



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id  
**1961**  
Component  
**Diesel Engine**  
Fluid  
**DIESEL ENGINE OIL SAE 5W30 (--- GAL)**

### RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>HRE0000489</b>	HRE0000185	WC0887525
Sample Date		Client Info		<b>03 Jul 2024</b>	18 Apr 2024	04 Mar 2024
Machine Age	mls	Client Info		<b>0</b>	83414	79347
Oil Age	mls	Client Info		<b>0</b>	0	6000
Filter Age	mls	Client Info		<b>0</b>	0	6000
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	ATTENTION

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>6</b>	7	5
Chromium	ppm	ASTM D5185m	>20	<b>0</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>&lt;1</b>	<1	<1
Titanium	ppm	ASTM D5185m		<b>0</b>	<1	0
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>2</b>	3	3
Lead	ppm	ASTM D5185m	>40	<b>0</b>	0	0
Copper	ppm	ASTM D5185m	>330	<b>0</b>	<1	<1
Tin	ppm	ASTM D5185m	>15	<b>0</b>	0	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

### CONTAMINATION

There is no indication of any contamination in the oil.

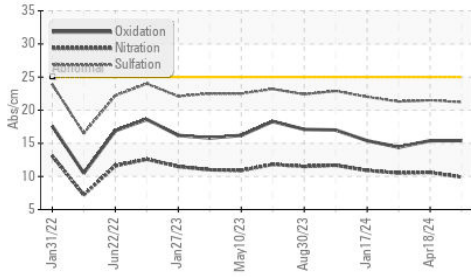
Silicon	ppm	ASTM D5185m	>25	<b>13</b>	17	16
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	2	<1
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	1.4
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.1</b>	0.1	0
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.9</b>	10.6	10.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>21.2</b>	21.5	21.3
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

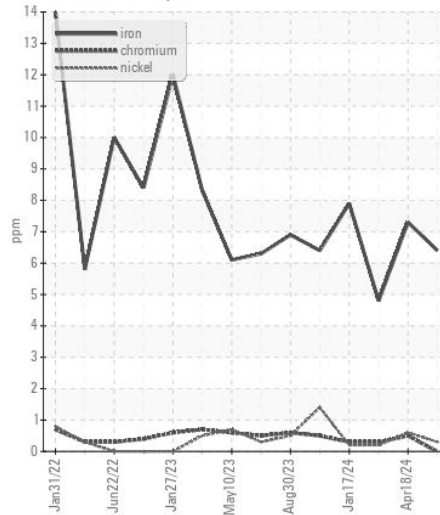
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>2</b>	<1	2
Boron	ppm	ASTM D5185m	250	<b>21</b>	23	40
Barium	ppm	ASTM D5185m	10	<b>0</b>	<1	0
Molybdenum	ppm	ASTM D5185m	100	<b>188</b>	200	88
Manganese	ppm	ASTM D5185m		<b>19</b>	5	4
Magnesium	ppm	ASTM D5185m	450	<b>665</b>	565	383
Calcium	ppm	ASTM D5185m	3000	<b>1236</b>	1190	1079
Phosphorus	ppm	ASTM D5185m	1150	<b>658</b>	581	579
Zinc	ppm	ASTM D5185m	1350	<b>808</b>	710	689
Sulfur	ppm	ASTM D5185m	4250	<b>2981</b>	2661	2520
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>15.4</b>	15.4	14.4
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>4.7</b>	4.4	3.6
Visc @ 100°C	cSt	ASTM D445	10.9	<b>10.2</b>	10.4	8.9

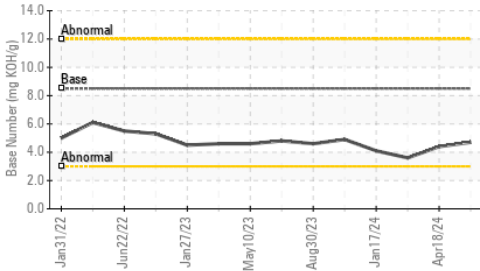
**FT-IR (Direct Trend)**



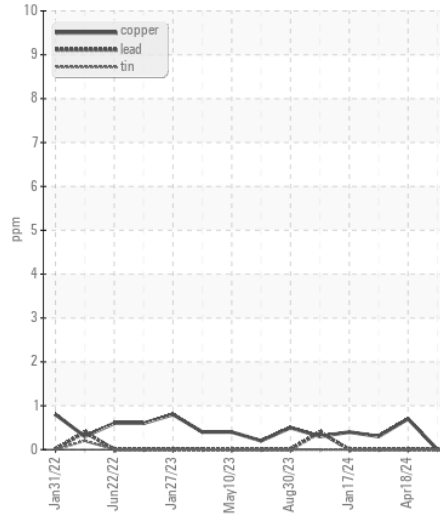
**Ferrous Alloys**



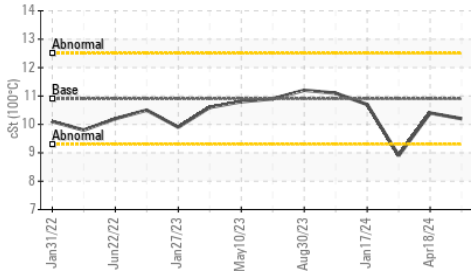
**Base Number**



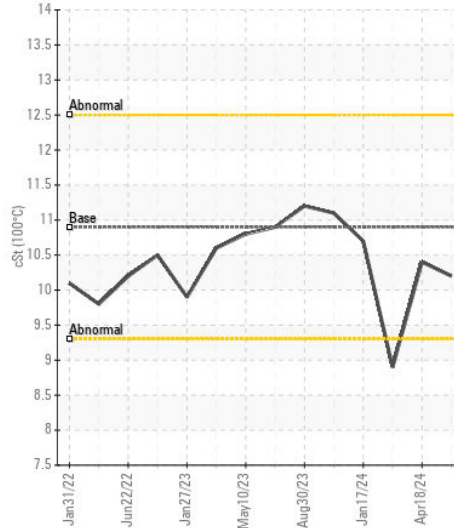
**Non-ferrous Metals**



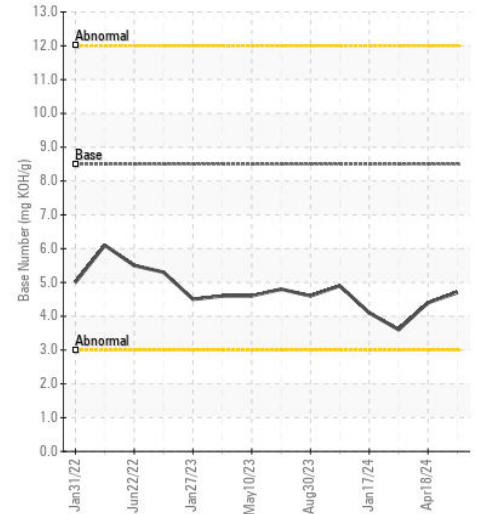
**Viscosity @ 100°C**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : HRE0000489 **Received** : 11 Jul 2024  
**Lab Number** : 06232946 **Tested** : 11 Jul 2024  
**Unique Number** : 11116439 **Diagnosed** : 12 Jul 2024 - Don Baldrige  
**Test Package** : FLEET

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

Contact: Lisa DePasqua  
 ldepasqua@townofchapelhill.org  
 T: (919)696-4941

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)

F: