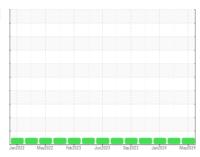


OIL ANALYSIS REPORT

Sample Rating Trend







Machine Id 1717 Component Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (--- GAL)

DIAGNOSIS		œĸ	AIC		
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Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil

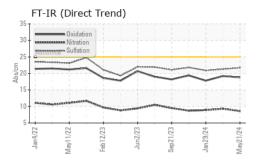
Fluid Condition

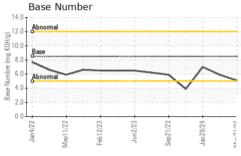
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

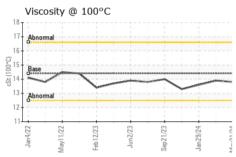
SAMPLE INFORMATION method limit/base current history1 history2			Jan2022	Vlay2022 Feb 2023	Jun 2023 Sep 2023 Jan 2024	May2024	
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 0 215362 209959 Oil Age mis Client Info 0 0 0 0 Oil Changed Changed </th <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th>WC0887555</th> <th>HRE0000103</th> <th>WC0887600</th>	Sample Number		Client Info		WC0887555	HRE0000103	WC0887600
Oil Age mls Client Info Changed Changed C			Client Info		21 May 2024	15 Mar 2024	29 Jan 2024
Oil Changed Sample Status Client Info Changed NORMAL Changed NoRMAD Changed NoRMAD Changed NoRMAD Changed NeG NEG NEG <th>Machine Age</th> <th>mls</th> <th>Client Info</th> <th></th> <th>0</th> <th>215362</th> <th>209959</th>	Machine Age	mls	Client Info		0	215362	209959
Sample Status	Oil Age	mls	Client Info		0	0	0
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <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 8 11 7 Chromium ppm ASTM D5185m >20 0 <1 0 Nickel ppm ASTM D5185m >4 0 <1 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >30 0 <1 <1 Copper ppm ASTM D5185m >300 8 2 2 Tin ppm ASTM D5185m >300 8 2 2 Ti	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water WC Method 90.2 NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 8 11 7 Chromium ppm ASTM D5185m >20 0 <1 0 Nickel ppm ASTM D5185m >4 0 <1 0 Sliver ppm ASTM D5185m >4 0 <1 2 0 Sliver ppm ASTM D5185m >30 0 0 0 0 0 Aluminum ppm ASTM D5185m >40 0 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	CONTAMINATION	٧	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	8	11	7
Titanium	Chromium	ppm	ASTM D5185m	>20	0	<1	0
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 2 1 Lead ppm ASTM D5185m >40 0 <1	Nickel	ppm	ASTM D5185m	>4	0	<1	0
Aluminum ppm ASTM D5185m >20 2 2 1 Lead ppm ASTM D5185m >40 0 <1 <1 Copper ppm ASTM D5185m >330 8 2 2 Tin ppm ASTM D5185m >15 <1 <1 <1 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 250 161 96 31 Boron ppm ASTM D5185m 10 0 <1 0 Molybdenum ppm ASTM D5185m 100 76 68 60 Manganese ppm ASTM D5185m 450 378 360 344 Calcium ppm ASTM D5185m 1150 959 1068 984 Zinc ppm ASTM D5185m 1350 1117 1166 1166	Titanium	ppm	ASTM D5185m		<1	2	0
Lead ppm ASTM D5185m >40 0 <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 8 2 2 Tin ppm ASTM D5185m >15 <1 <1 <1 Vanadium ppm ASTM D5185m 0 <1 0 Cadmium ppm ASTM D5185m 0 <1 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 161 96 31 Barium ppm ASTM D5185m 10 0 <1 0 Molybdenum ppm ASTM D5185m 100 76 68 60 Manganese ppm ASTM D5185m 1 <1 0 0 Magnesium ppm ASTM D5185m 450 378 360 344 Calcium ppm ASTM D5185m 1150 959 1068 984 Zinc ppm ASTM D5185m 1350 1117 1166 1166 </th <th>Aluminum</th> <th>ppm</th> <th>ASTM D5185m</th> <th>>20</th> <th>2</th> <th>2</th> <th>1</th>	Aluminum	ppm	ASTM D5185m	>20	2	2	1
Tin	Lead	ppm	ASTM D5185m	>40	0	<1	<1
Vanadium ppm ASTM D5185m 0 <1	Copper	ppm	ASTM D5185m	>330	8	2	2
Cadmium ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>15	<1	<1	<1
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron	Cadmium	ppm	ASTM D5185m		0	<1	0
Barium ppm ASTM D5185m 10 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 100 76 68 60 Manganese ppm ASTM D5185m 1 <1	Boron	ppm	ASTM D5185m	250	161	96	31
Manganese ppm ASTM D5185m 1 <1	Barium	ppm	ASTM D5185m		0	<1	0
Magnesium ppm ASTM D5185m 450 378 360 344 Calcium ppm ASTM D5185m 3000 1321 1590 1590 Phosphorus ppm ASTM D5185m 1150 959 1068 984 Zinc ppm ASTM D5185m 1350 1117 1166 1166 Sulfur ppm ASTM D5185m 4250 3224 3322 3135 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m >158 4 2 3 Potassium ppm ASTM D5185m >20 <1 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 8.6 9.3 8.9 Sulfation Abs/.1mm *ASTM D7415	•	ppm	ASTM D5185m	100		68	
Calcium ppm ASTM D5185m 3000 1321 1590 1590 Phosphorus ppm ASTM D5185m 1150 959 1068 984 Zinc ppm ASTM D5185m 1350 1117 1166 1166 Sulfur ppm ASTM D5185m 4250 3224 3322 3135 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m >158 4 2 3 Potassium ppm ASTM D5185m >20 <1 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/.1mm *ASTM D7415 >30 21.7 21.3 20.9 FLUID DEGRADATION *AS	•	ppm			-		
Phosphorus ppm ASTM D5185m 1150 959 1068 984 Zinc ppm ASTM D5185m 1350 1117 1166 1166 Sulfur ppm ASTM D5185m 4250 3224 3322 3135 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m >158 4 2 3 Potassium ppm ASTM D5185m >20 <1 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 8.6 9.3 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.7 21.3 20.9 FLUID DEGRADATION me							
Zinc ppm ASTM D5185m 1350 1117 1166 1166 Sulfur ppm ASTM D5185m 4250 3224 3322 3135 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m >158 4 2 3 Potassium ppm ASTM D5185m >20 <1 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 8.6 9.3 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.7 21.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm		ppm			_		
Sulfur ppm ASTM D5185m 4250 3224 3322 3135 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m >158 4 2 3 Potassium ppm ASTM D5185m >20 <1 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 8.6 9.3 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.7 21.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.8 19.2 17.8							
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m >158 4 2 3 Potassium ppm ASTM D5185m >20 <1 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 8.6 9.3 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.7 21.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.8 19.2 17.8	-						
Silicon ppm ASTM D5185m >25 11 10 9 Sodium ppm ASTM D5185m >158 4 2 3 Potassium ppm ASTM D5185m >20 <1			ASTM D5185m	4250	3224	3322	
Sodium ppm ASTM D5185m >158 4 2 3 Potassium ppm ASTM D5185m >20 <1 2 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 8.6 9.3 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.7 21.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.8 19.2 17.8			method		current		
Potassium ppm ASTM D5185m >20 <1							
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 8.6 9.3 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.7 21.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.8 19.2 17.8							
Soot % % *ASTM D7844 >3 0.4 0.4 0.4 Nitration Abs/cm *ASTM D7624 >20 8.6 9.3 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.7 21.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.8 19.2 17.8	Potassium	ppm	ASTM D5185m	>20	<1	2	1
Nitration Abs/cm *ASTM D7624 >20 8.6 9.3 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 21.7 21.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.8 19.2 17.8				limit/base			
Sulfation Abs/.1mm *ASTM D7415 >30 21.7 21.3 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.8 19.2 17.8							
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.8 19.2 17.8		Abs/cm			8.6		8.9
Oxidation Abs/.1mm *ASTM D7414 >25 18.8 19.2 17.8	Sulfation	Abs/.1mm	*ASTM D7415	>30	21.7	21.3	20.9
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 8.5 5.1 5.9 7.0	Oxidation	Abs/.1mm	*ASTM D7414	>25	18.8	19.2	17.8
	Base Number (BN)	mg KOH/g	ASTM D2896	8.5	5.1	5.9	7.0



OIL ANALYSIS REPORT



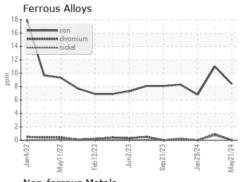


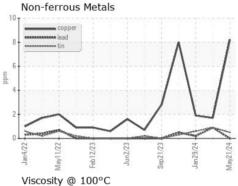


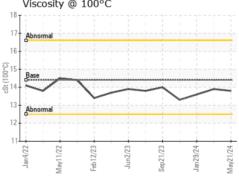
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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
Free Water	scalar	*Visual		NEG	NEG	NEG

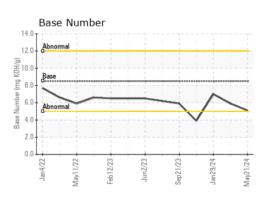
FLUID PROPER	TIES	method				history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.8	13.9	13.6

GRAPHS













Sample No.

: WC0887555 Lab Number : 06196190 Unique Number : 11058313

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received **Tested**

: 31 May 2024 : 03 Jun 2024

Diagnosed : 03 Jun 2024 - Wes Davis

Test Package : FLEET Certificate 12367 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)

TOWN OF CHAPEL HILL

6900 MILLHOUSE RD CHAPEL HILL, NC US 27516

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

Contact/Location: Lisa DePasqua - TOWCHANC