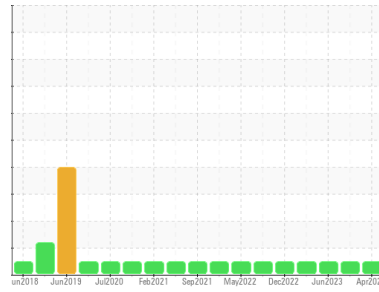




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
KENWORTH 83
 Component
Diesel Engine
 Fluid
 DIESEL ENGINE OIL SAE 15W40 (13 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

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		RW0005158	RW0004576	RW0004416
Sample Date	Client Info		03 Apr 2024	28 Oct 2023	17 Jun 2023
Machine Age	hrs	Client Info	6035	5636	5224
Oil Age	hrs	Client Info	399	412	334
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			NORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>3.0	<1.0	<1.0	<1.0
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 >165	15	18	14
Chromium	ppm	ASTM D5185m >5	<1	<1	1
Nickel	ppm	ASTM D5185m >4	0	0	0
Titanium	ppm	ASTM D5185m >2	0	0	0
Silver	ppm	ASTM D5185m >2	0	0	0
Aluminum	ppm	ASTM D5185m >20	2	2	2
Lead	ppm	ASTM D5185m >150	<1	0	0
Copper	ppm	ASTM D5185m >90	<1	<1	<1
Tin	ppm	ASTM D5185m >5	0	<1	<1
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 250	3	8	8
Barium	ppm	ASTM D5185m 10	0	0	0
Molybdenum	ppm	ASTM D5185m 100	66	61	66
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m 450	1107	876	1002
Calcium	ppm	ASTM D5185m 3000	1285	1050	1217
Phosphorus	ppm	ASTM D5185m 1150	1215	981	1132
Zinc	ppm	ASTM D5185m 1350	1492	1183	1382
Sulfur	ppm	ASTM D5185m 4250	4447	2799	4113

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >35	3	4	4
Sodium	ppm	ASTM D5185m >158	6	6	5
Potassium	ppm	ASTM D5185m >20	4	1	3

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >7.5	0.4	0.6	0.5
Nitration	Abs/cm	*ASTM D7624 >20	8.6	9.4	8.6
Sulfation	Abs/.1mm	*ASTM D7415 >30	18.9	20.1	19.8

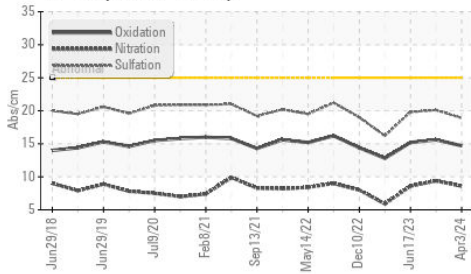
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	14.7	15.6	15.2
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	9.57	9.54	9.94

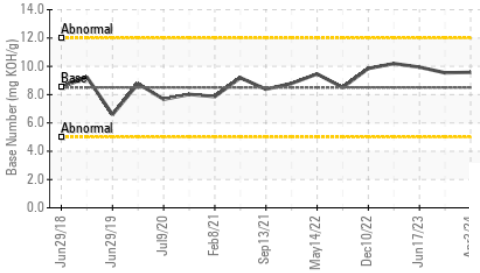


OIL ANALYSIS REPORT

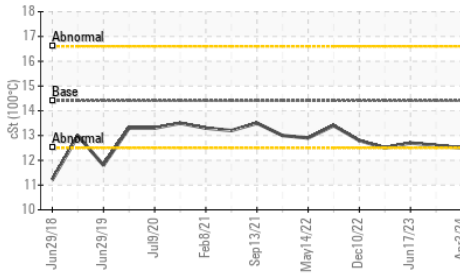
FT-IR (Direct Trend)



Base Number



Viscosity @ 100°C

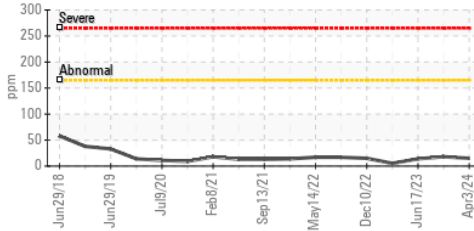


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance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

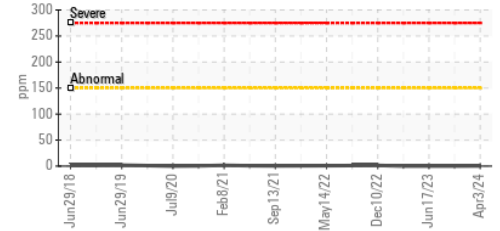
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	12.5	12.6

GRAPHS

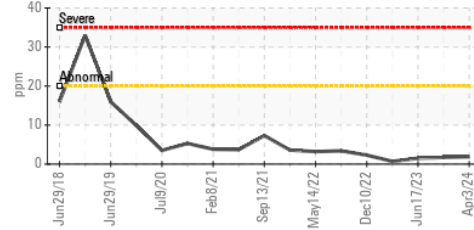
Iron (ppm)



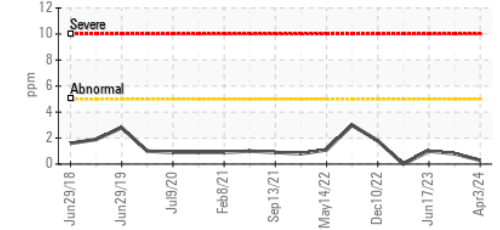
Lead (ppm)



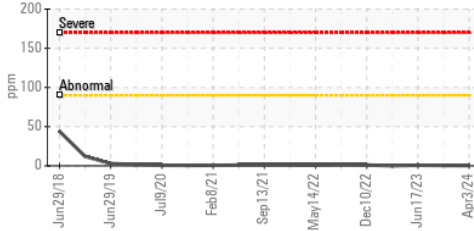
Aluminum (ppm)



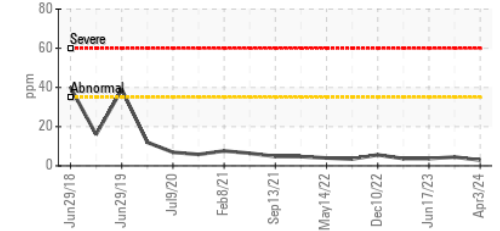
Chromium (ppm)



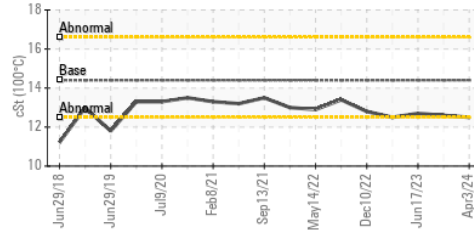
Copper (ppm)



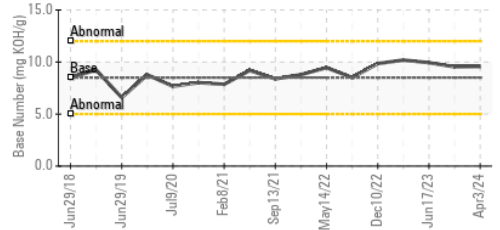
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
 Sample No. : RW0005158
 Lab Number : 06161015
 Unique Number : 10996438
 Test Package : MOB 2

Received : 25 Apr 2024
 Tested : 26 Apr 2024
 Diagnosed : 26 Apr 2024 - Wes Davis

HALLACK CONTRACTING, INC.
 4223 W POLK
 HART, MI
 US 49420

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)

Contact: DAN HALLACK KARL BUTCHER
 shop@hallackcontracting.com

T: (231)873-5081

F: (231)873-2889