



# OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>ABNORMAL</b>
FLUID CONDITION	<b>ABNORMAL</b>



Machine Id  
**LIEBHERR 944B-HD C-41 (S/N 022530-744)**  
Component  
**Diesel Engine**  
Fluid  
**CONOCO PHILLIPS GUARDOL ECT 15W40 (6 GAL)**

## RECOMMENDATION

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0899841</b>	WC06076576	WC0794460
Sample Date		Client Info		<b>16 Mar 2024</b>	29 Jan 2024	18 Dec 2023
Machine Age	hrs	Client Info		<b>38395</b>	39252	57892
Oil Age	hrs	Client Info		<b>303</b>	38092	406
Filter Age	hrs	Client Info		<b>303</b>	0	406
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Not Changed	Changed
Sample Status				<b>ABNORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>32</b>	11	32
Chromium	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	<1
Nickel	ppm	ASTM D5185m	>5	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m		<b>140</b>	84	74
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>15	<b>5</b>	2	4
Lead	ppm	ASTM D5185m	>30	<b>2</b>	<1	2
Copper	ppm	ASTM D5185m	>125	<b>2</b>	<1	1
Tin	ppm	ASTM D5185m	>5	<b>&lt;1</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>2</b>	<1	1
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

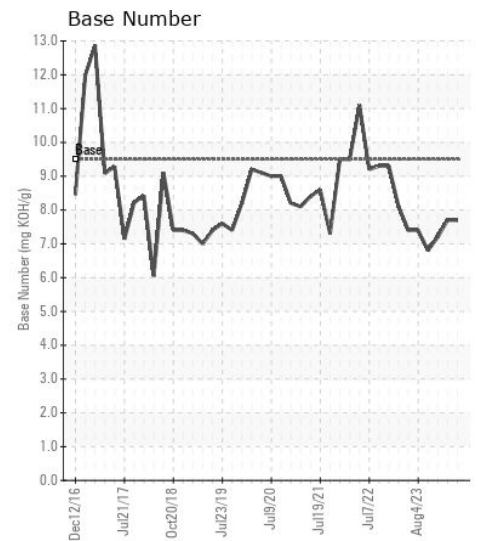
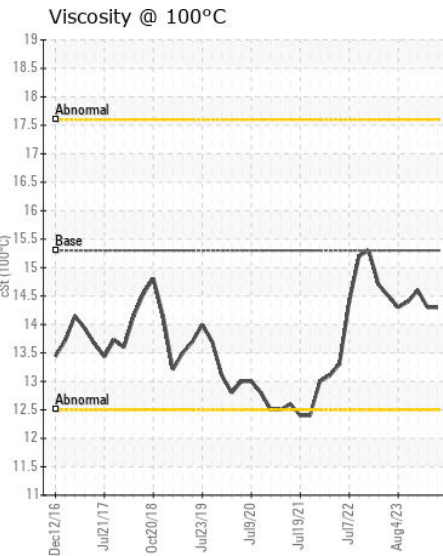
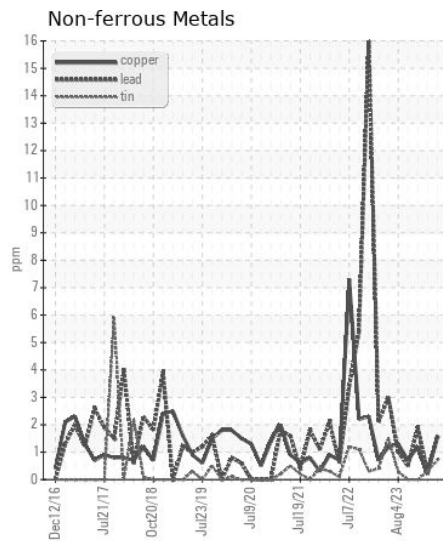
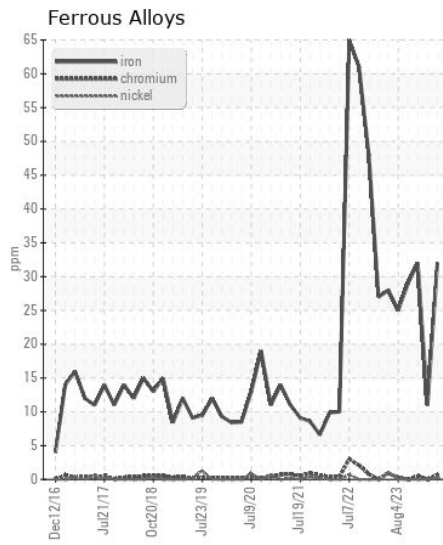
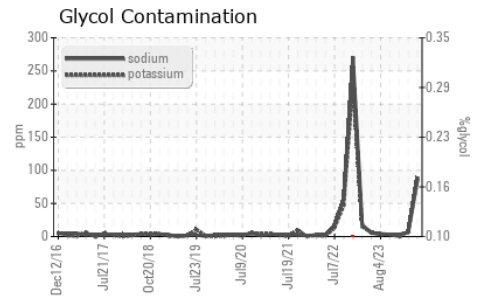
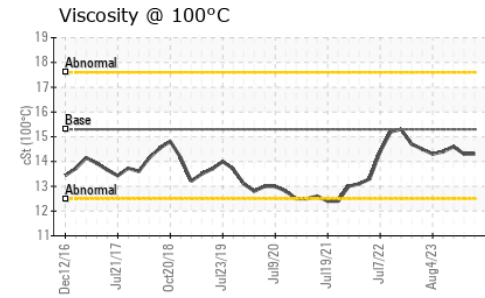
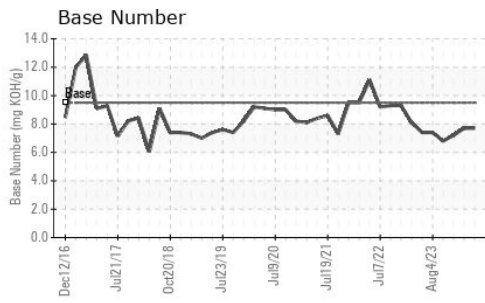
Sodium and/or potassium levels are high. Test for glycol is negative.

Silicon	ppm	ASTM D5185m	>60	<b>13</b>	6	6
Potassium	ppm	ASTM D5185m	>20	<b>▲ 85</b>	7	<1
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol	%	*ASTM D2982		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.9</b>	0.5	1.3
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.2</b>	8.5	10.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.7</b>	20.5	23.9
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		<b>▲ 90</b>	6	3
Boron	ppm	ASTM D5185m	85	<b>67</b>	104	67
Barium	ppm	ASTM D5185m		<b>2</b>	<1	0
Molybdenum	ppm	ASTM D5185m		<b>2</b>	2	14
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	350	<b>598</b>	423	527
Calcium	ppm	ASTM D5185m	1800	<b>2807</b>	1709	1683
Phosphorus	ppm	ASTM D5185m	1000	<b>1475</b>	1000	1025
Zinc	ppm	ASTM D5185m	1100	<b>1789</b>	1197	1286
Sulfur	ppm	ASTM D5185m	3500	<b>5850</b>	3537	3417
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>16.1</b>	15.2	18.6
Base Number (BN)	mg KOH/g	ASTM D2896	9.5	<b>7.7</b>	7.7	7.2
Visc @ 100°C	cSt	ASTM D445	15.3	<b>14.3</b>	14.3	14.6



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0899841 **Received** : 21 Mar 2024  
**Lab Number** : 06124568 **Tested** : 26 Mar 2024  
**Unique Number** : 10938719 **Diagnosed** : 26 Mar 2024 - Jonathan Hester  
**Test Package** : CONST ( Additional Tests: Glycol, TBN )

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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)