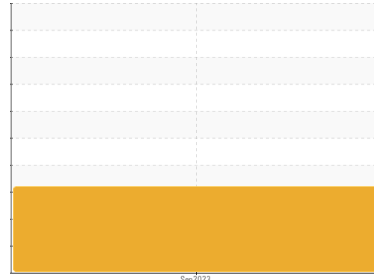




# OIL ANALYSIS REPORT

Sample Rating Trend



**DIRT**



Machine Id  
**KENWORTH T-800 1516 (S/N 3WKGDV9X17H65002)**

Component  
**Diesel Engine**

Fluid  
**SHELL ROTELLA T 15W40 (--- GAL)**

## DIAGNOSIS

### Recommendation

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Resample at the next service interval to monitor.

### Wear

The copper level is abnormal. In the absence of other significant wear metals, suspect copper due to sources other than wear (i.e. cooling core). All other component wear rates are normal.

### Contamination

Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress.

### Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

## SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	<b>WC0822361</b>	---	---
Sample Date	Client Info	<b>28 Sep 2023</b>	---	---
Machine Age	mls Client Info	<b>234484</b>	---	---
Oil Age	mls Client Info	<b>0</b>	---	---
Oil Changed	Client Info	<b>Changed</b>	---	---
Sample Status		<b>ABNORMAL</b>	---	---

## CONTAMINATION

method	limit/base	current	history1	history2
Fuel	WC Method >5	<b>&lt;1.0</b>	---	---
Glycol	WC Method	<b>NEG</b>	---	---

## WEAR METALS

method	limit/base	current	history1	history2
Iron ppm	ASTM D5185m >100	<b>64</b>	---	---
Chromium ppm	ASTM D5185m >20	<b>2</b>	---	---
Nickel ppm	ASTM D5185m >4	<b>&lt;1</b>	---	---
Titanium ppm	ASTM D5185m	<b>&lt;1</b>	---	---
Silver ppm	ASTM D5185m >3	<b>0</b>	---	---
Aluminum ppm	ASTM D5185m >20	<b>▲ 12</b>	---	---
Lead ppm	ASTM D5185m >40	<b>9</b>	---	---
Copper ppm	ASTM D5185m >330	<b>▲ 497</b>	---	---
Tin ppm	ASTM D5185m >15	<b>3</b>	---	---
Vanadium ppm	ASTM D5185m	<b>&lt;1</b>	---	---
Cadmium ppm	ASTM D5185m	<b>&lt;1</b>	---	---

## ADDITIVES

method	limit/base	current	history1	history2
Boron ppm	ASTM D5185m 316	<b>26</b>	---	---
Barium ppm	ASTM D5185m 0.0	<b>0</b>	---	---
Molybdenum ppm	ASTM D5185m 1.2	<b>63</b>	---	---
Manganese ppm	ASTM D5185m	<b>2</b>	---	---
Magnesium ppm	ASTM D5185m 24	<b>805</b>	---	---
Calcium ppm	ASTM D5185m 2292	<b>1326</b>	---	---
Phosphorus ppm	ASTM D5185m 1064	<b>985</b>	---	---
Zinc ppm	ASTM D5185m 1160	<b>1210</b>	---	---
Sulfur ppm	ASTM D5185m 4996	<b>2623</b>	---	---

## CONTAMINANTS

method	limit/base	current	history1	history2
Silicon ppm	ASTM D5185m >25	<b>▲ 61</b>	---	---
Sodium ppm	ASTM D5185m	<b>9</b>	---	---
Potassium ppm	ASTM D5185m >20	<b>40</b>	---	---

## INFRA-RED

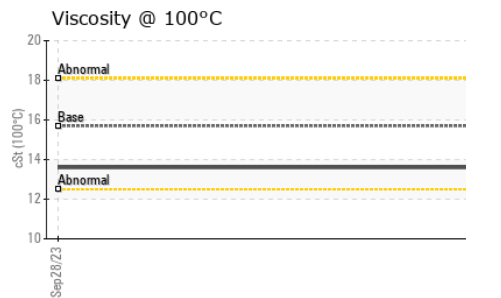
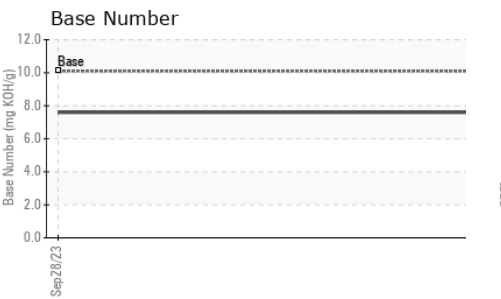
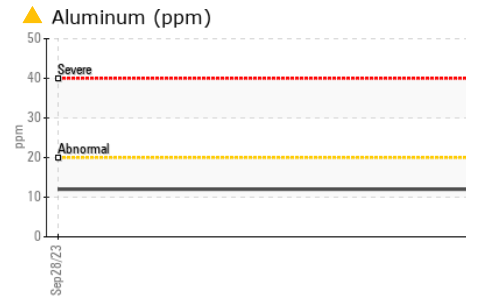
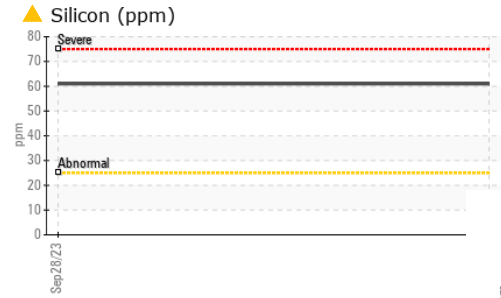
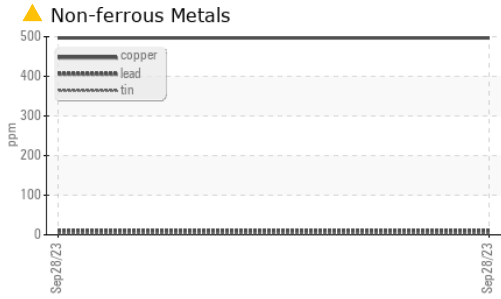
method	limit/base	current	history1	history2
Soot %	*ASTM D7844 >3	<b>0.6</b>	---	---
Nitration	*ASTM D7624 >20	<b>9.2</b>	---	---
Sulfation	*ASTM D7415 >30	<b>20.8</b>	---	---

## FLUID DEGRADATION

method	limit/base	current	history1	history2
Oxidation	Abs./1mm *ASTM D7414 >25	<b>17.3</b>	---	---
Base Number (BN)	mg KOH/g ASTM D2896 10.1	<b>7.6</b>	---	---



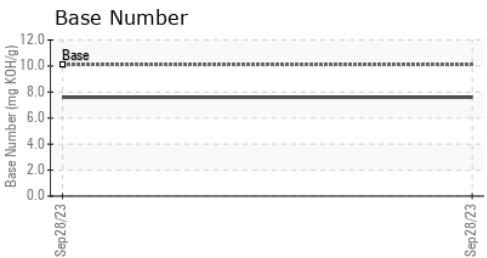
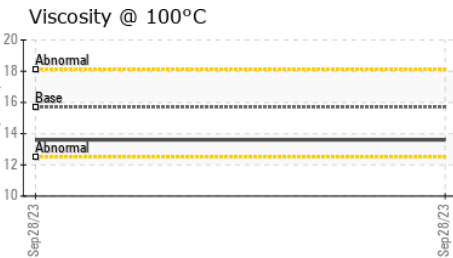
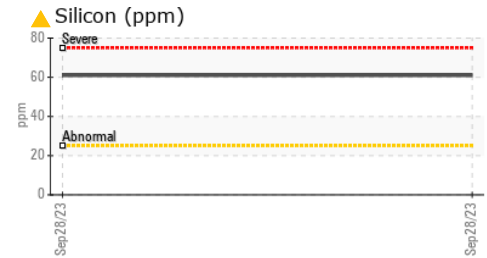
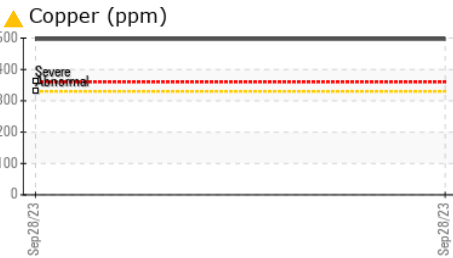
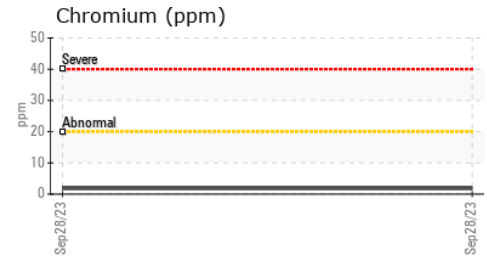
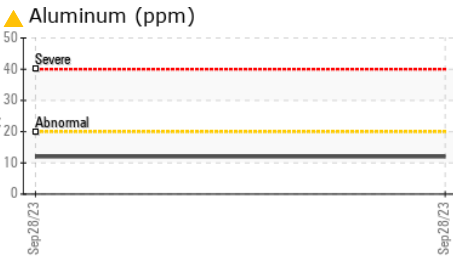
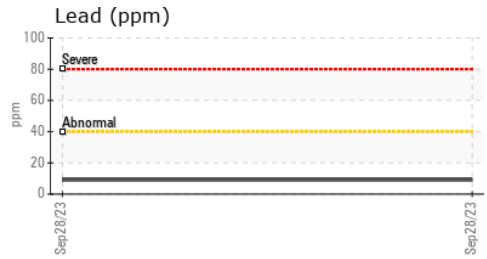
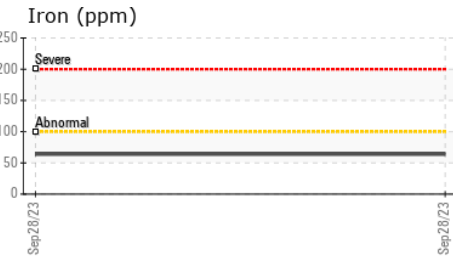
# OIL ANALYSIS REPORT



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	>0.2	NEG	---
Free Water	scalar	*Visual		NEG	---

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.7	13.6	---

### GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0822361      **Received** : 04 Oct 2023  
**Lab Number** : 05969488      **Diagnosed** : 09 Oct 2023  
**Unique Number** : 10676039      **Diagnostician** : Don Baldrige  
**Test Package** : MOB 1 ( Additional Tests: TBN )

**JOHNSON BREEDERS**  
 3425 HWY 117N  
 ROSE HILL, NC  
 US 28458

To discuss this sample report, contact Customer Service at 1-800-237-1369.

Contact: GREG JONES  
gregory.jones@houseofraeford.com

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

T: (910)289-6884

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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