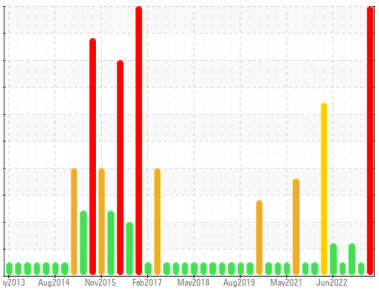
# PROBLEM SUMMARY

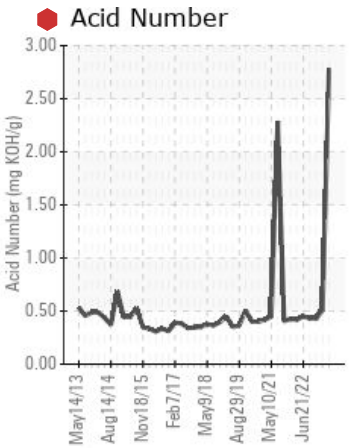
Sample Rating Trend

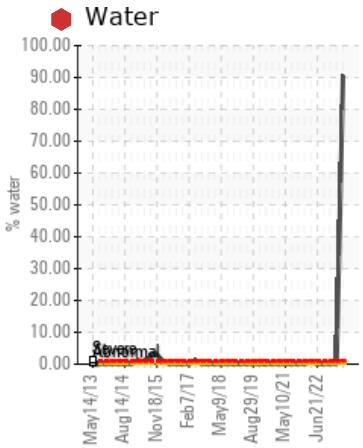


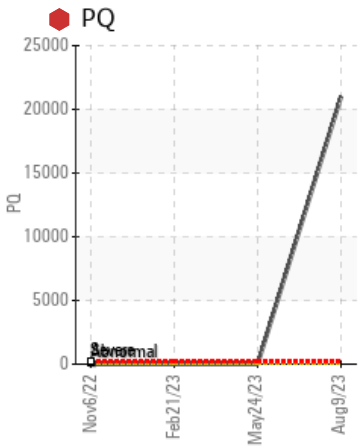
**WEAR**

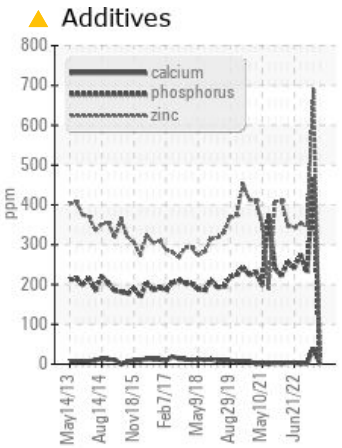
Area
**TM 6**
Machine Id
**YANKEE GRBX**
Component
**Gearbox**
Fluid
**GEAR OIL LS 80W90 (--- GAL)**

## COMPONENT CONDITION SUMMARY




## RECOMMENDATION

We advise that you check for the source of water entry. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. Please note that the oil was too thick to perform some of the normal laboratory tests.

## PROBLEMATIC TEST RESULTS

| Sample Status | | | | SEVERE | NORMAL | ABNORMAL |
|---|---|---|---|---|---|---|
| PQ | | ASTM D8184 | | **21003** | 18 | 15 |
| Boron | ppm | ASTM D5185m | 150 | **0** | 0 | 0 |
| Calcium | ppm | ASTM D5185m | 70 | **0** | 40 | 2 |
| Phosphorus | ppm | ASTM D5185m | 2000 | **13** | 468 | 231 |
| Zinc | ppm | ASTM D5185m | 50 | **4** | 689 | 348 |
| Water | % | ASTM D6304 | >0.2 | **90.6** | 0.007 | 0.009 |
| ppm Water | ppm | ASTM D6304 | >2000 | **906000** | 73.7 | 95.9 |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **2.78** | 0.51 | 0.43 |
| Emulsified Water | scalar | *Visual | >0.2 | **0.2%** | NEG | NEG |


**Customer Id:** KIMMOBTM6
**Sample No.:** RP0034418
**Lab Number:** 05932861
**Test Package:** IND 2

*To manage this report scan the QR code*

*To discuss the diagnosis or test data:*
Doug Bogart +1 (800)237-1369 x4016
dougb@wearcheckusa.com

*To change component or sample information:*
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

## RECOMMENDED ACTIONS

| Action | Status | Date | Done By | Description |
|---|---|---|---|---|
| Inspect Wear Source | --- | --- | ? | We advise that you inspect for the source(s) of wear. |
| Resample | --- | --- | ? | We recommend an early resample to monitor this condition. |
| Alert | --- | --- | ? | Please note that the oil was too thick to perform some of the normal laboratory tests. |
| Check Water Access | --- | --- | ? | We advise that you check for the source of water entry. |

## HISTORICAL DIAGNOSIS

**24 May 2023 Diag: Don Baldridge**

NORMAL

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 amount and size of particulates present in the system are acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

**21 Feb 2023 Diag: Don Baldridge**

ISO

No corrective action is recommended at this time. Resample at the next service interval to monitor.All component wear rates are normal. There is a moderate amount of particulates present in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

**06 Nov 2022 Diag: Angela Borella**

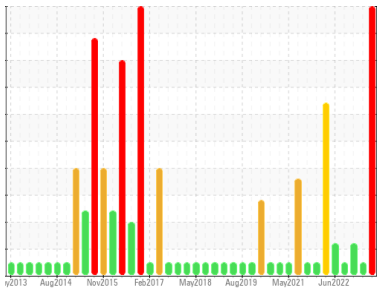
NORMAL

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 amount and size of particulates present in the system are acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

# OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Area
**TM 6**
Machine Id
**YANKEE GRBX**
Component
**Gearbox**
Fluid
**GEAR OIL LS 80W90 (--- GAL)**

## DIAGNOSIS

**Recommendation**
We advise that you check for the source of water entry. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition. Please note that the oil was too thick to perform some of the normal laboratory tests.

**Wear**
The very high ferrous density (PQ) index indicates that severe wear is occurring.

**Contamination**
There is a high concentration of water present in the oil.

**Fluid Condition**
The oil is no longer serviceable.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Sample Number | | Client Info | | **RP0034418** | RP0023571 | RP0023420 |
| Sample Date | | Client Info | | **09 Aug 2023** | 24 May 2023 | 21 Feb 2023 |
| Machine Age | wks | Client Info | | **0** | 0 | 0 |
| Oil Age | wks | Client Info | | **0** | 0 | 0 |
| Oil Changed | | Client Info | | **N/A** | N/A | N/A |
| Sample Status | | | | **SEVERE** | NORMAL | ABNORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| PQ | | ASTM D8184 | | **21003** | 18 | 15 |
| Iron | ppm | ASTM D5185m | >200 | **11** | 3 | 11 |
| Chromium | ppm | ASTM D5185m | >15 | **0** | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >15 | **0** | 0 | 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 | >100 | **0** | 0 | 0 |
| Copper | ppm | ASTM D5185m | >200 | **<1** | 2 | 1 |
| Tin | ppm | ASTM D5185m | >25 | **0** | 0 | <1 |
| Vanadium | ppm | ASTM D5185m | | **<1** | 0 | 0 |
| Cadmium | ppm | ASTM D5185m | | **<1** | 0 | <1 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Boron | ppm | ASTM D5185m | 150 | **0** | 0 | 0 |
| Barium | ppm | ASTM D5185m | | **0** | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | **0** | <1 | 0 |
| Manganese | ppm | ASTM D5185m | | **<1** | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | 10 | **<1** | 2 | 8 |
| Calcium | ppm | ASTM D5185m | 70 | **0** | 40 | 2 |
| Phosphorus | ppm | ASTM D5185m | 2000 | **13** | 468 | 231 |
| Zinc | ppm | ASTM D5185m | 50 | **4** | 689 | 348 |

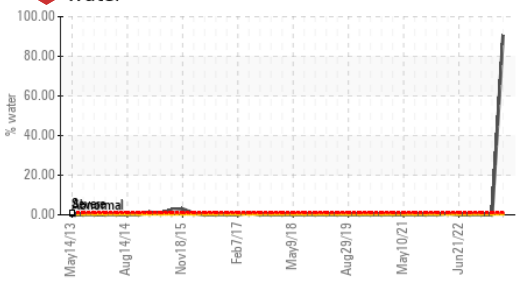
| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Silicon | ppm | ASTM D5185m | >50 | **<1** | 1 | 2 |
| Sodium | ppm | ASTM D5185m | | **0** | 1 | 3 |
| Potassium | ppm | ASTM D5185m | >20 | **2** | 0 | 0 |
| Water | % | ASTM D6304 | >0.2 | **90.6** | 0.007 | 0.009 |
| ppm Water | ppm | ASTM D6304 | >2000 | **906000** | 73.7 | 95.9 |

| FLUID CLEANLINESS | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Particles >4µm | ASTM D7647 | >20000 | --- | 5518 | 19663 |
| Particles >6µm | ASTM D7647 | >5000 | --- | 1012 | 4960 |
| Particles >14µm | ASTM D7647 | >640 | --- | 150 | 848 |
| Particles >21µm | ASTM D7647 | >160 | --- | 37 | 194 |
| Particles >38µm | ASTM D7647 | >40 | --- | 2 | 1 |
| Particles >71µm | ASTM D7647 | >10 | --- | 0 | 1 |
| Oil Cleanliness | ISO 4406 (c) | >21/19/16 | --- | 20/17/14 | 21/19/17 |

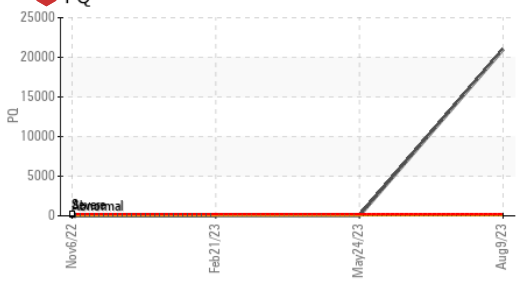
| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | **2.78** | 0.51 | 0.43 |

# OIL ANALYSIS REPORT

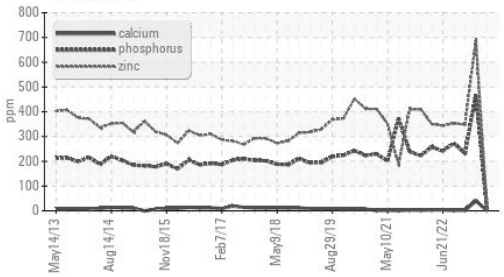
Water



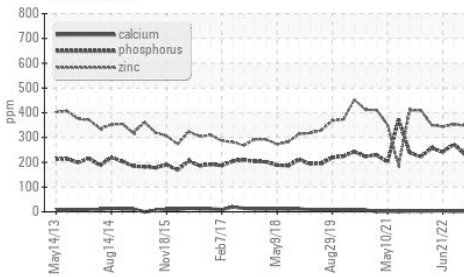

PQ



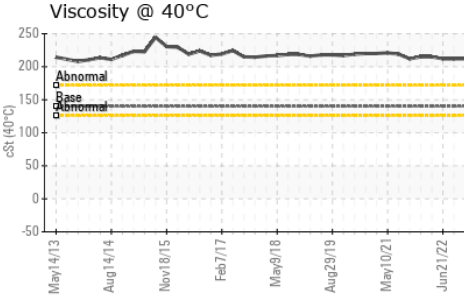

Additives




Additives

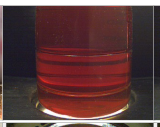
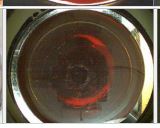
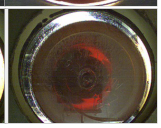



Viscosity @ 40°C



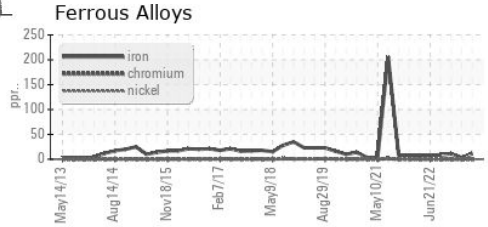

| VISUAL | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| White Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Silt | scalar | *Visual | NONE | **NONE** | NONE | NONE |
| Debris | scalar | *Visual | NONE | **NONE** | LIGHT | NONE |
| 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 | **0.2%** | NEG | NEG |
| Free Water | scalar | *Visual | | **NEG** | NEG | NEG |

| FLUID PROPERTIES | | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|---|
| Visc @ 40°C | cSt | ASTM D445 | 140 | **0.8** | 211 | 212 |

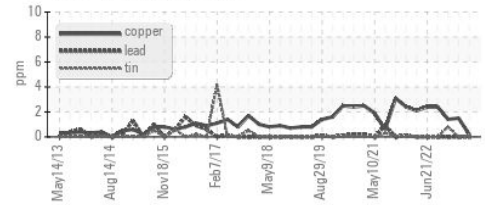
| SAMPLE IMAGES | method | limit/base | current | history1 | history2 |
|---|---|---|---|---|---|
| Color | | |  |  |  |
| Bottom | | |  |  |  |

## GRAPHS

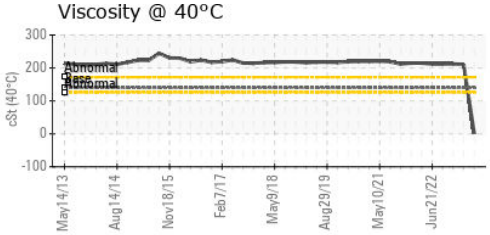
Ferrous Alloys



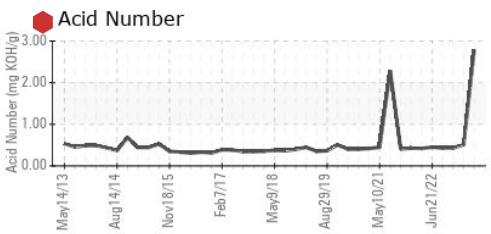

Non-ferrous Metals




Viscosity @ 40°C




Acid Number




Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513
**Sample No.** : RP0034418 **Received** : 23 Aug 2023
**Lab Number** : 05932861 **Diagnosed** : 28 Aug 2023
**Unique Number** : 10618132 **Diagnostician** : Doug Bogart
**Test Package** : IND 2 ( Additional Tests: PQ, PrtCount )

*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)*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