

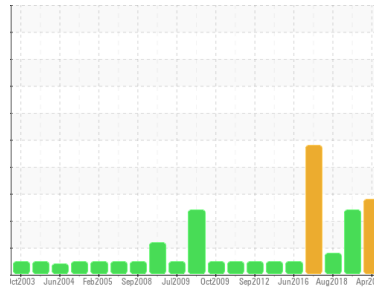


OIL ANALYSIS REPORT



Machine Id
CATERPILLAR 980C 117 (S/N 63X4945)
 Component
Diesel Engine
 Fluid
DIESEL ENGINE OIL SAE 15W40 (10 GAL)

Sample Rating Trend



FUEL



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		RW0004988	RW0001948	RWM2311011
Sample Date	Client Info		01 Apr 2024	08 Dec 2020	02 Aug 2018
Machine Age	hrs	Client Info	8568	7880	7472
Oil Age	hrs	Client Info	436	265	21
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			SEVERE	SEVERE	MARGINAL

CONTAMINATION

	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 >86	46	20	6
Chromium	ppm	ASTM D5185m >3	<1	<1	<1
Nickel	ppm	ASTM D5185m >3	2	<1	0
Titanium	ppm	ASTM D5185m >2	0	<1	0
Silver	ppm	ASTM D5185m >2	0	<1	0
Aluminum	ppm	ASTM D5185m >15	1	6	1
Lead	ppm	ASTM D5185m >16	7	3	2
Copper	ppm	ASTM D5185m >250	4	6	41
Tin	ppm	ASTM D5185m >2	<1	<1	0
Antimony	ppm	ASTM D5185m	---	0	0
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	20	8	14
Barium	ppm	ASTM D5185m 10	0	0	0
Molybdenum	ppm	ASTM D5185m 100	61	64	60
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m 450	669	781	854
Calcium	ppm	ASTM D5185m 3000	1369	1029	1066
Phosphorus	ppm	ASTM D5185m 1150	1006	932	981
Zinc	ppm	ASTM D5185m 1350	1196	1040	1066
Sulfur	ppm	ASTM D5185m 4250	3695	2345	2626

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >35	7	4	7
Sodium	ppm	ASTM D5185m >158	2	3	7
Potassium	ppm	ASTM D5185m >20	1	<1	0
Fuel	%	ASTM D3524 >5	▲ 12.9	▲ 10.4	▲ 3.3

INFRA-RED

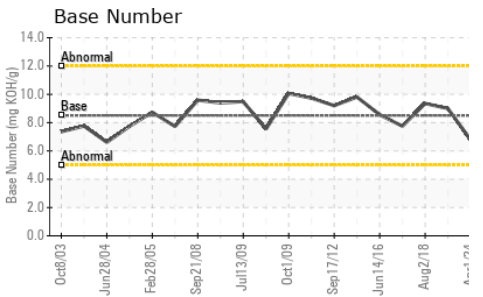
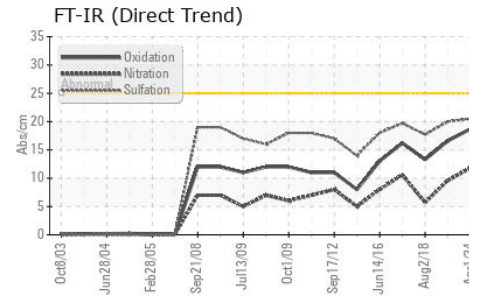
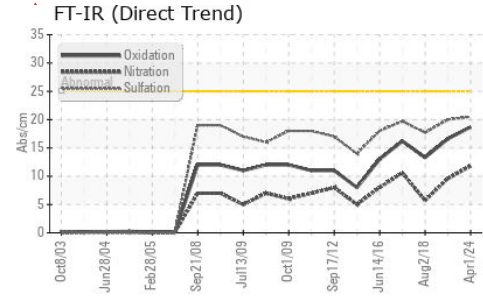
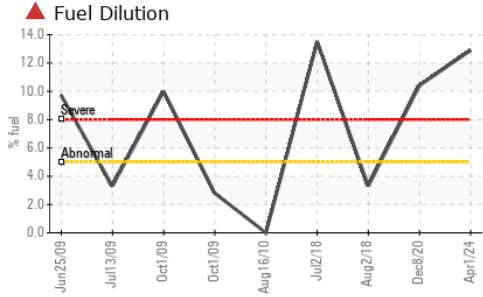
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	0.6	0.4	0.1
Nitration	Abs/cm	*ASTM D7624 >20	11.8	9.6	5.7
Sulfation	Abs/.1mm	*ASTM D7415 >30	20.5	20	17.7

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	18.7	16.6	13.3
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	6.78	9.00	9.35



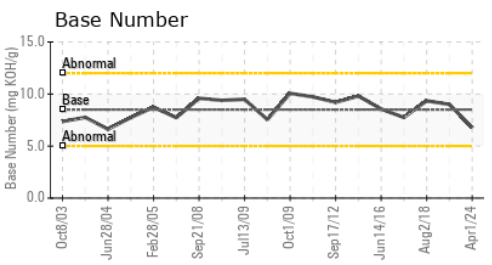
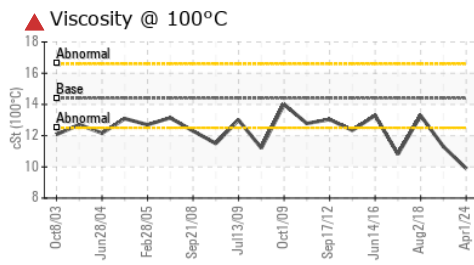
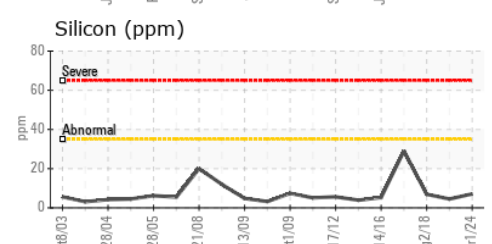
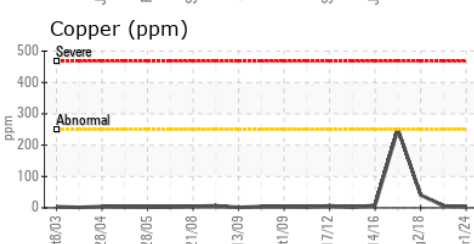
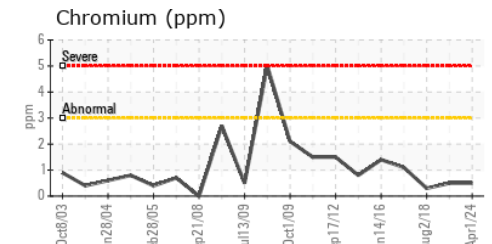
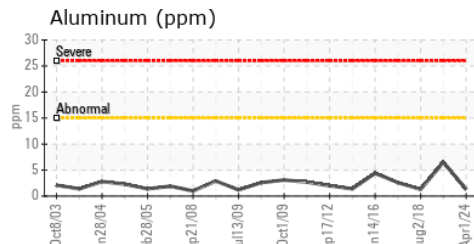
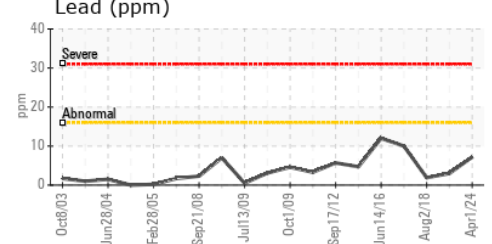
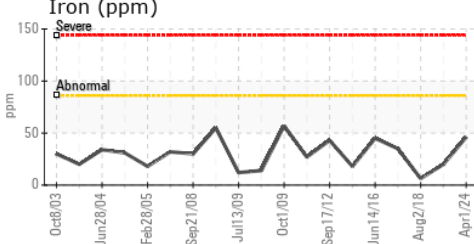
OIL ANALYSIS REPORT



VISUAL	method	limit/base	current	history1	history2	
White Metal	scalar	*Visual	NONE	LIGHT	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	14.4	▲ 9.9	▲ 11.3	13.29

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : RW0004988
Lab Number : 06161023
Unique Number : 10996446
Test Package : MOB 2 (Additional Tests: PercentFuel)

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)

Received : 25 Apr 2024
 Tested : 29 Apr 2024
 Diagnosed : 29 Apr 2024 - Wes Davis

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