



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
CATERPILLAR 431
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		RW0004730	RW0004785	RW0004417
Sample Date		Client Info		27 Apr 2024	16 Sep 2023	24 Jun 2023
Machine Age	hrs	Client Info		3845	3487	3162
Oil Age	hrs	Client Info		358	325	398
Filter Age	hrs	Client Info		358	325	398
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ATTENTION	ATTENTION

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	12	15	35
Chromium	ppm	ASTM D5185m	>20	0	<1	1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	6	5	14
Lead	ppm	ASTM D5185m	>40	0	1	5
Copper	ppm	ASTM D5185m	>330	4	15	82
Tin	ppm	ASTM D5185m	>15	<1	<1	2
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

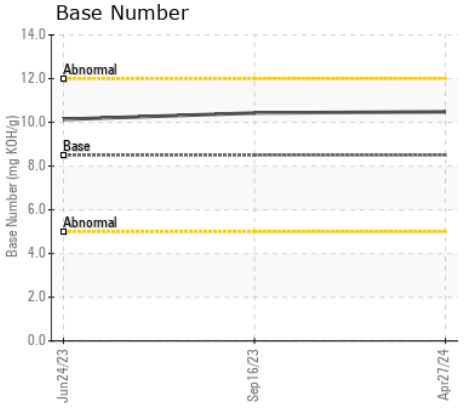
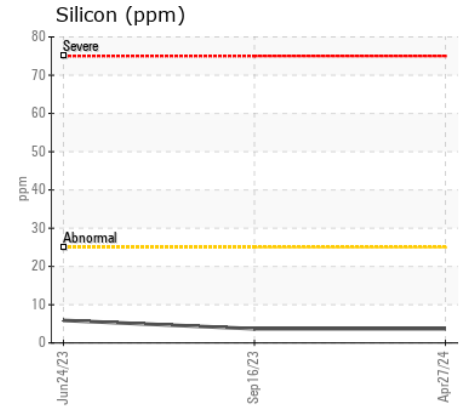
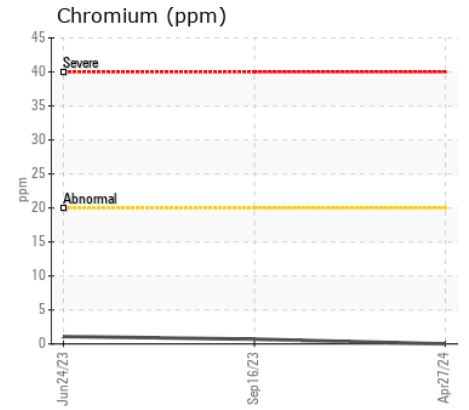
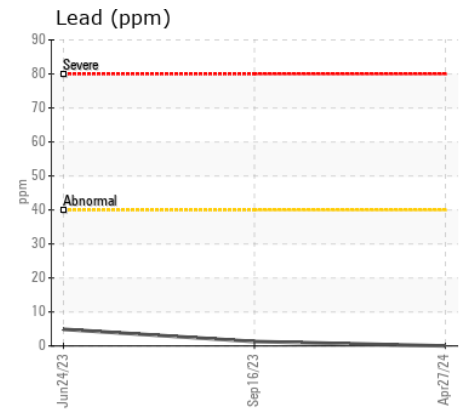
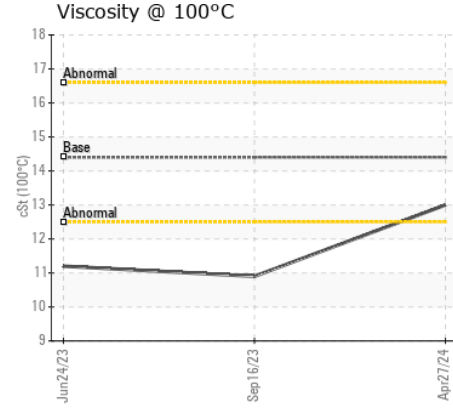
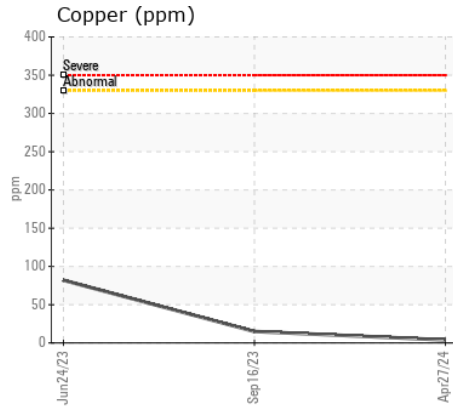
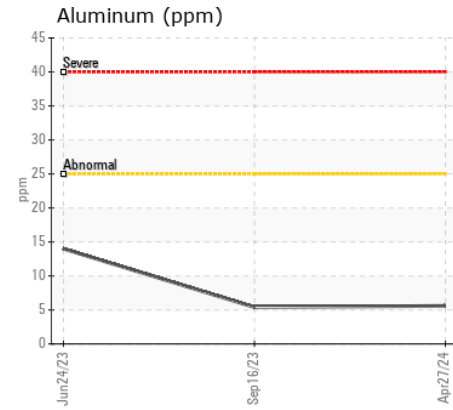
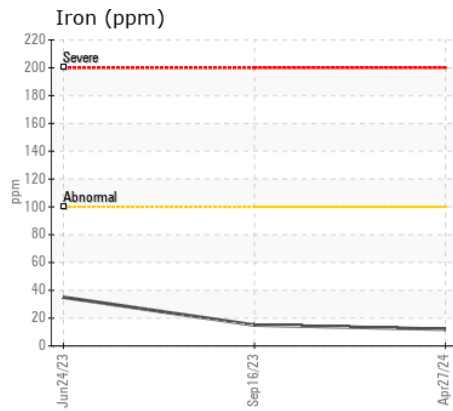
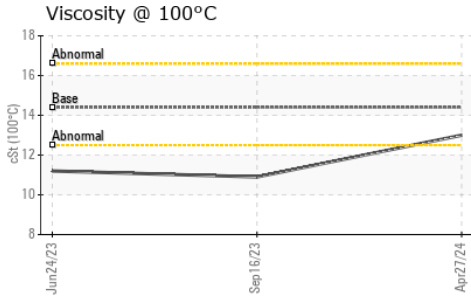
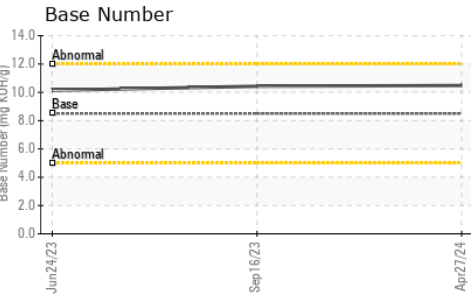
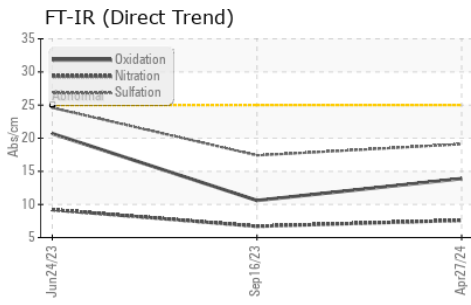
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	4	4	6
Potassium	ppm	ASTM D5185m	>20	0	<1	<1
Fuel		WC Method	>5	<1.0	<1.0	0.9
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.8	0.8	1
Nitration	Abs/cm	*ASTM D7624	>20	7.6	6.7	9.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.1	17.4	24.6
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

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.

Sodium	ppm	ASTM D5185m	>158	1	<1	3
Boron	ppm	ASTM D5185m	250	6	4	32
Barium	ppm	ASTM D5185m	10	<1	0	0
Molybdenum	ppm	ASTM D5185m	100	64	35	44
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	450	887	465	534
Calcium	ppm	ASTM D5185m	3000	1248	1766	1837
Phosphorus	ppm	ASTM D5185m	1150	1082	961	984
Zinc	ppm	ASTM D5185m	1350	1248	1113	1206
Sulfur	ppm	ASTM D5185m	4250	3554	3216	3552
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.9	10.6	20.7
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	10.48	10.43	10.14
Visc @ 100°C	cSt	ASTM D445	14.4	13.0	10.9	11.2



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : RW0004730
Lab Number : 06176217
Unique Number : 11022270
Test Package : MOB 2

Received : 10 May 2024
Tested : 13 May 2024
Diagnosed : 13 May 2024 - Wes Davis

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

Contact: DAN HALLACK KARL BUTCHER
 shop@hallackcontracting.com

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)

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