

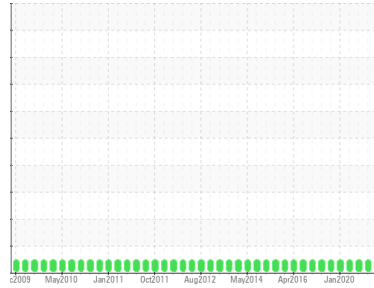


OIL ANALYSIS REPORT



Area
AMR-Cheyenne
 Machine Id
24009 LIEBHERR A944 041196
 Component
Diesel Engine
 Fluid
DIESEL ENGINE OIL SAE 5W30 (8 GAL)

Sample Rating Trend



NORMAL



DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

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.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		DJJ0020073	DJJ037448	DJJ0003321
Sample Date	Client Info		25 Jan 2024	10 Mar 2023	23 Nov 2020
Machine Age	hrs	Client Info	20966	20390	18367
Oil Age	hrs	Client Info	310	250	250
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			NORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	<1.0	<1.0
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 >100	6	5	8
Chromium	ppm	ASTM D5185m >5	0	0	<1
Nickel	ppm	ASTM D5185m >5	<1	0	1
Titanium	ppm	ASTM D5185m	0	0	<1
Silver	ppm	ASTM D5185m >3	0	0	0
Aluminum	ppm	ASTM D5185m >15	3	2	3
Lead	ppm	ASTM D5185m >30	2	0	0
Copper	ppm	ASTM D5185m >125	2	<1	2
Tin	ppm	ASTM D5185m >5	<1	0	0
Antimony	ppm	ASTM D5185m	---	---	<1
Vanadium	ppm	ASTM D5185m	<1	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m 250	291	292	271
Barium	ppm	ASTM D5185m 10	0	0	0
Molybdenum	ppm	ASTM D5185m 100	91	102	115
Manganese	ppm	ASTM D5185m	<1	<1	<1
Magnesium	ppm	ASTM D5185m 450	447	498	538
Calcium	ppm	ASTM D5185m 3000	1387	1407	1407
Phosphorus	ppm	ASTM D5185m 1150	912	801	737
Zinc	ppm	ASTM D5185m 1350	1093	997	786
Sulfur	ppm	ASTM D5185m 4250	2992	2939	2050

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >60	8	6	8
Sodium	ppm	ASTM D5185m	2	2	2
Potassium	ppm	ASTM D5185m >20	2	1	5

INFRA-RED

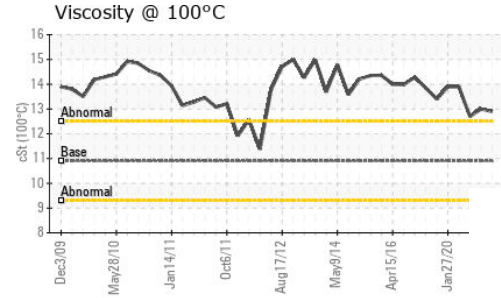
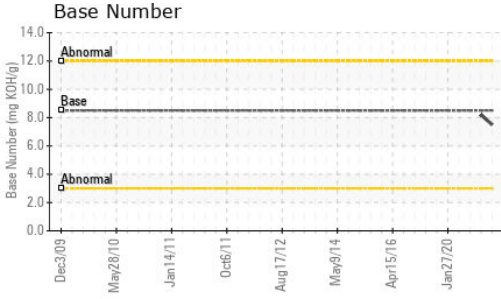
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844 >3	1.4	0.9	1
Nitration	Abs/cm	*ASTM D7624 >20	6.9	6.8	6.4
Sulfation	Abs/.1mm	*ASTM D7415 >30	21.7	21.6	21.5

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414 >25	13.7	14.1	14.3
Base Number (BN)	mg KOH/g	ASTM D2896 8.5	7.5	8.2	---



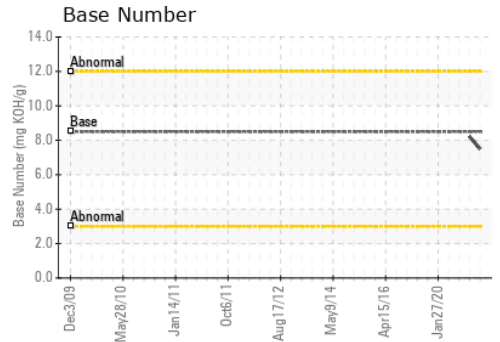
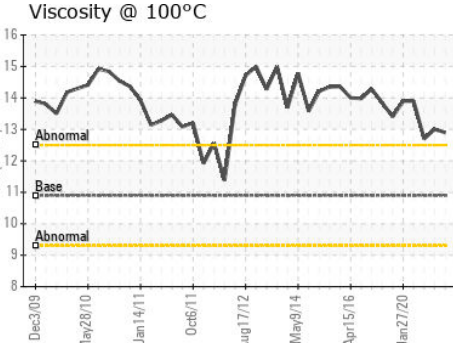
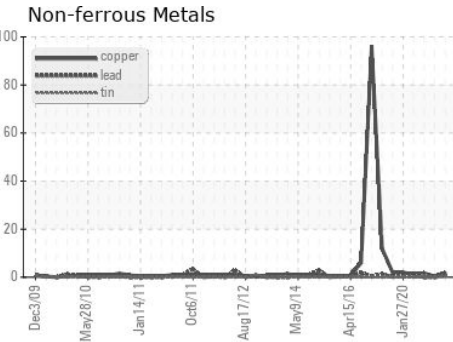
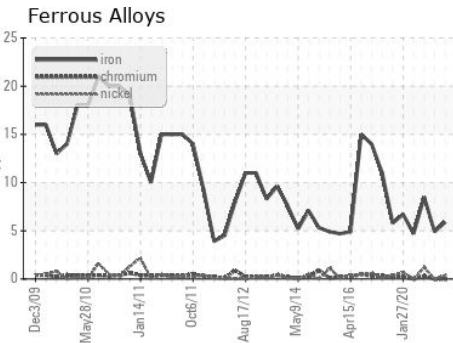
OIL ANALYSIS REPORT



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	10.9	12.9	13.0	12.7

GRAPHS



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : DJJ0020073 **Recieved** : 31 Jan 2024
Lab Number : **06075522** **Diagnosed** : 01 Feb 2024
Unique Number : 10857613 **Diagnostician** : Don Baldrige
Test Package : CONST (Additional Tests: TBN)

ADVANTAGE METALS RECYCLING - CHEYENNE
 1015 S. PACKARD ST
 KANSAS CITY, KS
 US 66105
 Contact: BRIAN JACOBS
 BRIAN.JACOBS@ADVANTAGERECYCLING.COM
 T: (816)808-4711
 F:

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)