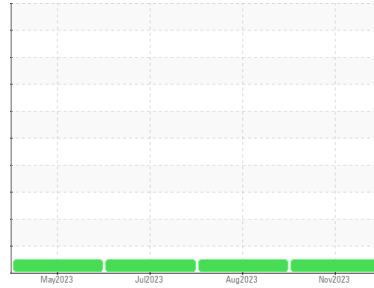




OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Area
[53561270]
 Machine Id
102-LYO-904
 Component
Hydraulic System
 Fluid
NAVI-GUARD PREMIUM AW-32 HYDRAULIC (--- LTR)

DIAGNOSIS

Recommendation

This is a baseline read-out on the submitted sample.

| SAMPLE INFORMATION | | method | limit/base | current | history1 | history2 |
|--------------------|-------------|-------------|------------|--------------------|-------------|-------------|
| Sample Number | Client Info | | | WC0850082 | WC0770760 | WC0789081 |
| Sample Date | Client Info | | | 03 Nov 2023 | 07 Aug 2023 | 12 Jul 2023 |
| Machine Age | yrs | Client Info | | 0 | 0 | 0 |
| Oil Age | yrs | Client Info | | 0 | 0 | 0 |
| Oil Changed | Client Info | | | N/A | N/A | N/A |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

| WEAR METALS | | method | limit/base | current | history1 | history2 |
|-------------|-----|-------------|------------|----------|----------|----------|
| Iron | ppm | ASTM D5185m | >20 | 0 | 0 | 0 |
| Chromium | ppm | ASTM D5185m | >20 | 0 | 0 | 0 |
| Nickel | ppm | ASTM D5185m | >20 | 0 | 0 | 0 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Silver | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Aluminum | ppm | ASTM D5185m | >20 | 0 | 0 | 0 |
| Lead | ppm | ASTM D5185m | >20 | 0 | 0 | 0 |
| Copper | ppm | ASTM D5185m | >20 | 0 | <1 | <1 |
| Tin | ppm | ASTM D5185m | >20 | 0 | 0 | 0 |
| Vanadium | ppm | ASTM D5185m | | 0 | <1 | <1 |
| Cadmium | ppm | ASTM D5185m | | 0 | 0 | 0 |

| ADDITIVES | | method | limit/base | current | history1 | history2 |
|------------|-----|-------------|------------|--------------|----------|----------|
| Boron | ppm | ASTM D5185m | | <1 | <1 | 1 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 0 | 4 | 4 |
| Manganese | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Magnesium | ppm | ASTM D5185m | | 6 | 15 | 14 |
| Calcium | ppm | ASTM D5185m | | 71 | 99 | 97 |
| Phosphorus | ppm | ASTM D5185m | | 307 | 326 | 322 |
| Zinc | ppm | ASTM D5185m | | 432 | 410 | 405 |
| Sulfur | ppm | ASTM D5185m | | 2327 | 5313 | 5290 |

| CONTAMINANTS | | method | limit/base | current | history1 | history2 |
|--------------|-----|-------------|------------|------------|----------|----------|
| Silicon | ppm | ASTM D5185m | >15 | 0 | <1 | <1 |
| Sodium | ppm | ASTM D5185m | | 1 | 0 | <1 |
| Potassium | ppm | ASTM D5185m | >20 | 0 | 0 | <1 |
| Water | % | ASTM D6304 | >0.05 | NEG | 0.005 | NEG |
| ppm Water | ppm | ASTM D6304 | >500 | --- | 55.7 | --- |

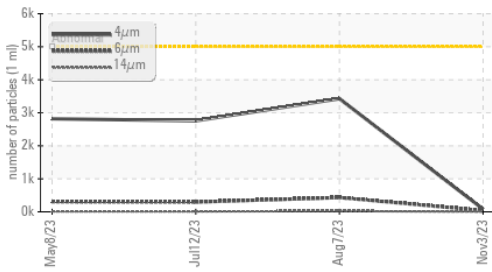
| FLUID CLEANLINESS | | method | limit/base | current | history1 | history2 |
|-------------------|--|--------------|------------|-----------------|----------|----------|
| Particles >4µm | | ASTM D7647 | >5000 | 80 | 3427 | 2757 |
| Particles >6µm | | ASTM D7647 | >1300 | 38 | 432 | 297 |
| Particles >14µm | | ASTM D7647 | >160 | 5 | 22 | 12 |
| Particles >21µm | | ASTM D7647 | >40 | 2 | 5 | 3 |
| Particles >38µm | | ASTM D7647 | >10 | 0 | 0 | 0 |
| Particles >71µm | | ASTM D7647 | >3 | 0 | 0 | 0 |
| Oil Cleanliness | | ISO 4406 (c) | >19/17/14 | 13/12/10 | 19/16/12 | 19/15/11 |

| FLUID DEGRADATION | | method | limit/base | current | history1 | history2 |
|-------------------|----------|------------|------------|-------------|----------|----------|
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | 0.23 | 0.41 | 0.40 |



OIL ANALYSIS REPORT

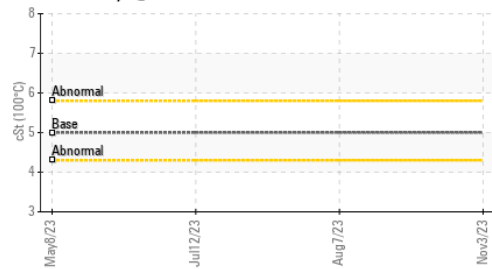
Particle Trend



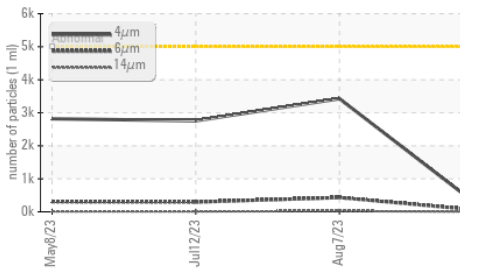
Water (KF)



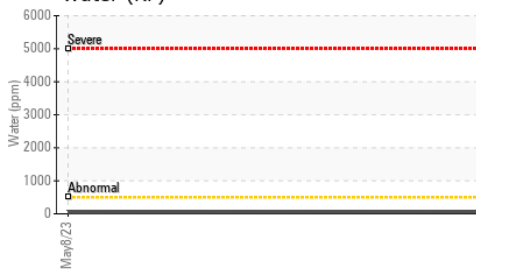
Viscosity @ 100°C



Particle Trend



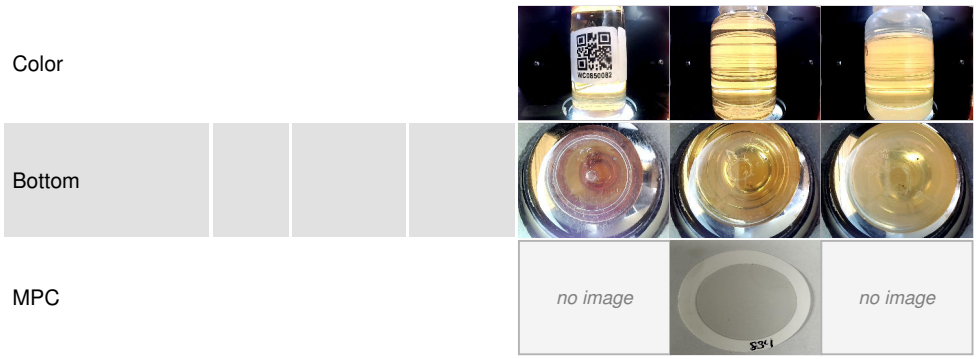
Water (KF)



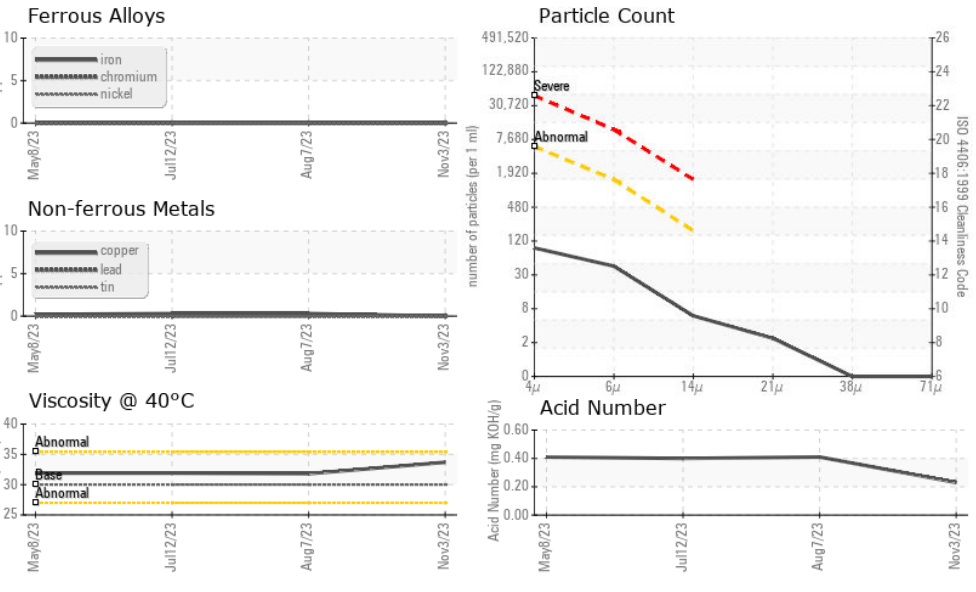
| VISUAL | method | limit/base | current | history1 | history2 |
|------------------|--------|------------|---------|----------|----------|
| White Metal | scalar | *Visual | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE |
| Precipitate | scalar | *Visual | NONE | NONE | NONE |
| Silt | scalar | *Visual | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.05 | NEG | NEG |
| Free Water | scalar | *Visual | | NEG | NEG |

| FLUID PROPERTIES | method | limit/base | current | history1 | history2 |
|----------------------|--------|------------|---------|----------|----------|
| Visc @ 40°C | cSt | ASTM D445 | 30 | 33.69 | 31.8 |
| Visc @ 100°C | cSt | ASTM D445 | 5 | 6.1 | --- |
| Viscosity Index (VI) | Scale | ASTM D2270 | 87 | 129 | --- |

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



GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0850082 **Received** : 16 Nov 2023
Lab Number : 06009957 **Diagnosed** : 05 Dec 2023
Unique Number : 10749101 **Diagnostician** : Doug Bogart
Test Package : IND 2 (Additional Tests: KF, KV100, VI)

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 DURHAM, NC
 US 27712
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 mark_montalvo@merck.com
 T: (919)884-4103
 F:

Certificate L2367
 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)