



OIL ANALYSIS REPORT

WEAR	SEVERE
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Area

Current

Machine Id

IC 31-13

Component

Front Diesel Engine

Fluid

DIESEL ENGINE OIL SAE 10W30 (30 QTS)

RECOMMENDATION

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0849403	WC0693077	WCM2126939
Sample Date		Client Info		01 Mar 2024	10 Jan 2023	06 May 2019
Machine Age	mls	Client Info		102287	90168	72516
Oil Age	mls	Client Info		12119	168	6768
Filter Age	mls	Client Info		12119	16	6768
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				SEVERE	SEVERE	SEVERE

WEAR

Piston, ring and cylinder wear is indicated. Valve wear is indicated.

Iron	ppm	ASTM D5185m	>100	▲ 319	▲ 103	131
Chromium	ppm	ASTM D5185m	>20	▲ 28	4	7
Nickel	ppm	ASTM D5185m	>4	▲ 22	4	5
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>20	▲ 322	▲ 93	▲ 171
Lead	ppm	ASTM D5185m	>40	8	1	1
Copper	ppm	ASTM D5185m	>330	30	6	8
Tin	ppm	ASTM D5185m	>15	4	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

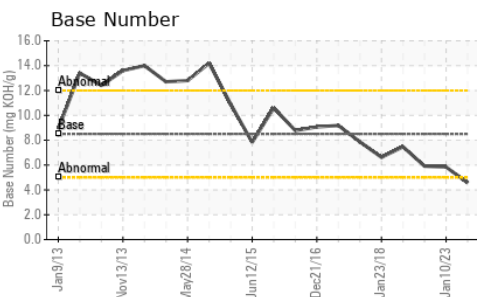
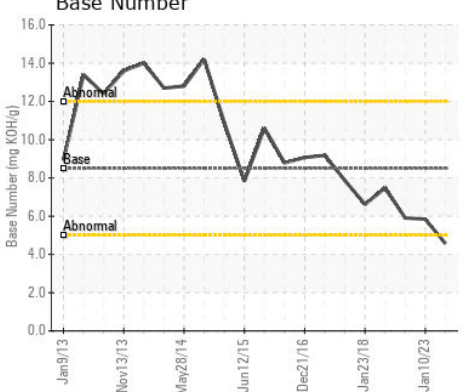
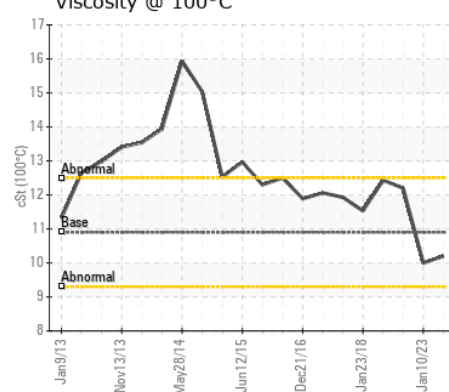
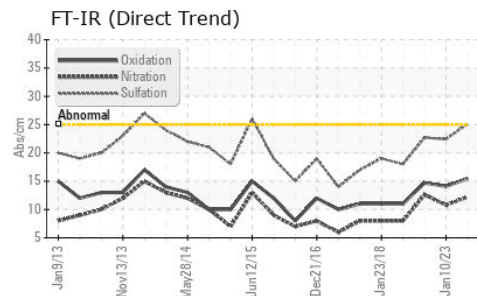
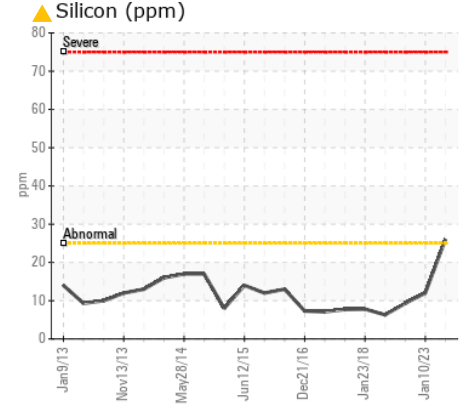
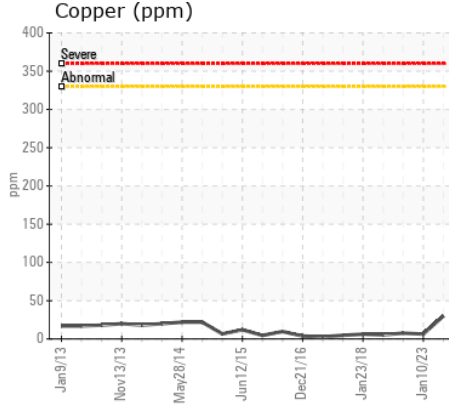
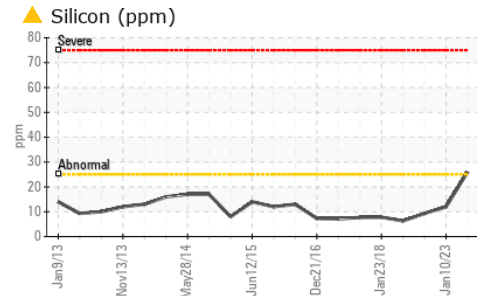
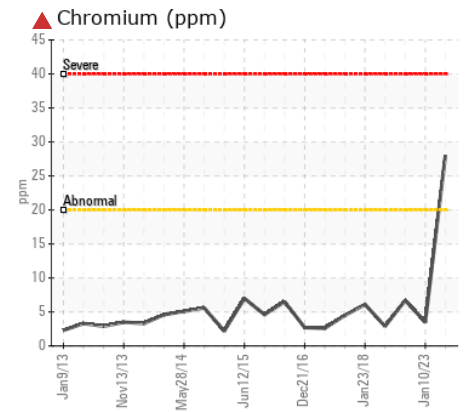
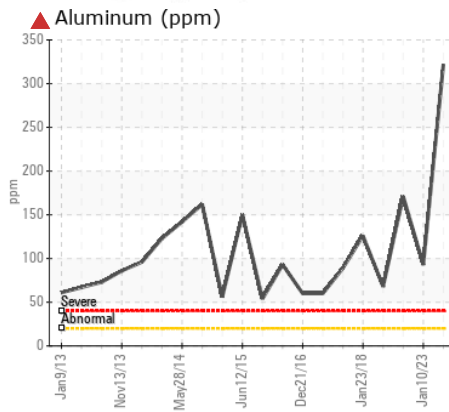
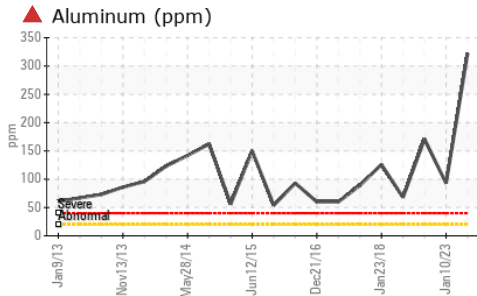
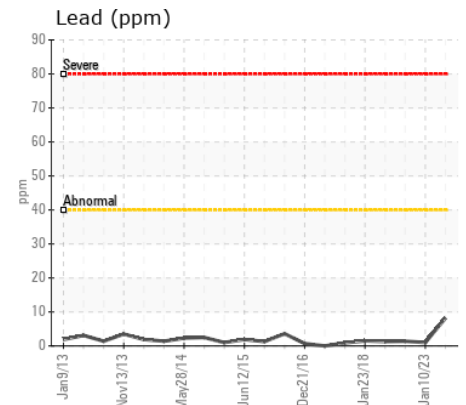
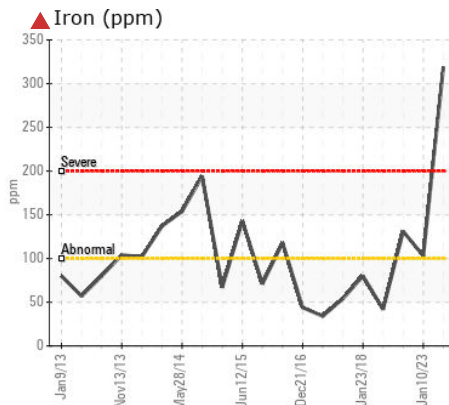
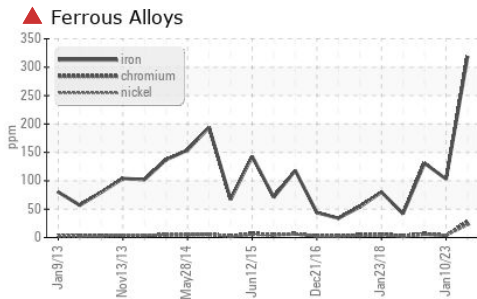
Sodium and/or potassium levels are high. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Silicon	ppm	ASTM D5185m	>25	▲ 26	12	9
Potassium	ppm	ASTM D5185m	>20	▲ 46	▲ 51	21
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol	%	*ASTM D2982		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	2	1.2	1.5
Nitration	Abs/cm	*ASTM D7624	>20	12.2	10.8	12.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	25.1	22.4	22.7
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 oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185m		▲ 115	▲ 136	12
Boron	ppm	ASTM D5185m	250	4	15	2
Barium	ppm	ASTM D5185m	10	0	0	0
Molybdenum	ppm	ASTM D5185m	100	11	21	19
Manganese	ppm	ASTM D5185m		4	2	4
Magnesium	ppm	ASTM D5185m	450	23	33	113
Calcium	ppm	ASTM D5185m	3000	3111	2309	2196
Phosphorus	ppm	ASTM D5185m	1150	1276	924	889
Zinc	ppm	ASTM D5185m	1350	1422	1017	991
Sulfur	ppm	ASTM D5185m	4250	4672	4244	4542
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.5	14.1	14.7
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	4.57	5.84	5.91
Visc @ 100°C	cSt	ASTM D445	10.9	10.2	10.0	12.2



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0849403
Lab Number : 06151295
Unique Number : 10981373
Test Package : MOB 2 (Additional Tests: Glycol)

Received : 16 Apr 2024
Tested : 19 Apr 2024
Diagnosed : 19 Apr 2024 - Jonathan Hester

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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)