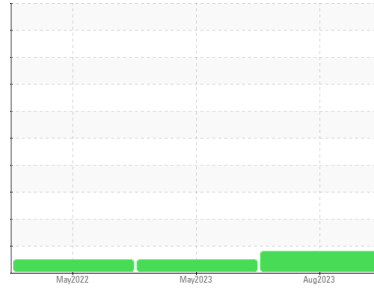




OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id

CEC

Component

Diesel Engine

Fluid

KENDALL SUPER-D XA DIESEL ENGINE OIL 15W40 (--- 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.

▲ Wear

Cylinder, crank, or cam shaft wear is indicated. All other 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		WC0524366	WCM2312806	WC0570162
Sample Date	Client Info		10 Aug 2023	11 May 2023	26 May 2022
Machine Age	hrs	Client Info	8107	7859	7600
Oil Age	hrs	Client Info	250	250	250
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			ABNORMAL	NORMAL	NORMAL

CONTAMINATION

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

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	▲ 105	20	13
Chromium	ppm	ASTM D5185m >20	2	1	2
Nickel	ppm	ASTM D5185m >4	0	0	0
Titanium	ppm	ASTM D5185m	60	38	58
Silver	ppm	ASTM D5185m >3	0	0	<1
Aluminum	ppm	ASTM D5185m >20	5	1	4
Lead	ppm	ASTM D5185m >40	<1	0	<1
Copper	ppm	ASTM D5185m >330	2	2	2
Tin	ppm	ASTM D5185m >15	<1	0	<1
Vanadium	ppm	ASTM D5185m	<1	0	<1
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	104	72	123
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	27	43	29
Manganese	ppm	ASTM D5185m	1	<1	<1
Magnesium	ppm	ASTM D5185m	661	725	641
Calcium	ppm	ASTM D5185m	1862	1501	1689
Phosphorus	ppm	ASTM D5185m	1006	970	1001
Zinc	ppm	ASTM D5185m 1260	1337	1191	1226
Sulfur	ppm	ASTM D5185m	4234	3655	3652

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	11	5	5
Sodium	ppm	ASTM D5185m	4	4	3
Potassium	ppm	ASTM D5185m >20	3	0	2

INFRA-RED

	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	0.1	0.2	0.1
Nitration	Abs/cm	*ASTM D7624 >20	8.3	8.4	8.4
Sulfation	Abs/.1mm	*ASTM D7415 >30	19.3	19.6	19.1

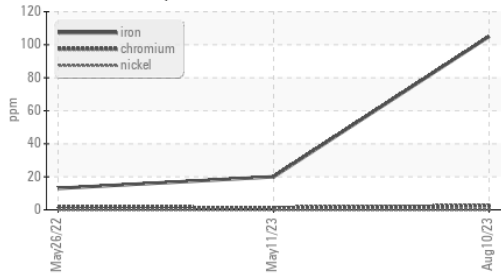
FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	15.1	16.0	15.2
Base Number (BN)	mg KOH/g	ASTM D2896 9.5	12.05	12.71	9.60

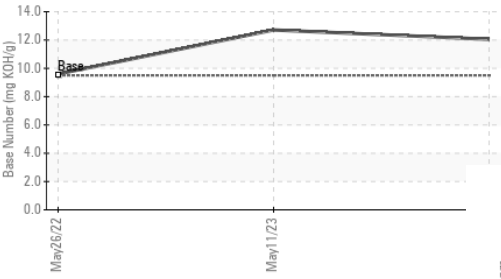


OIL ANALYSIS REPORT

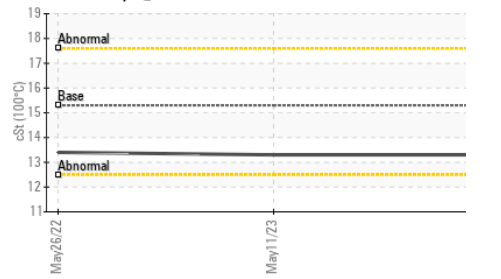
▲ Ferrous Alloys



Base Number



Viscosity @ 100°C

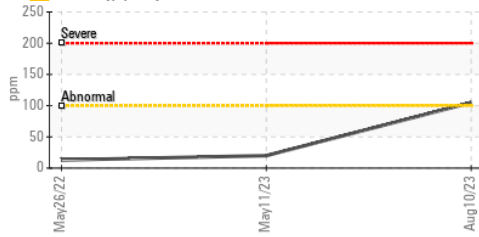


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	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

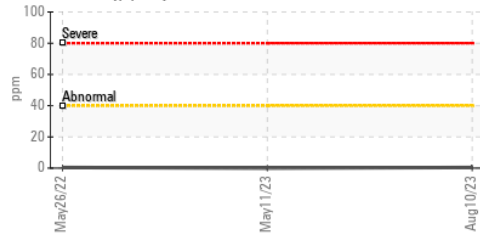
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.3	13.3	13.4

GRAPHS

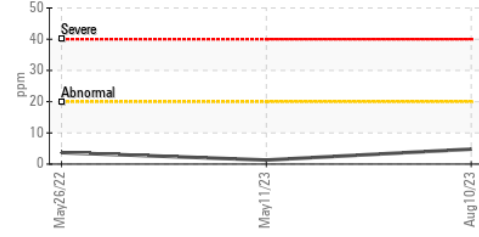
▲ Iron (ppm)



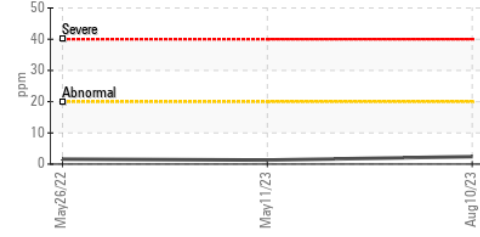
Lead (ppm)



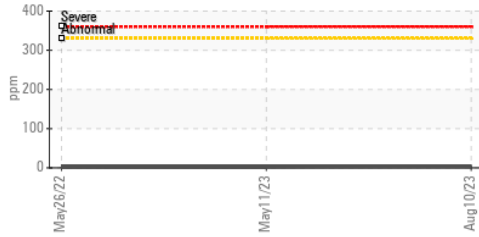
Aluminum (ppm)



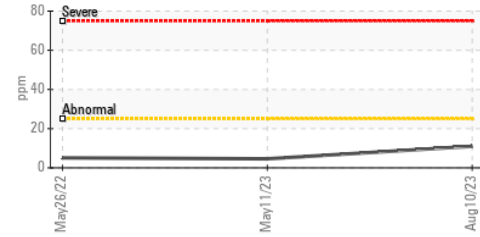
Chromium (ppm)



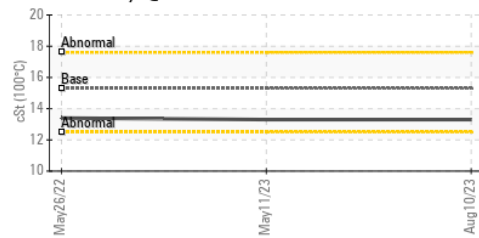
Copper (ppm)



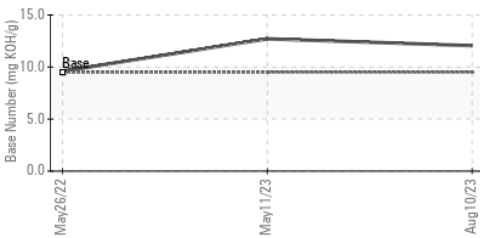
Silicon (ppm)



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0524366 **Received** : 15 Aug 2023
Lab Number : 05925534 **Diagnosed** : 17 Aug 2023
Unique Number : 10605481 **Diagnostician** : Don Baldrige
Test Package : MOB 2

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 F:

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)