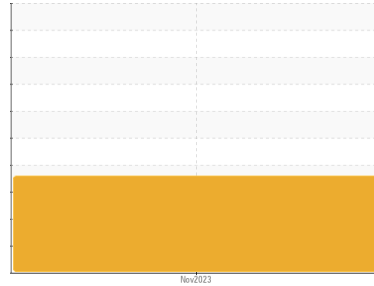


PROBLEM SUMMARY

Sample Rating Trend



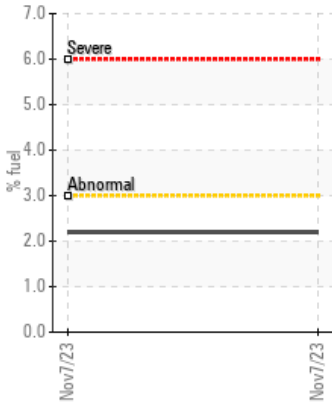
Machine Id
KENWORTH M-156

Component
Diesel Engine

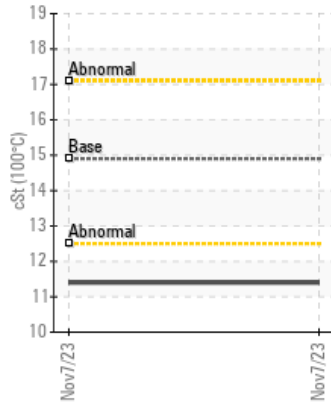
Fluid
SHELL Rotella T5 15W-40 (11 GAL)

COMPONENT CONDITION SUMMARY

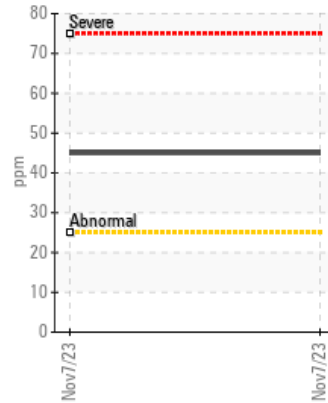
▲ Fuel Dilution



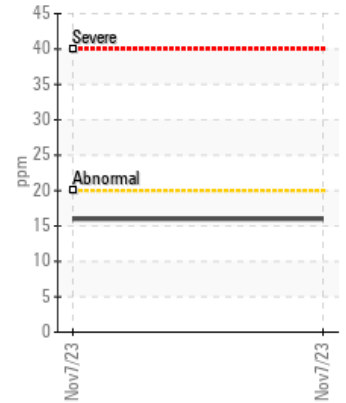
▲ Viscosity @ 100°C



▲ Silicon (ppm)



▲ Aluminum (ppm)



RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	---	---
Aluminum	ppm	ASTM D5185m >20	▲ 16	---	---
Silicon	ppm	ASTM D5185m >25	▲ 45	---	---
Fuel	%	ASTM D3524 >3.0	▲ 2.2	---	---
Visc @ 100°C	cSt	ASTM D445 14.9	▲ 11.4	---	---

Customer Id: PETABE
Sample No.: PE0002390
Lab Number: 06015688
Test Package: CONST



To manage this report scan the QR code

To discuss the diagnosis or test data:
Sean Felton +1 919-379-4092
sfelton@wearcheckusa.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

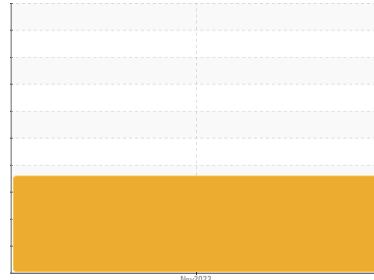
RECOMMENDED ACTIONS

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.
Check Dirt Access	---	---	?	We advise that you check the air filter, air induction system, and any areas where dirt may enter the component.

HISTORICAL DIAGNOSIS



Machine Id
KENWORTH M-156
 Component
Diesel Engine
 Fluid
SHELL Rotella T5 15W-40 (11 GAL)



DIAGNOSIS

Recommendation
 We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear
 All component wear rates are normal.

Contamination
 Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. Light fuel dilution occurring. Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components.

Fluid Condition
 Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			PE0002390	---	---
Sample Date	Client Info			07 Nov 2023	---	---
Machine Age	mls Client Info			0	---	---
Oil Age	mls Client Info			9626	---	---
Oil Changed	Client Info			Changed	---	---
Sample Status				ABNORMAL	---	---

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

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	61	---	---
Chromium	ppm	ASTM D5185m	>20	2	---	---
Nickel	ppm	ASTM D5185m	>2	<1	---	---
Titanium	ppm	ASTM D5185m	>2	0	---	---
Silver	ppm	ASTM D5185m	>2	<1	---	---
Aluminum	ppm	ASTM D5185m	>20	▲ 16	---	---
Lead	ppm	ASTM D5185m	>40	2	---	---
Copper	ppm	ASTM D5185m	>330	40	---	---
Tin	ppm	ASTM D5185m	>15	3	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
Cadmium	ppm	ASTM D5185m		0	---	---

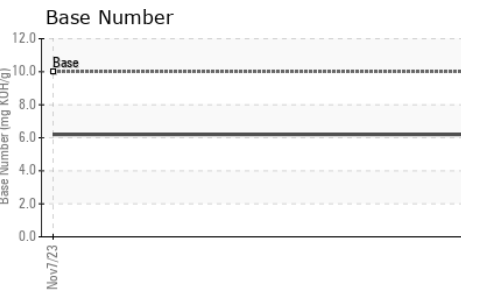
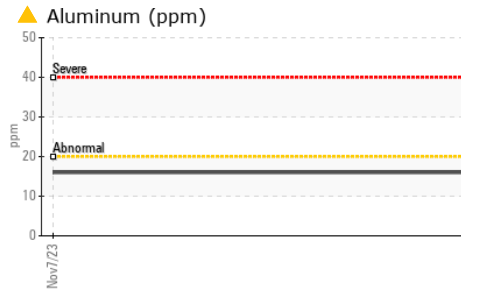
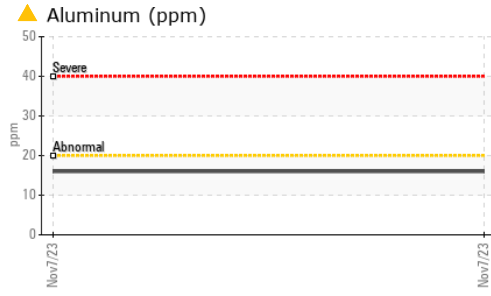
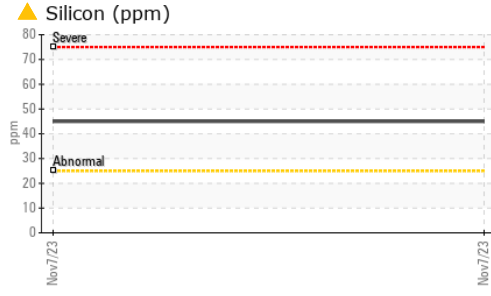
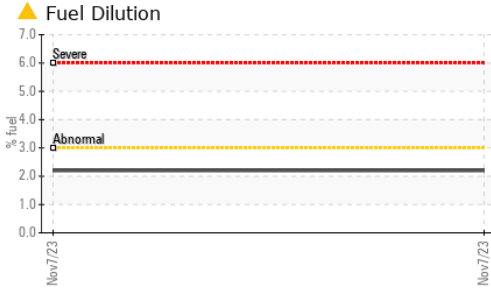
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m		49	---	---
Barium	ppm	ASTM D5185m		3	---	---
Molybdenum	ppm	ASTM D5185m		13	---	---
Manganese	ppm	ASTM D5185m		6	---	---
Magnesium	ppm	ASTM D5185m		748	---	---
Calcium	ppm	ASTM D5185m		1308	---	---
Phosphorus	ppm	ASTM D5185m		719	---	---
Zinc	ppm	ASTM D5185m		864	---	---
Sulfur	ppm	ASTM D5185m		2833	---	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	▲ 45	---	---
Sodium	ppm	ASTM D5185m		5	---	---
Potassium	ppm	ASTM D5185m	>20	58	---	---
Fuel	%	ASTM D3524	>3.0	▲ 2.2	---	---

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>6	0.2	---	---
Nitration	Abs/cm	*ASTM D7624	>20	10.2	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	21.1	---	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.9	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	10	6.2	---	---

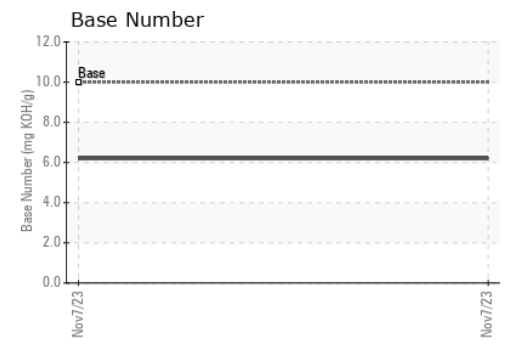
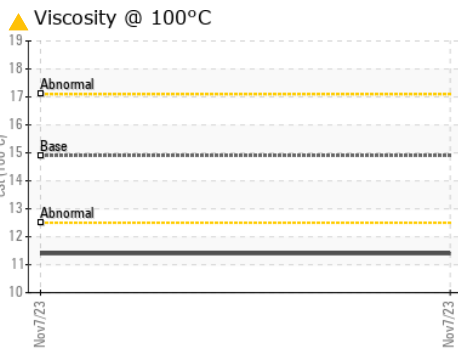
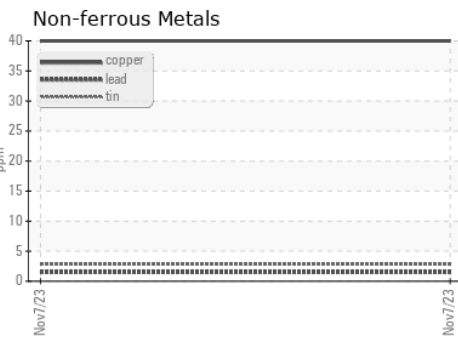
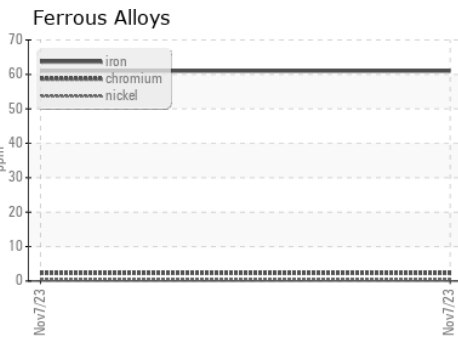
OIL ANALYSIS REPORT



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	14.9	▲ 11.4	---	---

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PE0002390 **Received** : 22 Nov 2023
Lab Number : **06015688** **Diagnosed** : 27 Nov 2023
Unique Number : 10754832 **Diagnostician** : Sean Felton
Test Package : CONST (Additional Tests: FT-IR, FuelDilution, ICP, KV100, PercentFuel, SCREEN, TBN)

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 Aberdeen, WA
 US 98520
 Contact: Sean McNealley
 smcnealley@petrocard.com
 T:
 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)