



|                 |          |
|-----------------|----------|
| WEAR            | NORMAL   |
| CONTAMINATION   | ABNORMAL |
| FLUID CONDITION | NORMAL   |

Machine Id  
**FORD R-1**  
 Component  
**Gasoline Engine**  
 Fluid  
**GASOLINE ENGINE OIL SAE 5W20 (--- GAL)**

### RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

| Test           | UOM | Method      | Limit/Abn | Current     | History1 | History2 |
|----------------|-----|-------------|-----------|-------------|----------|----------|
| Sample Number  |     | Client Info |           | LP0000594   | ---      | ---      |
| Sample Date    |     | Client Info |           | 13 Jun 2024 | ---      | ---      |
| Machine Age    | mls | Client Info |           | 70547       | ---      | ---      |
| Oil Age        | mls | Client Info |           | 3000        | ---      | ---      |
| Filter Age     | mls | Client Info |           | 3000        | ---      | ---      |
| Oil Changed    |     | Client Info |           | Changed     | ---      | ---      |
| Filter Changed |     | Client Info |           | Changed     | ---      | ---      |
| Sample Status  |     |             |           | ABNORMAL    | ---      | ---      |

### WEAR

All component wear rates are normal.

|              |        |             |      |      |     |     |
|--------------|--------|-------------|------|------|-----|-----|
| Iron         | ppm    | ASTM D5185m | >150 | 25   | --- | --- |
| Chromium     | ppm    | ASTM D5185m | >20  | 1    | --- | --- |
| Nickel       | ppm    | ASTM D5185m | >5   | <1   | --- | --- |
| Titanium     | ppm    | ASTM D5185m |      | <1   | --- | --- |
| Silver       | ppm    | ASTM D5185m | >2   | 0    | --- | --- |
| Aluminum     | ppm    | ASTM D5185m | >40  | 4    | --- | --- |
| Lead         | ppm    | ASTM D5185m | >50  | 0    | --- | --- |
| Copper       | ppm    | ASTM D5185m | >155 | 4    | --- | --- |
| Tin          | ppm    | ASTM D5185m | >10  | <1   | --- | --- |
| Vanadium     | ppm    | ASTM D5185m |      | 0    | --- | --- |
| White Metal  | scalar | *Visual     | NONE | NONE | --- | --- |
| Yellow Metal | scalar | *Visual     | NONE | NONE | --- | --- |

### CONTAMINATION

Elemental level of silicon (Si) above normal indicating ingress of seal material.

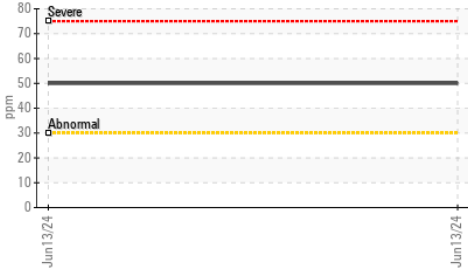
|                  |          |             |       |       |     |     |
|------------------|----------|-------------|-------|-------|-----|-----|
| Silicon          | ppm      | ASTM D5185m | >30   | ▲ 50  | --- | --- |
| Potassium        | ppm      | ASTM D5185m | >20   | 23    | --- | --- |
| Fuel             |          | WC Method   | >4.0  | <1.0  | --- | --- |
| Water            |          | WC Method   | >0.2  | NEG   | --- | --- |
| Glycol           | %        | *ASTM D2982 |       | NEG   | --- | --- |
| Soot %           | %        | *ASTM D7844 |       | 0.1   | --- | --- |
| Nitration        | Abs/cm   | *ASTM D7624 | >20   | 10.9  | --- | --- |
| Sulfation        | Abs/.1mm | *ASTM D7415 | >30   | 19.5  | --- | --- |
| 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     | >0.2  | NEG   | --- | --- |

### FLUID CONDITION

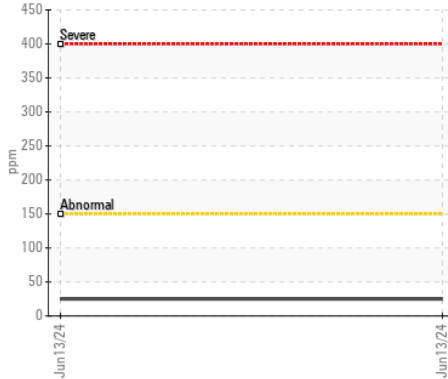
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

|                  |          |             |      |      |     |     |
|------------------|----------|-------------|------|------|-----|-----|
| Sodium           | ppm      | ASTM D5185m | >50  | 15   | --- | --- |
| Boron            | ppm      | ASTM D5185m | 75   | 8    | --- | --- |
| Barium           | ppm      | ASTM D5185m | 5    | 0    | --- | --- |
| Molybdenum       | ppm      | ASTM D5185m | 100  | 83   | --- | --- |
| Manganese        | ppm      | ASTM D5185m |      | 2    | --- | --- |
| Magnesium        | ppm      | ASTM D5185m | 12   | 434  | --- | --- |
| Calcium          | ppm      | ASTM D5185m | 2100 | 987  | --- | --- |
| Phosphorus       | ppm      | ASTM D5185m | 650  | 619  | --- | --- |
| Zinc             | ppm      | ASTM D5185m | 850  | 679  | --- | --- |
| Sulfur           | ppm      | ASTM D5185m | 2500 | 2263 | --- | --- |
| Oxidation        | Abs/.1mm | *ASTM D7414 | >25  | 12.4 | --- | --- |
| Acid Number (AN) | mg KOH/g | ASTM D8045  |      | 1.22 | --- | --- |
| Visc @ 100°C     | cSt      | ASTM D445   | 7.5  | 8.9  | --- | --- |

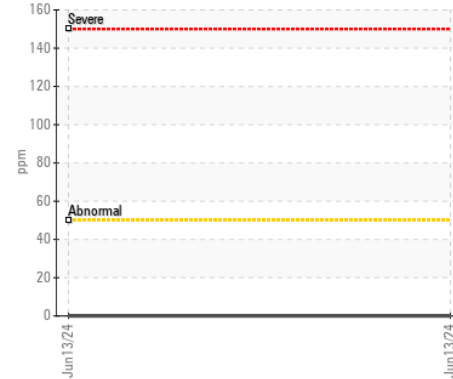
▲ Silicon (ppm)



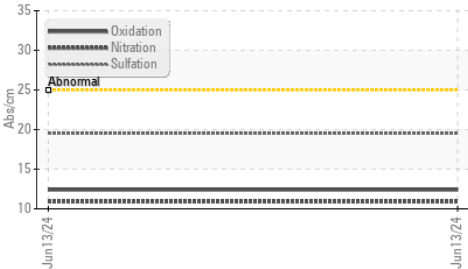
Iron (ppm)



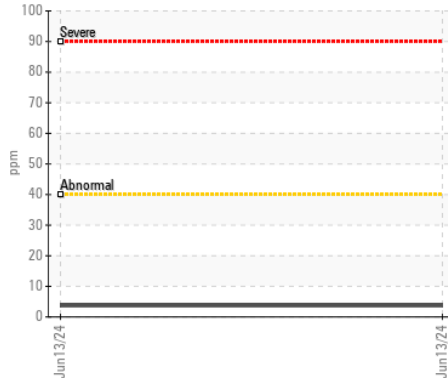
Lead (ppm)



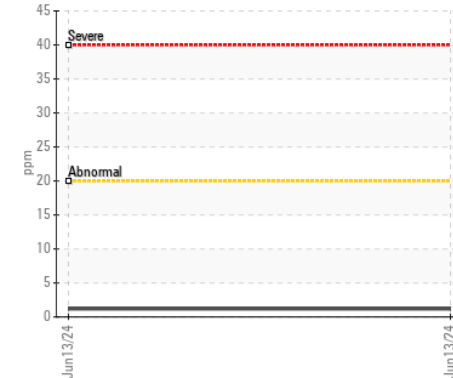
FT-IR (Direct Trend)



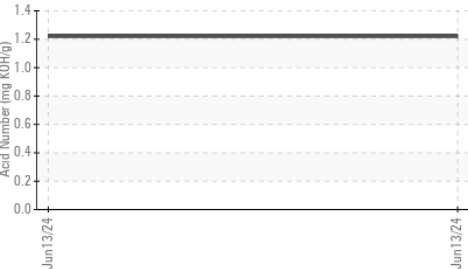
Aluminum (ppm)



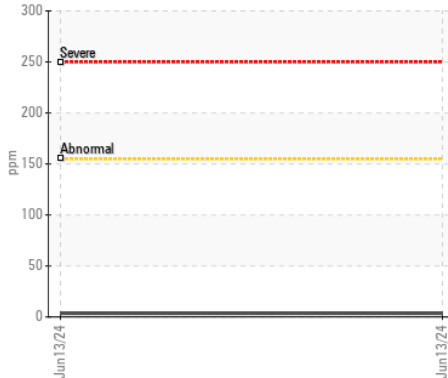
Chromium (ppm)



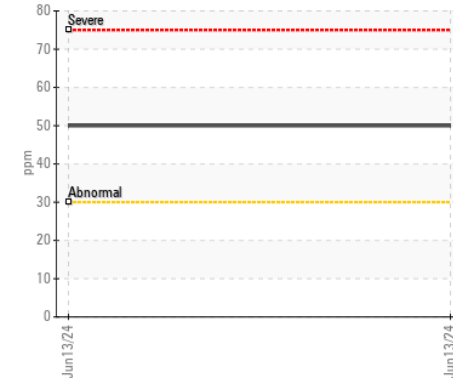
Acid Number



Copper (ppm)



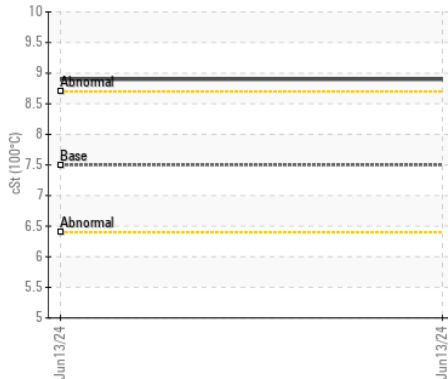
▲ Silicon (ppm)



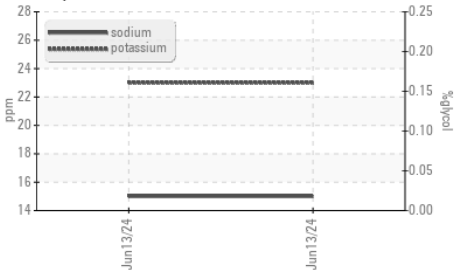
Viscosity @ 100°C



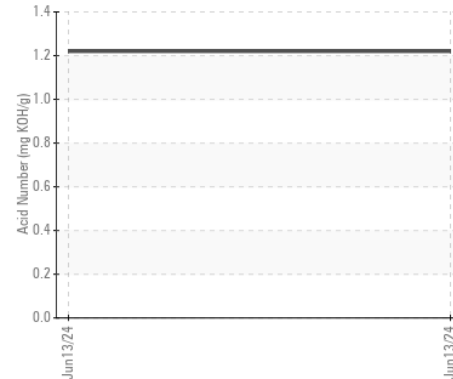
Viscosity @ 100°C



Glycol Contamination



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : LP0000594

Lab Number : 06212552

Unique Number : 11085416

Test Package : MOB 2 ( Additional Tests: Glycol )

Received : 17 Jun 2024

Tested : 19 Jun 2024

Diagnosed : 19 Jun 2024 - Sean Felton

TOWN OF NEWPORT

15 SUNAPEE ST

NEWPORT, NH

US 03773

Contact: DON FREITAS

mechanics@newportnh.gov

T:

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)