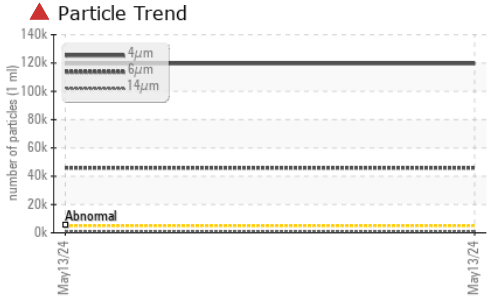
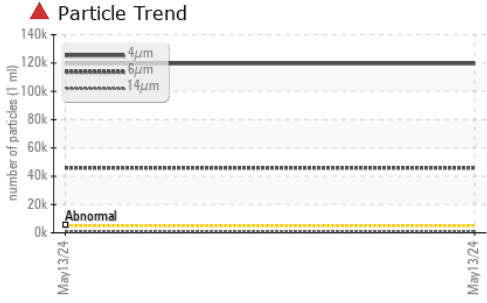
|                 | method       | limit/base | current           | history1 | history2 |
|-----------------|--------------|------------|-------------------|----------|----------|
| Particles >4µm  | ASTM D7647   | >5000      | <b>▲ 119590</b>   | ---      | ---      |
| Particles >6µm  | ASTM D7647   | >1300      | <b>▲ 45884</b>    | ---      | ---      |
| Particles >14µm | ASTM D7647   | >160       | <b>▲ 1011</b>     | ---      | ---      |
| Particles >21µm | ASTM D7647   | >40        | <b>▲ 211</b>      | ---      | ---      |
| Particles >38µm | ASTM D7647   | >10        | <b>8</b>          | ---      | ---      |
| Particles >71µm | ASTM D7647   | >3         | <b>0</b>          | ---      | ---      |
| Oil Cleanliness | ISO 4406 (c) | >19/17/14  | <b>▲ 24/23/17</b> | ---      | ---      |

#### FLUID DEGRADATION

|                  | method   | limit/base      | current     | history1 | history2 |
|------------------|----------|-----------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D8045 0.57 | <b>0.43</b> | ---      | ---      |



# OIL ANALYSIS REPORT



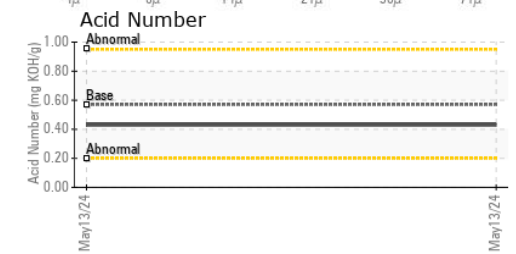
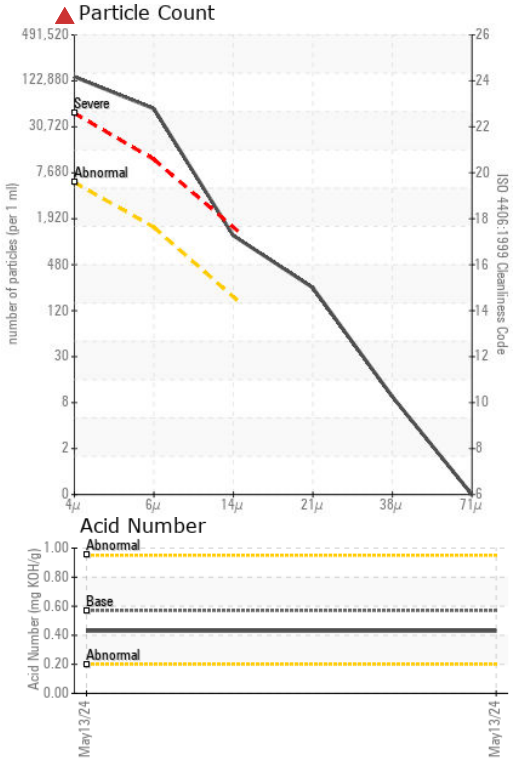
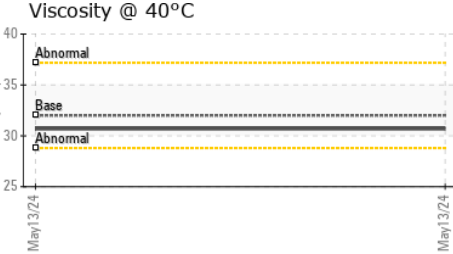
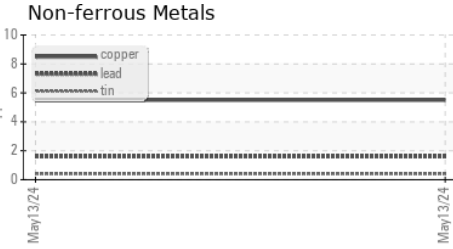
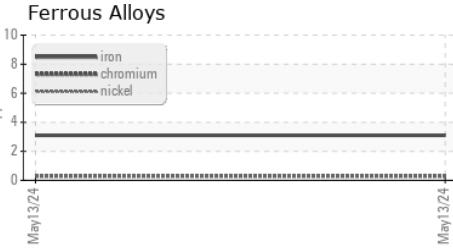
| VISUAL           | method | limit/base | current | history1 | history2 |     |
|------------------|--------|------------|---------|----------|----------|-----|
| White Metal      | scalar | *Visual    | NONE    | NONE     | ---      | --- |
| Yellow Metal     | scalar | *Visual    | NONE    | NONE     | ---      | --- |
| Precipitate      | scalar | *Visual    | NONE    | NONE     | ---      | --- |
| Silt             | scalar | *Visual    | NONE    | NONE     | ---      | --- |
| Debris           | scalar | *Visual    | NONE    | NONE     | ---      | --- |
| Sand/Dirt        | scalar | *Visual    | NONE    | NONE     | ---      | --- |
| Appearance       | scalar | *Visual    | NORML   | NORML    | ---      | --- |
| Odor             | scalar | *Visual    | NORML   | NORML    | ---      | --- |
| Emulsified Water | scalar | *Visual    | >0.1    | NEG      | ---      | --- |
| Free Water       | scalar | *Visual    |         | NEG      | ---      | --- |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |     |
|------------------|--------|------------|---------|----------|----------|-----|
| Visc @ 40°C      | cSt    | ASTM D445  | 32      | 30.7     | ---      | --- |

| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---------------|--------|------------|---------|----------|----------|
|---------------|--------|------------|---------|----------|----------|

|        |  |  |          |          |
|--------|--|--|----------|----------|
| Color  |  |  | no image | no image |
| Bottom |  |  | no image | no image |

## GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0911886      **Received** : 15 Jul 2024  
**Lab Number** : 06235878      **Tested** : 16 Jul 2024  
**Unique Number** : 11124712      **Diagnosed** : 16 Jul 2024 - Wes Davis  
**Test Package** : CONST

**PALFINGER - BRANCH 400**  
 4151 W ST RT 18  
 TIFFIN, OH  
 US 44883  
 Contact: ERIC HILL  
 e.hill@palfinger.com  
 T: (419)448-8156  
 F:

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)