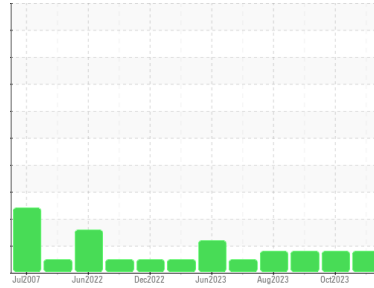




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
KENWORTH 94

Component
Diesel Engine

Fluid
SWEPKO 306 ENGINE OIL SAE 15W40 (12 GAL)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. 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).

Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

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		KL0013011	KL0011625	KL0009778
Sample Date	Client Info		10 Nov 2023	31 Oct 2023	30 Sep 2023
Machine Age	mls	Client Info	836245	836167	826012
Oil Age	mls	Client Info	39646	39567	29412
Oil Changed	Client Info		Changed	Not Changd	Not Changd
Sample Status			ABNORMAL	ABNORMAL	ABNORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	<1.0	<1.0
Water	WC Method	>0.2	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185m	>100	32	36	29
Chromium	ppm	ASTM D5185m	>6	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m	>2	<1	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>30	4	4	2
Lead	ppm	ASTM D5185m	>10	<1	1	<1
Copper	ppm	ASTM D5185m	>150	▲ 465	▲ 506	▲ 701
Tin	ppm	ASTM D5185m	>4	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	<1	0

ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		139	162	224
Barium	ppm	ASTM D5185m		0	6	0
Molybdenum	ppm	ASTM D5185m		244	273	357
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		439	490	550
Calcium	ppm	ASTM D5185m		1493	1604	1461
Phosphorus	ppm	ASTM D5185m		828	1131	1029
Zinc	ppm	ASTM D5185m		1012	1133	1089
Sulfur	ppm	ASTM D5185m		3634	4014	3920

CONTAMINANTS

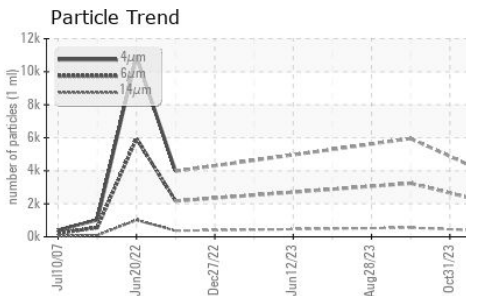
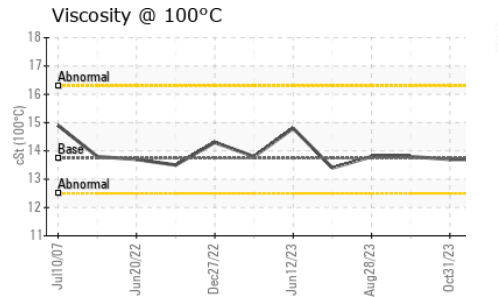
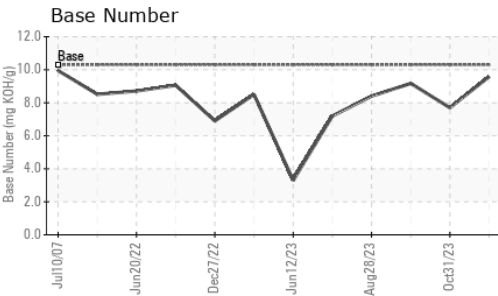
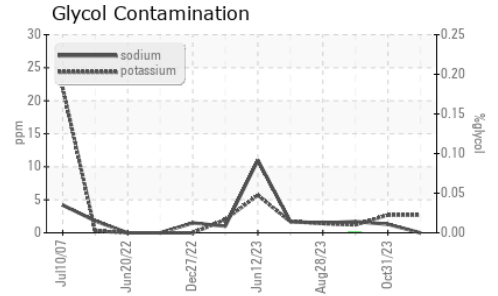
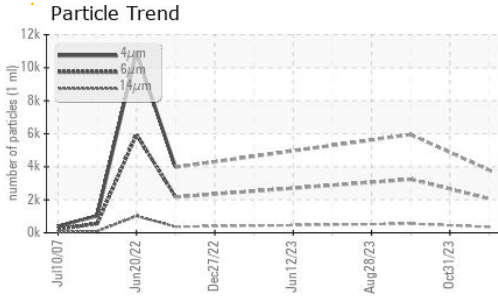
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>20	7	8	8
Sodium	ppm	ASTM D5185m		0	1	2
Potassium	ppm	ASTM D5185m	>20	3	3	1
Glycol	%	*ASTM D2982		NEG	NEG	0.0

INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	*ASTM D7844	>3	0.3	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	8.6	8.7	8.2
Sulfation	Abs./1mm	*ASTM D7415	>30	23.4	23.5	22.8



OIL ANALYSIS REPORT



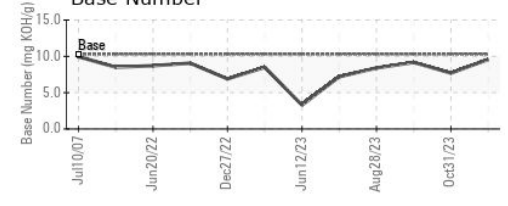
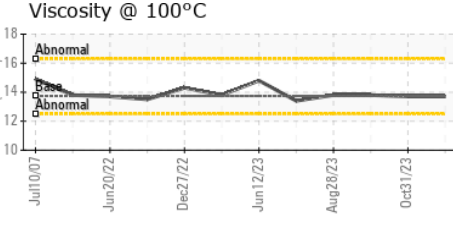
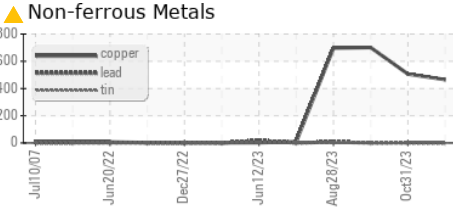
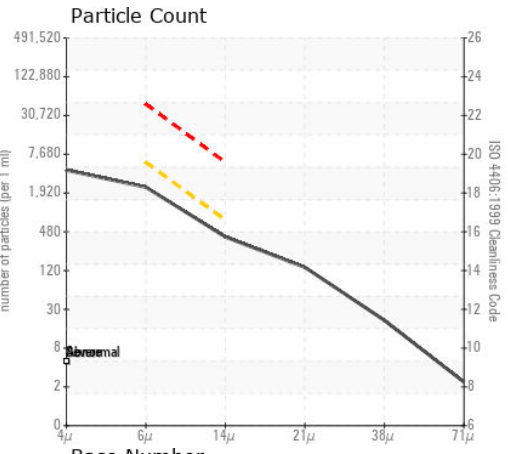
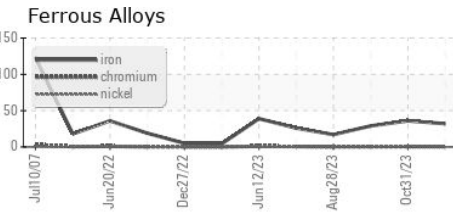
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		3802	---	5951
Particles >6µm	ASTM D7647	>5000	2071	---	3242
Particles >14µm	ASTM D7647	>640	352	---	552
Particles >21µm	ASTM D7647	>160	119	---	186
Particles >38µm	ASTM D7647	>40	18	---	29
Particles >71µm	ASTM D7647	>10	2	---	3
Oil Cleanliness	ISO 4406 (c)	>19/16	18/16	---	19/16

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414	>25	20.4	20.7	19.3
Base Number (BN)	mg KOH/g ASTM D2896	10.3	9.58	7.7	9.17

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar *Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar *Visual	NONE	NONE	NONE	NONE
Precipitate	scalar *Visual	NONE	NONE	NONE	NONE
Silt	scalar *Visual	NONE	NONE	NONE	NONE
Debris	scalar *Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar *Visual	NONE	NONE	NONE	NONE
Appearance	scalar *Visual	NORML	NORML	NORML	NORML
Odor	scalar *Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar *Visual	>0.2	NEG	NEG	NEG
Free Water	scalar *Visual		NEG	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt ASTM D445	13.74	13.7	13.7	13.8

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0013011 **Received** : 24 Nov 2023
Lab Number : 06017530 **Diagnosed** : 29 Nov 2023
Unique Number : 10756674 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: Glycol, PrtCount)

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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)