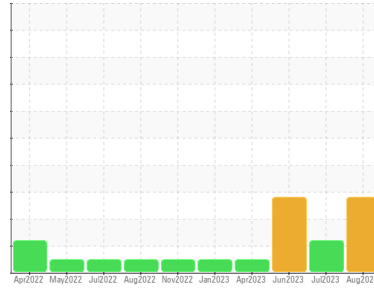




OIL ANALYSIS REPORT

Sample Rating Trend



FUEL



Machine Id
CATERPILLAR 966K 966K-1
 Component
Diesel Engine
 Fluid
KENDALL SUPER-D XA DIESEL ENGINE OIL 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		WC0524363	WC0524368	WC0524360
Sample Date	Client Info		08 Aug 2023	10 Jul 2023	19 Jun 2023
Machine Age	hrs	Client Info	18316	18168	18100
Oil Age	hrs	Client Info	216	68	250
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			SEVERE	ABNORMAL	SEVERE

CONTAMINATION

	method	limit/base	current	history1	history2
Glycol	WC Method		NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >100	8	4	11
Chromium	ppm	ASTM D5185m >20	<1	0	<1
Nickel	ppm	ASTM D5185m >2	0	0	0
Titanium	ppm	ASTM D5185m >2	49	50	58
Silver	ppm	ASTM D5185m >2	<1	0	<1
Aluminum	ppm	ASTM D5185m >25	<1	<1	2
Lead	ppm	ASTM D5185m >40	<1	0	0
Copper	ppm	ASTM D5185m >330	<1	<1	<1
Tin	ppm	ASTM D5185m >15	<1	0	0
Vanadium	ppm	ASTM D5185m	<1	<1	<1
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	61	98	53
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	18	20	16
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m	476	525	486
Calcium	ppm	ASTM D5185m	1476	1556	1588
Phosphorus	ppm	ASTM D5185m	847	916	936
Zinc	ppm	ASTM D5185m 1260	1043	1110	1138
Sulfur	ppm	ASTM D5185m	3757	4083	4108

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	5	4	5
Sodium	ppm	ASTM D5185m	6	3	7
Potassium	ppm	ASTM D5185m >20	2	1	3
Fuel	%	ASTM D3524 >5	12.6	5.9	11.4

INFRA-RED

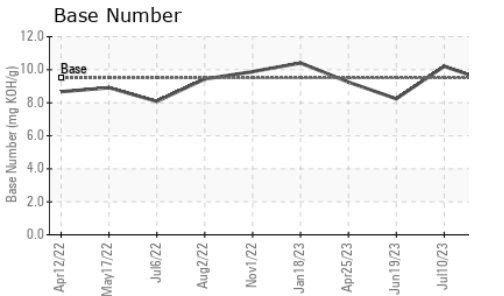
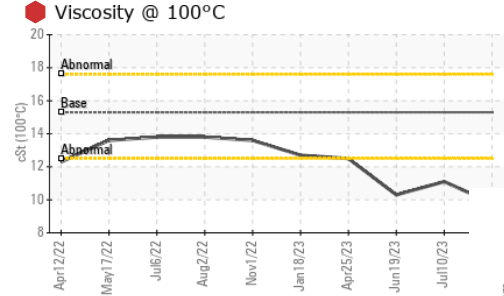
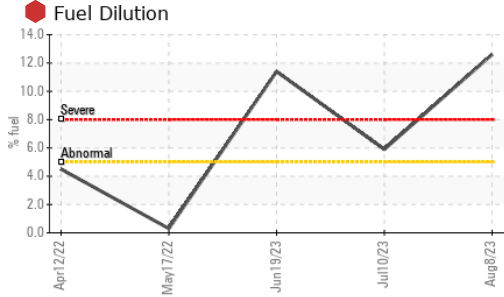
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	0.6	0.3	0.8
Nitration	Abs/cm	*ASTM D7624 >20	8.7	6.5	10.0
Sulfation	Abs/.1mm	*ASTM D7415 >30	19.5	17.9	20.6

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	15.3	12.9	15.7
Base Number (BN)	mg KOH/g	ASTM D2896 9.5	9.21	10.21	8.24



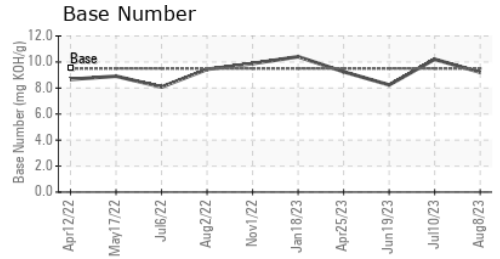
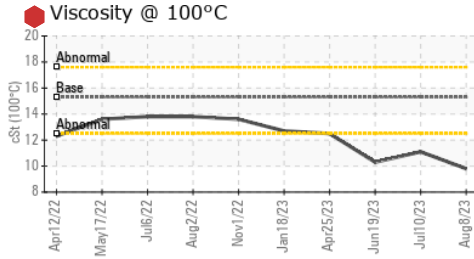
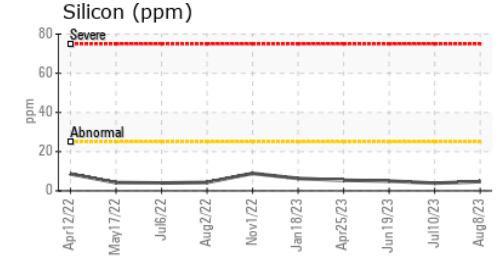
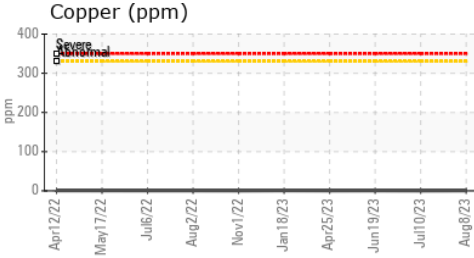
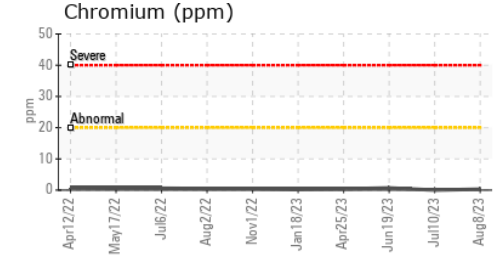
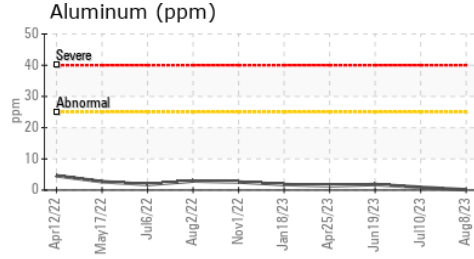
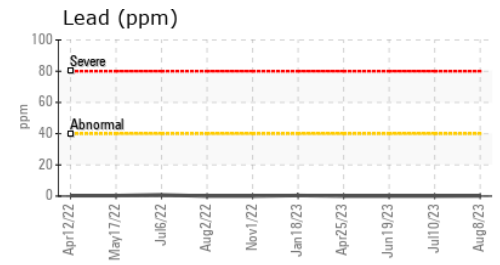
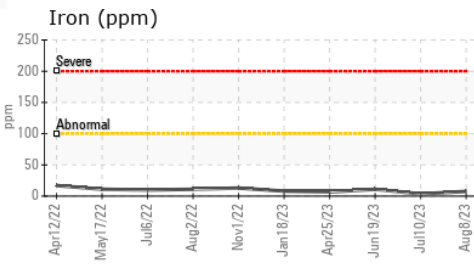
OIL ANALYSIS REPORT



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	9.8	11.1

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0524363 **Received** : 15 Aug 2023
Lab Number : 05925533 **Diagnosed** : 17 Aug 2023
Unique Number : 10605480 **Diagnostician** : Wes Davis
Test Package : MOB 2 (Additional Tests: PercentFuel)

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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)