



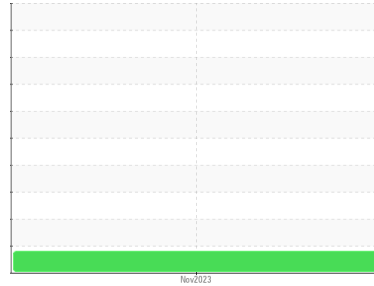
# PROBLEM SUMMARY

Sample Rating Trend

WEAR

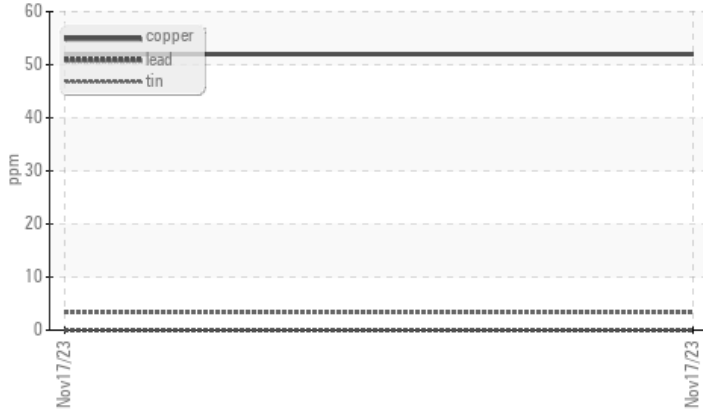


Machine Id  
**FREIGHTLINER TL2201**  
Component  
**Front Diesel Engine**  
Fluid  
**NOT GIVEN (40 GAL)**



## COMPONENT CONDITION SUMMARY

### ▲ Non-ferrous Metals



## 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. Please specify the brand, type, and viscosity of the oil on your next sample.

## PROBLEMATIC TEST RESULTS

Sample Status				ABNORMAL	---	---
Copper	ppm	ASTM D5185m	>30	▲ 52	---	---

Customer Id: KIRSID  
Sample No.: NL0001547  
Lab Number: 06015696  
Test Package: FLEET



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To discuss the diagnosis or test data:  
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To change component or sample information:  
Customer Service +1 1-800-237-1369  
[customerservice@wearcheck.com](mailto:customerservice@wearcheck.com)

## RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	---	---	?	Oil and filter change at the time of sampling has been noted.
Change Filter	---	---	?	Oil and filter change at the time of sampling has been noted.
Information Required	---	---	?	Please specify the brand, type, and viscosity of the oil on your next sample.

## HISTORICAL DIAGNOSIS



# OIL ANALYSIS REPORT

Sample Rating Trend



**WEAR**



Machine Id  
**FREIGHTLINER TL2201**  
 Component  
**Front Diesel Engine**  
 Fluid  
**NOT GIVEN (40 GAL)**

## DIAGNOSIS

### 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. Please specify the brand, type, and viscosity of the oil on your next sample.

### 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

Tests indicate that there is no fuel present in the oil. There is no indication of any contamination in the oil.

### Fluid Condition

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

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>NL0001547</b>	---	---
Sample Date	Client Info		<b>17 Nov 2023</b>	---	---
Machine Age	mls	Client Info	<b>150259</b>	---	---
Oil Age	mls	Client Info	<b>150259</b>	---	---
Oil Changed	Client Info		<b>Changed</b>	---	---
Sample Status			<b>ABNORMAL</b>	---	---

## CONTAMINATION

	method	limit/base	current	history1	history2
Water	WC Method	>0.2	<b>NEG</b>	---	---
Glycol	WC Method		<b>NEG</b>	---	---

## WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>200	<b>63</b>	---
Chromium	ppm	ASTM D5185m	>20	<b>3</b>	---
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	---
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	---
Silver	ppm	ASTM D5185m	>2	<b>0</b>	---
Aluminum	ppm	ASTM D5185m	>30	<b>22</b>	---
Lead	ppm	ASTM D5185m	>30	<b>0</b>	---
Copper	ppm	ASTM D5185m	>30	<b>52</b>	---
Tin	ppm	ASTM D5185m	>15	<b>3</b>	---
Vanadium	ppm	ASTM D5185m		<b>0</b>	---
Cadmium	ppm	ASTM D5185m		<b>0</b>	---

## ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		<b>2</b>	---
Barium	ppm	ASTM D5185m		<b>0</b>	---
Molybdenum	ppm	ASTM D5185m		<b>68</b>	---
Manganese	ppm	ASTM D5185m		<b>2</b>	---
Magnesium	ppm	ASTM D5185m		<b>1044</b>	---
Calcium	ppm	ASTM D5185m		<b>1185</b>	---
Phosphorus	ppm	ASTM D5185m		<b>1029</b>	---
Zinc	ppm	ASTM D5185m		<b>1342</b>	---
Sulfur	ppm	ASTM D5185m		<b>2184</b>	---

## CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>30	<b>8</b>	---
Sodium	ppm	ASTM D5185m		<b>3</b>	---
Potassium	ppm	ASTM D5185m	>20	<b>29</b>	---
Fuel	%	ASTM D3524	>3.0	<b>0.3</b>	---

## INFRA-RED

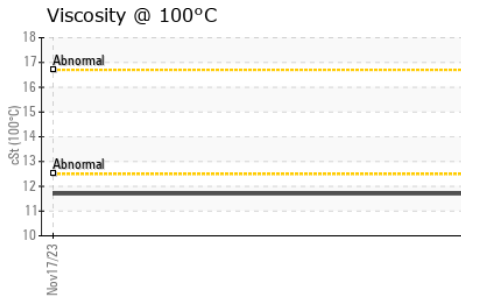
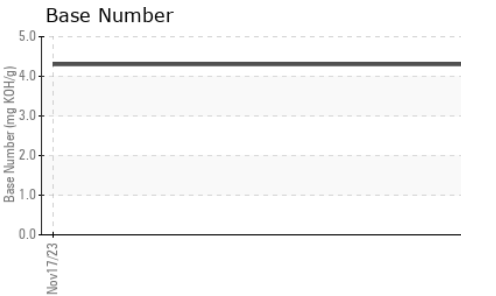
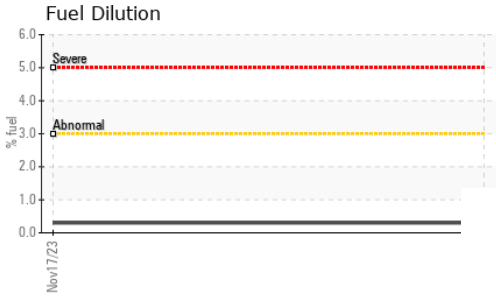
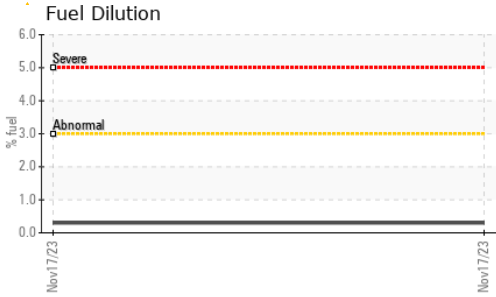
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	<b>1.8</b>	---
Nitration	Abs/cm	*ASTM D7624	>20	<b>14.7</b>	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>27.5</b>	---

## FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>26.5</b>	---
Base Number (BN)	mg KOH/g	ASTM D2896		<b>4.3</b>	---



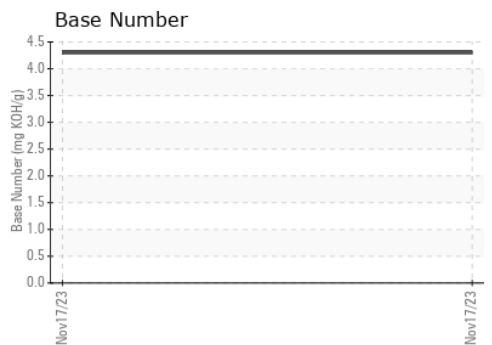
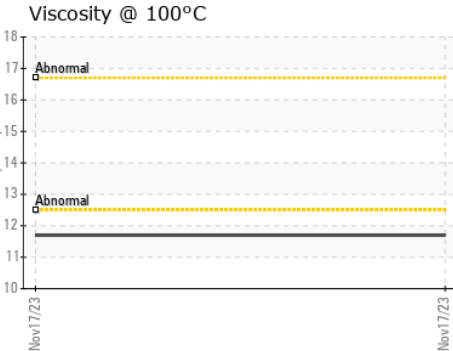
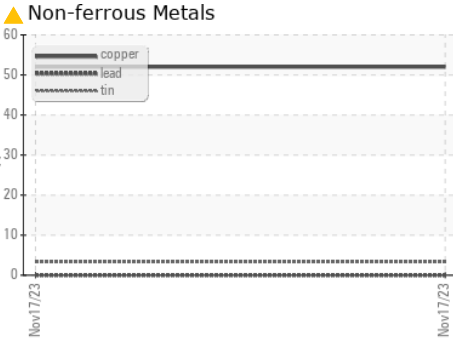
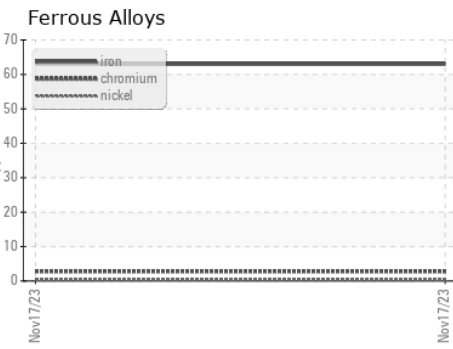
# OIL ANALYSIS REPORT



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	11.7	---	---

### GRAPHS



**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NL0001547 **Received** : 22 Nov 2023  
**Lab Number** : 06015696 **Diagnosed** : 27 Nov 2023  
**Unique Number** : 10754840 **Diagnostician** : Sean Felton  
**Test Package** : FLEET ( Additional Tests: FuelDilution, PercentFuel )

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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)