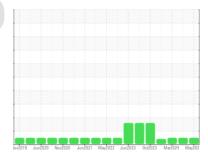


## **OIL ANALYSIS REPORT**

Sample Rating Trend



**NORMAL** 



Machine Id

# **KENWORTH 3012**

Component

Diesel Engine

**DIESEL ENGINE OIL SAE 10W30 (--- QTS)** 

### Recommendation

Resample at the next service interval to monitor.

All 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.

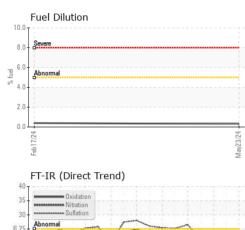
### **Fluid Condition**

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

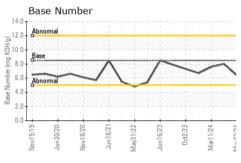
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0906853	WC0906905	WC0906923
Sample Date		Client Info		23 May 2024	11 Apr 2024	11 Mar 2024
Machine Age	mls	Client Info		399839	393470	388958
Oil Age	mls	Client Info		36554	363285	25673
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	V	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	11	9	14
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	3	3	4
Lead	ppm	ASTM D5185m	>40	1	<1	0
Copper	ppm	ASTM D5185m	>330	5	30	3
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVEO		memou	IIIIII/Dase	Current	Thistory	Thotory Z
Boron	ppm	ASTM D5185m	250	63	91	62
	ppm					
Boron		ASTM D5185m	250	63	91	62
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	63 0	91	62 1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	63 0 4	91 0 3	62 1 6
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	63 0 4 <1	91 0 3 <1	62 1 6 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	63 0 4 <1 710	91 0 3 <1 764	62 1 6 <1 719
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	63 0 4 <1 710 1391	91 0 3 <1 764 1315	62 1 6 <1 719 1380
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	63 0 4 <1 710 1391 753	91 0 3 <1 764 1315 773	62 1 6 <1 719 1380 696
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	63 0 4 <1 710 1391 753 782	91 0 3 <1 764 1315 773 834	62 1 6 <1 719 1380 696 817 3275
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	63 0 4 <1 710 1391 753 782 3387 current	91 0 3 <1 764 1315 773 834 3632 history1	62 1 6 <1 719 1380 696 817 3275 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	63 0 4 <1 710 1391 753 782 3387 current	91 0 3 <1 764 1315 773 834 3632 history1 9 5	62 1 6 <1 719 1380 696 817 3275 history2 5 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	63 0 4 <1 710 1391 753 782 3387 current 7 4	91 0 3 <1 764 1315 773 834 3632 history1 9 5	62 1 6 <1 719 1380 696 817 3275 history2 5 <1 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >20	63 0 4 <1 710 1391 753 782 3387 current 7	91 0 3 <1 764 1315 773 834 3632 history1 9 5	62 1 6 <1 719 1380 696 817 3275 history2 5 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >20	63 0 4 <1 710 1391 753 782 3387 current 7 4	91 0 3 <1 764 1315 773 834 3632 history1 9 5	62 1 6 <1 719 1380 696 817 3275 history2 5 <1 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >20 >5	63 0 4 <1 710 1391 753 782 3387 current 7 4 5 0.3	91 0 3 <1 764 1315 773 834 3632 history1 9 5 5 <1.0	62 1 6 <1 719 1380 696 817 3275 history2 5 <1 8 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250  limit/base >25 >20 >5	63 0 4 <1 710 1391 753 782 3387 current 7 4 5 0.3	91 0 3 <1 764 1315 773 834 3632 history1 9 5 <1.0	62 1 6 <1 719 1380 696 817 3275 history2 5 <1 8 <1.0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >20 >5 limit/base	63 0 4 <1 710 1391 753 782 3387 current 7 4 5 0.3 current 0.2	91 0 3 <1 764 1315 773 834 3632 history1 9 5 5 <1.0 history1 0.2	62 1 6 <1 719 1380 696 817 3275 history2 5 <1 8 <1.0 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	250 10 100 450 3000 1150 1350 4250 limit/base >25 >20 >5 limit/base	63 0 4 <1 710 1391 753 782 3387 current 7 4 5 0.3 current 0.2 8.3	91 0 3 <1 764 1315 773 834 3632 history1 9 5 <1.0 history1 0.2 7.9	62 1 6 <1 719 1380 696 817 3275 history2 5 <1 8 <1.0 history2 0.3 8.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624	250 10 100 450 3000 1150 1350 4250 limit/base >25 >20 >5 limit/base >3 >20 >30	63 0 4 <1 710 1391 753 782 3387 current 7 4 5 0.3 current 0.2 8.3 18.9	91 0 3 <1 764 1315 773 834 3632 history1 9 5 <1.0 history1 0.2 7.9 18.8	62 1 6 <1 719 1380 696 817 3275 history2 5 <1 8 <1.0 history2 0.3 8.2 19.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm	ASTM D5185m ASTM D78185m ASTM D7624 *ASTM D7624 *ASTM D7415 method	250 10 100 450 3000 1150 1350 4250 limit/base >25  >20 >5  limit/base >3 >20 >30  limit/base >25	63 0 4 <1 710 1391 753 782 3387 current 7 4 5 0.3 current 0.2 8.3 18.9 current	91 0 3 <1 764 1315 773 834 3632 history1 9 5 <1.0 history1 0.2 7.9 18.8 history1	62 1 6 <1 719 1380 696 817 3275 history2 5 <1 8 <1.0 history2 0.3 8.2 19.4 history2

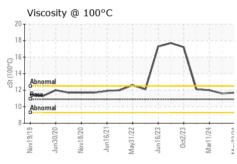


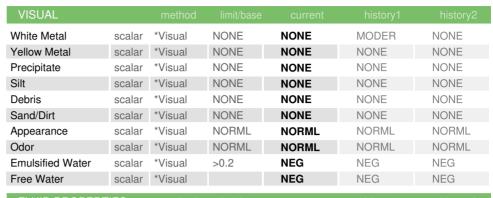
## **OIL ANALYSIS REPORT**



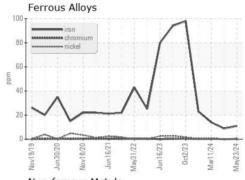
35 -	•••••• Ni	tration						
25 - Abno	mal Su	illation	V		\	1		
15	/		<b>Y</b>	ganda <sup>Ma</sup> than	1			
	- Sandana	PROFESSION OF THE PERSON OF TH					Aleksan	
10 - 61/61voW	Jun30/20	Nov18/20	Jun16/21-	May31/22	Jun16/23	Oct2/23 -	Mar11/24 -	

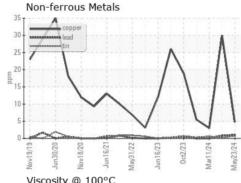


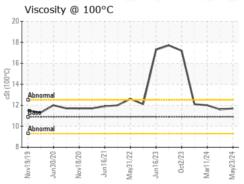


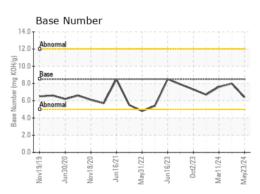


FLUID PROPER	TIES	method				history2
Visc @ 100°C	cSt	ASTM D445	10.9	11.7	11.6	12.0













Certificate 12367

Laboratory Sample No.

: WC0906853 Lab Number : 06194877 Unique Number : 11057000

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 29 May 2024 **Tested** 

: 05 Jun 2024 Diagnosed : 05 Jun 2024 - Don Baldridge

Test Package: FLEET (Additional Tests: FUELDILUTION, PercentFuel) To discuss this sample report, contact Customer Service at 1-800-237-1369.

 $^st$  - 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)

LTI/MILKY WAY - SUNNYSIDE

333 MIDVALE RD SUNNYSIDE, WA

US 98944 Contact: Barbara Kluever bkluever@lynden.com T: (509)839-5844

F: (509)839-6556 Contact/Location: Barbara Kluever - LTISUN