



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ABNORMAL

Machine Id
1314
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		HRE0000510	WC0887535	WC0827032
Sample Date		Client Info		08 Jun 2024	04 Mar 2024	13 Dec 2023
Machine Age	mls	Client Info		292983	287464	281893
Oil Age	mls	Client Info		0	0	6000
Filter Age	mls	Client Info		0	0	6000
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	22	20	15
Chromium	ppm	ASTM D5185m	>20	0	1	0
Nickel	ppm	ASTM D5185m	>4	0	1	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	4	3
Lead	ppm	ASTM D5185m	>40	0	1	0
Copper	ppm	ASTM D5185m	>330	13	3	7
Tin	ppm	ASTM D5185m	>15	0	1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

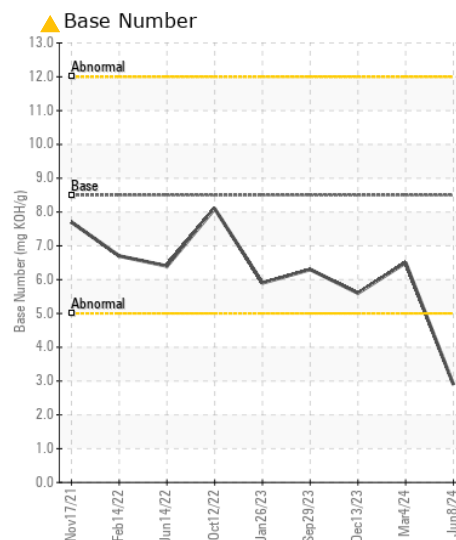
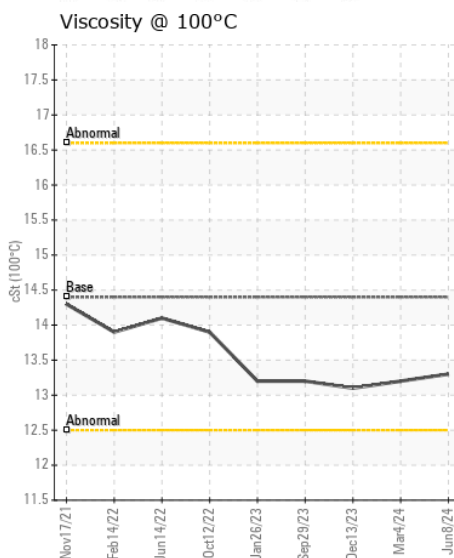
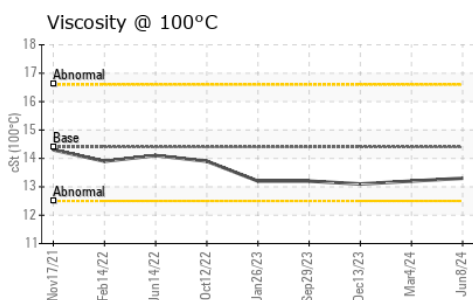
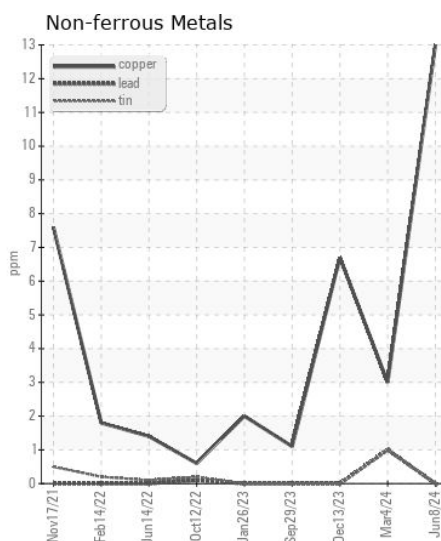
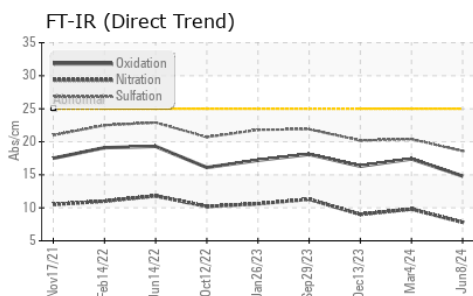
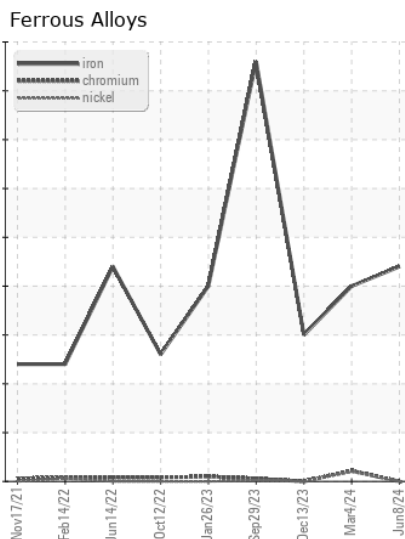
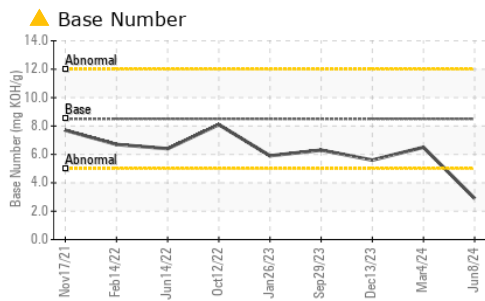
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	9	9	10
Potassium	ppm	ASTM D5185m	>20	0	2	0
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.7	0.5	0.5
Nitration	Abs/cm	*ASTM D7624	>20	7.8	9.8	9.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.6	20.4	20.2
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 level is low. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m	>158	16	8	9
Boron	ppm	ASTM D5185m	250	121	30	86
Barium	ppm	ASTM D5185m	10	0	<1	0
Molybdenum	ppm	ASTM D5185m	100	77	70	60
Manganese	ppm	ASTM D5185m		0	<1	0
Magnesium	ppm	ASTM D5185m	450	395	334	261
Calcium	ppm	ASTM D5185m	3000	1557	1835	1581
Phosphorus	ppm	ASTM D5185m	1150	977	1136	818
Zinc	ppm	ASTM D5185m	1350	1185	1245	1046
Sulfur	ppm	ASTM D5185m	4250	3662	3660	2946
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.8	17.4	16.3
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	▲ 2.9	6.5	5.6
Visc @ 100°C	cSt	ASTM D445	14.4	13.3	13.2	13.1



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HRE0000510 **Received** : 18 Jun 2024
Lab Number : 06213239 **Tested** : 19 Jun 2024
Unique Number : 11086103 **Diagnosed** : 20 Jun 2024 - Don Baldrige
Test Package : FLEET

TOWN OF CHAPEL HILL
 6900 MILLHOUSE RD
 CHAPEL HILL, NC
 US 27516

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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)

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