

# **OIL ANALYSIS REPORT**

Sample Rating Trend







Machine Id Spinorama 2000 Component

#### Spindel Fluid NOT GIVEN (--- GAL)

#### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample. ( Customer Sample Comment: Super test )

# Wear

All component wear rates are normal.

## Contamination

There is no indication of any contamination in the fluid.

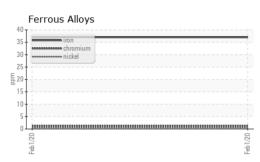
#### Fluid Condition

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

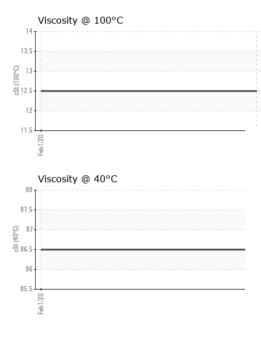
| SAMPLE INFORM   | <b>IATION</b>  | method   | limit/base                             | current   | history1   | history2   |
|---|--|--|--|---|--|--|
| Sample Number   |  | Client Info  |  | WC0387669   |  |  |
| Sample Date   |  | Client Info  |  | 01 Feb 2020   |  |  |
| Machine Age   | hrs  | Client Info  |  | 0   |  |  |
| Oil Age   | hrs  | Client Info  |  | 0   |  |  |
| Oil Changed   |  | Client Info  |  | Changed   |  |  |
| Sample Status   |  |  |  | NORMAL  |  |  |
| CONTAMINATION   | ١  | method   | limit/base                             | current   | history1   | history2   |
| Water   |  | WC Method  | >0.1                                   | NEG   |  |  |
| WEAR METALS   |  | method   | limit/base                             | current   | history1   | history2   |
| PQ  |  | ASTM D8184*  |  | 14  |  |  |
| Iron  | ppm  | ASTM D5185(m)  | >20                                    | 37  |  |  |
| Chromium  | ppm  | ASTM D5185(m)  | >20                                    | 1   |  |  |
| Nickel  | ppm  | ASTM D5185(m)  | >20                                    | <1  |  |  |
| Titanium  | ppm  | ASTM D5185(m)  |  | <1  |  |  |
| Silver  | ppm  | ASTM D5185(m)  |  | <1  |  |  |
| Aluminum  | ppm  | ASTM D5185(m)  | >20                                    | 4   |  |  |
| Lead  | ppm  | ASTM D5185(m)  | >20                                    | 3   |  |  |
| Copper  | ppm  | ASTM D5185(m)  | >20                                    | 10  |  |  |
| Tin   | ppm  | ASTM D5185(m)  | >20                                    | <1  |  |  |
| Antimony  | ppm  | ASTM D5185(m)  |  | <1  |  |  |
| Vanadium  | ppm  | ASTM D5185(m)  |  | 0   |  |  |
| Beryllium   | ppm  | ASTM D5185(m)  |  | 0   |  |  |
| Cadmium   | ppm  | ASTM D5185(m)  |  | 0   |  |  |
|   | 1-1-   |  |  | •   |  |  |
| ADDITIVES   | F F  | method   | limit/base                             | current   | history1   | history2   |
|   | ppm  |  | limit/base                             |   |  | history2   |
| ADDITIVES   |  | method   | limit/base                             | current   | history1   |  |
| ADDITIVES<br>Boron  | ppm  | method<br>ASTM D5185(m)  | limit/base                             | current<br>39   | history1   |  |
| ADDITIVES<br>Boron<br>Barium  | ppm<br>ppm   | method<br>ASTM D5185(m)<br>ASTM D5185(m)   | limit/base                             | current<br>39<br><1   | history1<br>   |  |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum  | ppm<br>ppm<br>ppm  | method<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)  | limit/base                             | current<br>39<br><1<br>42   | history1<br><br>   |  |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese   | ppm<br>ppm<br>ppm  | method<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)   | limit/base                             | current<br>39<br><1<br>42<br><1   | history1<br><br><br>   |  |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm                                    | method<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)  | limit/base                             | current<br>39<br><1<br>42<br><1<br>543  | history1<br><br><br>   |  |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                             | method<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)   | limit/base                             | current           39           <1           42           <1           543           1531  | history1<br><br><br><br>   | <br><br>   |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                      | method           ASTM D5185(m)   | limit/base                             | current           39           <1           42           <1           543           1531           929  | history1   |  |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm               | method           ASTM D5185(m)   | limit/base                             | current           39           <1           42           <1           543           1531           929           1084   | history1   |  |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | method           ASTM D5185(m)   | limit/base                             | current           39           <1           42           <1           543           1531           929           1084           3016  | history1   |  |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | method           ASTM D5185(m)   |  | current           39           <1           42           <1           543           1531           929           1084           3016           <1   | history1   |  |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Chosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | method<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)<br>ASTM D5185(m)   | limit/base                             | 39         <1         42         <1         543         1531         929         1084         3016         <1         current   | history1   | <br><br><br><br><br><br>history2                                     |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Chosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon   | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm        | method           ASTM D5185(m)   | limit/base                             | current           39           <1           42           <1           543           1531           929           1084           3016           <1           current           9                                   | history1   | <br><br><br><br><br><br>history2                                     |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method           ASTM D5185(m)   | limit/base                             | current         39         <1         42         <1         543         1531         929         1084         3016         <1         current         9         14  | history1   | <br><br><br><br><br><br><br><br>history2                             |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium                                       | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method           ASTM D5185(m)   | limit/base<br>>15<br>>20               | 39         <1         42         <1         543         1531         929         1084         3016         <1         current         9         14         9  | history1   | <br><br><br><br><br><br><br>history2                                 |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED                          | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method           ASTM D5185(m)                         | limit/base<br>>15<br>>20               | 39         <1         42         <1         543         1531         929         1084         3016         <1         current         9         14         9         current                                      | history1   | <br><br><br><br><br><br>history2<br><br><br>history2                 |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %                | ppm                            | method           ASTM D5185(m)   | limit/base<br>>15<br>>20               | current         39         <1         42         <1         543         1531         929         1084         3016         <1         current         9         14         9         current         0.5          | history1 history1 history1 history1 history1   | <br><br><br><br><br><br>history2<br><br>history2<br><br>history2     |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %<br>Nitration              | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method           ASTM D5185(m)           ASTM D5185(m) | limit/base<br>>15<br>>20               | current         39         <1         42         <1         543         1531         929         1084         3016         <1         ourrent         9         14         9         0.5         9.5              | history1   history1               history1 | <br><br><br><br><br><br>history2<br><br><br><br>history2             |
| ADDITIVES<br>Boron<br>Barium<br>Molybdenum<br>Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur<br>Lithium<br>CONTAMINANTS<br>Silicon<br>Sodium<br>Potassium<br>INFRA-RED<br>Soot %<br>Nitration<br>Sulfation | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm | method           ASTM D5185(m)           ASTM D7844*           ASTM D7624*           ASTM D7415*                               | limit/base<br>>15<br>>20<br>limit/base | 39         <1         42         <1         543         1531         929         1084         3016         <1         current         9         14         9         current         0.5         9.5         24.0 | history1   | <br><br><br><br><br><br><br>history2<br><br>history2<br><br>history2 |



# **OIL ANALYSIS REPORT**







| VISUAL                 |   | method   | 12 . 14 /1  | ou um e let   | history1   | )، سماما ما  |
|------------------------|---|--|---|---|--|--|
|                        |   | mothou   |   |   | THSTOLY I  | history2   |
| White Metal            | scalar  | Visual*  | NONE  | VLITE   |  |  |
| 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 PROPERT          | IES   | method   | limit/base  | current   | history1   | history  |
| Visc @ 40°C            | cSt   | ASTM D7279(m)  |   | 86.5  |  |  |
| Visc @ 100°C           | cSt   | ASTM D7279(m)  |   | 12.5  |  |  |
| Viscosity Index (VI)   | Scale   | ASTM D2270*  |   | 141   |  |  |
| SAMPLE IMAGES          | \$  | method   | limit/base  | current   | history1   | history  |
| Color                  |   |  |   |   | no image   | no image   |
| Bottom                 |   |  |   |   | no image   | no image   |
| GRAPHS                 |   |  |   |   |  |  |
| Iron (ppm)             |   |  | 11  | Lead (ppm)  |  |  |
| 0 - Gevere             |   |  |   | 50 Severe   |  |  |
|                        |   |  |   | 0 Abnormal  |  |  |
| Feb 1/20               |   |  | Feb1/20   | Feb1/20   |  |  |
| Aluminum (ppm)         |   |  |   | Chromium (pr  | um)  |  |
|                        |   |  | 10  |   | ,  |  |
| 0 - Severe<br>Abnormal |   |  | Bd  | 50 - Severe<br>Abnormal   |  |  |
| 0                      |   |  |   | 0   |  |  |
| Feb1                   |   |  | Feb1  | Feb1  |  |  |
| Copper (ppm)           |   |  |   | Silicon (ppm)   |  |  |
|                        |   |  |   |   |  |  |
| 0 + Q-<br>Abnormal     |   |  | and a   | 50 + Q-<br>Abnormal   |  |  |
| e01/20                 |   |  | eb1/20 +  | eb 1/20   |  |  |
|                        |   |  | ш.  |   |  |  |
| за <sub>т</sub> ,      |   |  | 4   |   |  |  |
|                        |   |  | 문 2   | 00 Severe   |  |  |
| 4                      |   |  |   | 0   |  |  |
| Feb1/20                |   |  | Feb1/20   | Feb1/20   |  |  |
|                        | Debris<br>Sand/Dirt<br>Appearance<br>Odor<br>Emulsified Water<br>Free Water<br>FLUID PROPERT<br>Visc @ 40°C<br>Visc @ 100°C<br>Viscosity Index (VI)<br>SAMPLE IMAGES<br>Color<br>Bottom<br>GRAPHS<br>Iron (ppm) | Debris scalar   Sand/Dirt scalar   Appearance scalar   Odor scalar   Emulsified Water scalar   Free Water scalar   Free Water scalar   Free Water scalar   Free Water scalar   Visc @ 40°C cSt   Visc @ 100°C cSt   Visc @ 100°C cSt   Viscosity Index (VI) Scale   SAMPLE IMAGES   Color   Bottom   GRAPHS   Iron (ppm)   Same   Same | Debris scalar Visual*   Sand/Dirt scalar Visual*   Appearance scalar Visual*   Odor scalar Visual*   Emulsified Water scalar Visual*   Free Water scalar Visual*   Free Water scalar Visual*   Free Water scalar Visual*   FLUID PROPERTIES method   Visc @ 40°C cSt ASTM D7279(m)   Visc @ 100°C cSt ASTM D7279(m)   Visc @ 100°C cSt ASTM D7279(m)   Viscosity Index (VI) Scale ASTM D7279(m)   Viscosity Index (VI) Scale ASTM D7279(m)   SAMPLE IMAGES method   Color Iron (ppm)   Iron (ppm) Image: State Stat | Debris scalar Visual* NONE   Sand/Dirt scalar Visual* NONE   Appearance scalar Visual* NORML   Odor scalar Visual* NORML   Odor scalar Visual* NORML   Emulsified Water scalar Visual* >0.1   Free Water scalar Visual* >0.1   Ftuil D PROPERTIES method limit/base   Visc @ 40°C cSt ASTM D7279(m)   Viscosity Index (VI) Scale ASTM D7279(m)   Viscosity Index (VI) Scale ASTM D7279(m)   SAMPLE IMAGES method limit/base   Color GRAPHS Imit/base   Iron (ppm) Imit/base Imit/base   Iron (ppm) Imit/base Imit/base   Imit/Dage Imit/base Imit/base   Imit/base Imit/Base Imit/Base  < | Debris       scalar       Visual*       NONE       NONE         Sand/Dirt       scalar       Visual*       NONE       NONE         Appearance       scalar       Visual*       NORML       NORML         Odor       scalar       Visual*       NORML       NORML         Pree Water       scalar       Visual*       >0.1       NEG         Free Water       scalar       Visual*       >0.1       NEG         Free Water       scalar       Visual*       >0.1       NEG         Full D PROPERTIES       method       Imit/base       current         Visco @ 40°C       cSt       ASTM D7279(m)       86.5         Viscosity Index (VI)       Scale       ASTM D7279(m)       12.5         SAMPLE IMAGES       method       Imit/base       current         Color       Imit/base       current       Imit/base       current         Aluminum (ppm)       Imit/base       current       Imit/base       current         Imit/pace       Imit/base       Chromium (ppm)       Imit/base       Imit/pace         Imit/pace       Imit/pace       Imit/pace       Imit/pace       Imit/pace         Imit/pace       Imit/pace       Imit/pace </th <th>Debris       scalar       Visual*       NONE       NONE          Sand/Dirt       scalar       Visual*       NONE       NONE          Appearance       scalar       Visual*       NORML       NORML       NORML          Appearance       scalar       Visual*       NORML       NORML       NORML          Codor       scalar       Visual*       &gt;0.1       NEG           Free Water       scalar       Visual*       &gt;0.1       NEG          FLUID PROPERTIES       method       limit/base       current       history1         Visc @ 40°C       cSt       ASTM D7279(m)       12.5          SAMPLE IMAGES       method       limit/base       current       history1         Color       Sample       astimute        imit/base       current       history1         GRAPHS       Iron (ppm)       astimute       astimute        imit/base       current       history1         astimute       astimute       astimute       astimute        imit/base       current       history1         astintermed       astintre       astin</th> | Debris       scalar       Visual*       NONE       NONE          Sand/Dirt       scalar       Visual*       NONE       NONE          Appearance       scalar       Visual*       NORML       NORML       NORML          Appearance       scalar       Visual*       NORML       NORML       NORML          Codor       scalar       Visual*       >0.1       NEG           Free Water       scalar       Visual*       >0.1       NEG          FLUID PROPERTIES       method       limit/base       current       history1         Visc @ 40°C       cSt       ASTM D7279(m)       12.5          SAMPLE IMAGES       method       limit/base       current       history1         Color       Sample       astimute        imit/base       current       history1         GRAPHS       Iron (ppm)       astimute       astimute        imit/base       current       history1         astimute       astimute       astimute       astimute        imit/base       current       history1         astintermed       astintre       astin |

Test Package : MOB 1 (Additional Tests: FT-IR, KV100, PQ, 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.

CALA

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