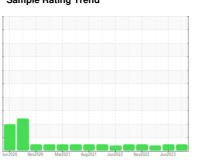


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



INTERNATIONAL 5012580

Component

Diesel Engine

VALVOLINE 15W40 (--- GAL)

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

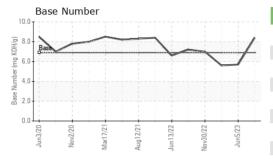
Fluid Condition

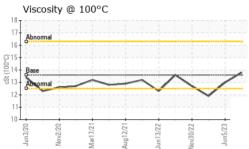
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current history1 history2			Jun 2020 No	ov2020 Mar2021 Aug	2021 Jun2022 Nov2022	Jun2023	
Sample Date Client Info 244216 201021 181395 Machine Age mls Client Info 0 0 0 Oil Age mls Client Info 0 0 0 Oil Changed Client Info Changed N/A N/A Sample Status NORMAL NORMAL ATTENTION CONTAMINATION method Imilibase current history1 history2 Fuel WC Method NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method Imilibase current history1 history2 Iron ppm ASTM D5185m >100 63 35 29 Chromium ppm ASTM D5185m >20 2 <1 <1 <1 Nickel ppm ASTM D5185m >20 2 <1 <1 Nickel ppm ASTM D5185m >4 <1 <1 <1 Silver ppm ASTM D5185m >20 0 0 Aluminum ppm ASTM D5185m >20 6 5 7 Copper ppm ASTM D5185m >30 0 0 0 Aluminum ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >30 5 2 1 Tin ppm ASTM D5185m >330 5 2 1 Tin ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m >15 0 <1 0 Cadmium ppm ASTM D5185m 39 128 26 59 Barium ppm ASTM D5185m 1 <1 <1 <1 Molybdenum ppm ASTM D5185m 1 <1 <1 <1 Molybdenum ppm ASTM D5185m 1 <1 <1 <1 Magnesium ppm ASTM D5185m 89 885 814 805 Calcium ppm ASTM D5185m 5624 2942 2710 3311 CONTAMINANTS method limitbase current history1 history2 Distory ASTM D5185m >20 7 4 1 NIFRA-RED method limitbase current history1 history2 CONTAMINANTS method limitbase current history1 history2 Coxidation Abs/cm ASTM D5185m >20 7 4 1 NIFRA-RED method limitbase current history1 history2 Coxidation Abs/cm ASTM D5185m >20 66,7 7,4 24,2 FLUID DEGRADATION method limitbase current his	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 244216 201021 181385 Oil Age mls Client Info 0 0 0 0 Oil Changed Client Info Changed N/A N/A N/A Sample Status method limit/base current history1 history2 Fuel WC Method >5 <1.0	Sample Number		Client Info		IL0033207	IL05887228	IL05790771
Oil Age mls Client Info Changed N/A N/A N/A Sample Status Client Info Changed N/A N/A N/A CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0	Sample Date		Client Info		01 Nov 2023	05 Jun 2023	01 Mar 2023
Oil Changed Status	Machine Age	mls	Client Info		244216	201021	181385
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 1.5 Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 63 35 29 Chromium ppm ASTM D5185m >20 2 <1 <1 Nickel ppm ASTM D5185m >4 <1 <1 <1 Silver ppm ASTM D5185m >4 <1 <1 <1 <1 Silver ppm ASTM D5185m >40 0 0 0 0 Silver ppm ASTM D5185m >40 0 0 0 0 Lead ppm ASTM D5185m >30 5 2 1 1 0 Copper ppm ASTM D5185m >15 <th>Oil Changed</th> <th></th> <th>Client Info</th> <th></th> <th>Changed</th> <th>N/A</th> <th>N/A</th>	Oil Changed		Client Info		Changed	N/A	N/A
Fuel	Sample Status				NORMAL	NORMAL	ATTENTION
Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 63 35 29 Chromium ppm ASTM D5185m >20 2 <1 <1 Nickel ppm ASTM D5185m >4 <1 <1 <1 Silver ppm ASTM D5185m >4 <1 <1 <1 Silver ppm ASTM D5185m >20 6 5 7 Lead ppm ASTM D5185m >20 6 5 7 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >15 0 <1 0 0 Vanadium ppm ASTM D5185m 0 <1 0 0 0 Cadmium ppm ASTM D5185m 39 128 26	CONTAMINATION	l	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 63 35 29 Chromium ppm ASTM D5185m >20 2 <1 <1 Nickel ppm ASTM D5185m >4 <1 <1 0 Titanium ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 6 5 7 Lead ppm ASTM D5185m 15 0 <1 0 Copper ppm ASTM D5185m 15 0 <1 0 </th <th>Fuel</th> <th></th> <th>WC Method</th> <th>>5</th> <th><1.0</th> <th><1.0</th> <th>1.5</th>	Fuel		WC Method	>5	<1.0	<1.0	1.5
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 2 <1	WEAR METALS		method	limit/base	current	history1	history2
Chromium ppm ASTM D5185m >20 2 <1	Iron	ppm	ASTM D5185m	>100	63	35	29
Titanium ppm ASTM D5185m <1	Chromium		ASTM D5185m	>20	2	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Aluminum ppm ASTM D5185m >20 6 5 7 Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 5 2 1 Tin ppm ASTM D5185m >15 0 <1 0 Vanadium ppm ASTM D5185m 0 <1 0 0 Cadmium ppm ASTM D5185m 0 <1 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 39 128 26 59 Barium ppm ASTM D5185m 1 <1 0 <1 Molybdenum ppm ASTM D5185m 49 83 68 75 Manganese ppm ASTM D5185m 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <th>Titanium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th><1</th> <th><1</th> <th><1</th>	Titanium	ppm	ASTM D5185m		<1	<1	<1
Lead ppm ASTM D5185m >40 0 0 0 Copper ppm ASTM D5185m >330 5 2 1 Tin ppm ASTM D5185m >15 0 <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 5 2 1 Tin ppm ASTM D5185m >15 0 <1 0 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 39 128 26 59 Barium ppm ASTM D5185m 1 <1 0 <1 Molybdenum ppm ASTM D5185m 1 <1 0 <1 Magnesium ppm ASTM D5185m 1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <th>Aluminum</th> <th>ppm</th> <th>ASTM D5185m</th> <th>>20</th> <th>6</th> <th>5</th> <th>7</th>	Aluminum	ppm	ASTM D5185m	>20	6	5	7
Tin ppm ASTM D5185m >15 0 <1	Lead	ppm	ASTM D5185m	>40	0	0	0
Vanadium ppm ASTM D5185m 0 <1	Copper	ppm	ASTM D5185m	>330	5	2	1
Cadmium ppm ASTM D5185m <1	Tin	ppm	ASTM D5185m	>15	0	<1	0
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	<1	0
Boron ppm ASTM D5185m 39 128 26 59 Barium ppm ASTM D5185m 1 <1	Cadmium	ppm	ASTM D5185m		<1	0	0
Barium ppm ASTM D5185m 1 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 49 83 68 75 Manganese ppm ASTM D5185m 1 <1	Boron	ppm	ASTM D5185m	39	128	26	59
Manganese ppm ASTM D5185m 1 <1	Barium	ppm	ASTM D5185m	1	<1	0	<1
Magnesium ppm ASTM D5185m 616 673 719 588 Calcium ppm ASTM D5185m 1554 1368 1339 1336 Phosphorus ppm ASTM D5185m 899 885 814 805 Zinc ppm ASTM D5185m 1069 1091 1050 1085 Sulfur ppm ASTM D5185m 2624 2942 2710 3311 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m >20 7 4 1 INFRA-RED method limit/base current history1 history2 Soot % "ASTM D7844 >3 0.8 0.8 0.6 Nitration Abs/cm "ASTM D7624 >20 12.7 14.7 11.7 Sulfation Abs/.1mm "ASTM D7414	Molybdenum	ppm	ASTM D5185m	49	83	68	75
Calcium ppm ASTM D5185m 1554 1368 1339 1336 Phosphorus ppm ASTM D5185m 899 885 814 805 Zinc ppm ASTM D5185m 1069 1091 1050 1085 Sulfur ppm ASTM D5185m 2624 2942 2710 3311 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m >20 7 4 1 Potassium ppm ASTM D5185m >20 7 4 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 12.7 14.7 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.7 27.4 24.2 FLUID DEGRADATION metho	Manganese	ppm	ASTM D5185m	1	<1	<1	<1
Phosphorus ppm ASTM D5185m 899 885 814 805 Zinc ppm ASTM D5185m 1069 1091 1050 1085 Sulfur ppm ASTM D5185m 2624 2942 2710 3311 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m >20 7 4 1 Potassium ppm ASTM D5185m >20 7 4 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.8 0.6 Nitration Abs/.1mm *ASTM D7624 >20 12.7 14.7 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.7 27.4 24.2 FLUID DEGRADATION met	Magnesium	ppm	ASTM D5185m	616	673	719	588
Zinc ppm ASTM D5185m 1069 1091 1050 1085 Sulfur ppm ASTM D5185m 2624 2942 2710 3311 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m >20 7 4 1 Potassium ppm ASTM D5185m >20 7 4 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.8 0.6 Nitration Abs/cm *ASTM D7624 >20 12.7 14.7 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.7 27.4 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm <th>Calcium</th> <th>ppm</th> <th>ASTM D5185m</th> <th>1554</th> <th>1368</th> <th>1339</th> <th>1336</th>	Calcium	ppm	ASTM D5185m	1554	1368	1339	1336
Sulfur ppm ASTM D5185m 2624 2942 2710 3311 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m >20 7 4 1 Potassium ppm ASTM D5185m >20 7 4 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.8 0.6 Nitration Abs/cm *ASTM D7624 >20 12.7 14.7 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.7 27.4 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.9 25.6 20.3	Phosphorus	ppm	ASTM D5185m	899	885	814	805
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m >20 7 4 1 Potassium ppm ASTM D5185m >20 7 4 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.8 0.6 Nitration Abs/cm *ASTM D7624 >20 12.7 14.7 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.7 27.4 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.9 25.6 20.3	Zinc	ppm	ASTM D5185m	1069	1091	1050	1085
Silicon ppm ASTM D5185m >25 7 6 5 Sodium ppm ASTM D5185m 0 2 <1	Sulfur	ppm	ASTM D5185m	2624	2942	2710	3311
Sodium ppm ASTM D5185m 0 2 <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 7 4 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.8 0.6 Nitration Abs/cm *ASTM D7624 >20 12.7 14.7 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.7 27.4 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.9 25.6 20.3	Silicon	ppm	ASTM D5185m	>25			5
INFRA-RED		ppm			0		
Soot % % *ASTM D7844 >3 0.8 0.6 Nitration Abs/cm *ASTM D7624 >20 12.7 14.7 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.7 27.4 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.9 25.6 20.3	Potassium	ppm	ASTM D5185m	>20	7	4	1
Nitration Abs/cm *ASTM D7624 >20 12.7 14.7 11.7 Sulfation Abs/.1mm *ASTM D7415 >30 26.7 27.4 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.9 25.6 20.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 26.7 27.4 24.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.9 25.6 20.3	Soot %	%	*ASTM D7844	>3	8.0	8.0	0.6
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 24.9 25.6 20.3	Nitration	Abs/cm	*ASTM D7624	>20	12.7	14.7	
Oxidation	Sulfation	Abs/.1mm	*ASTM D7415	>30	26.7	27.4	24.2
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 6.9 8.4 5.7 5.6	Oxidation	Abs/.1mm	*ASTM D7414	>25	24.9	25.6	20.3
	Base Number (BN)	mg KOH/g	ASTM D2896	6.9	8.4	5.7	5.6



OIL ANALYSIS REPORT

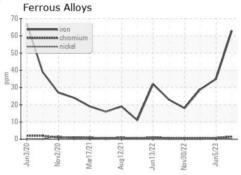


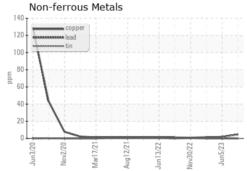


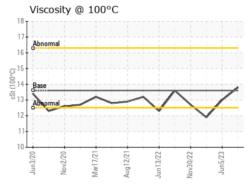
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

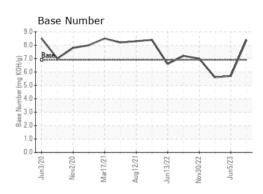
FLUID PROPER	THES	method			History I	Historyz
Visc @ 100°C	cSt	ASTM D445	13.6	13.8	13.0	<u> </u>

GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10724836 Test Package : FLEET

: IL0033207 : 05996476

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

: 02 Nov 2023 Diagnostician : Wes Davis

: 02 Nov 2023

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)

TAMPA IDEALEASE 5951 ORIENT ROAD

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F: (844)270-1356