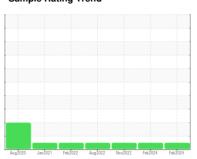


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id

INTERNATIONAL 6010176

Component **Diesel Engine**

VALVOLINE 15W40 (--- GAL)

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

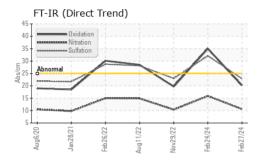
Fluid Condition

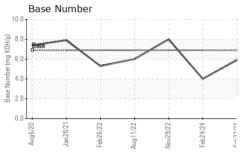
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

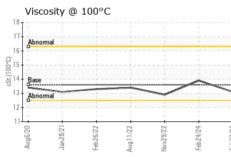
Sample Date							
Sample Date	SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Machine Age mls Client Info 203868 203868 150851 Oil Age mls Client Info 0 0 0 Oil Changed Client Info Changed Changed N/A Sample Status NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 Fuel WC Method >2.0 <1.0 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 13 53 14 Chromium ppm ASTM D5185m >20 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	Sample Number		Client Info		IL0034254	IL0028442	IL05715729
Oil Age mis Client Info 0 0 0 Oil Changed Client Info Changed Changed N/A Sample Status NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 Fuel WC Method >2.0 <1.0 <1.0 <1.0 Water WC Method NEG NEG NEG NEG Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 13 53 14 Chromium ppm ASTM D5185m >20 <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	Sample Date		Client Info		27 Feb 2024	24 Feb 2024	29 Nov 2022
Client Info Changed NORMAL NORMAL NORMAL	Machine Age	mls	Client Info		203868	203868	150851
NORMAL NORMAL NORMAL NORMAL	Oil Age	mls	Client Info		0	0	0
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >2.0 <1.0	Oil Changed		Client Info		Changed	Changed	N/A
Fuel	Sample Status				NORMAL	NORMAL	NORMAL
Water Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 13 53 14 Chromium ppm ASTM D5185m >20 <1	CONTAMINATION		method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>2.0	<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 <1 <1 <1 Nickel ppm ASTM D5185m >4 0 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	13	53	14
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver	Nickel	ppm	ASTM D5185m	>4	0	0	<1
Aluminum ppm ASTM D5185m >20 3 10 5 Lead ppm ASTM D5185m >40 0 0 <1	Titanium	ppm	ASTM D5185m		<1	0	0
Lead ppm ASTM D5185m >40 0 0 <1 Copper ppm ASTM D5185m >330 0 2 <1 Tin ppm ASTM D5185m >15 <1 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 39 42 23 132 Barium ppm ASTM D5185m 1 0 0 0 Molybdenum ppm ASTM D5185m 49 62 68 73 Manganese ppm ASTM D5185m 49 62 68 73 Manganesium ppm ASTM D5185m 1554 1273 1416 1329 Phosphorus ppm ASTM D5185m 154 1273	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 0 2 <1 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	3	10	5
Tin	Lead	ppm	ASTM D5185m	>40	0	0	<1
Vanadium ppm ASTM D5185m 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 39 42 23 132 Barium ppm ASTM D5185m 1 0 0 0 Molybdenum ppm ASTM D5185m 1 0 0 0 Molybdenum ppm ASTM D5185m 1 0 0 0 Mangaese ppm ASTM D5185m 49 62 68 73 Mangaesium 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>Copper</th> <td>ppm</td> <td>ASTM D5185m</td> <td>>330</td> <th>0</th> <td>2</td> <td><1</td>	Copper	ppm	ASTM D5185m	>330	0	2	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 39 42 23 132 Barium ppm ASTM D5185m 1 0 0 0 Molybdenum ppm ASTM D5185m 49 62 68 73 Manganese ppm ASTM D5185m 1 <1	Tin	ppm	ASTM D5185m	>15	<1	0	0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 39 42 23 132 Barium ppm ASTM D5185m 1 0 0 0 Molybdenum ppm ASTM D5185m 49 62 68 73 Manganese ppm ASTM D5185m 1 <1	Vanadium	ppm	ASTM D5185m		0	0	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 1 0 0 0 Molybdenum ppm ASTM D5185m 49 62 68 73 Manganese ppm ASTM D5185m 1 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 49 62 68 73 Manganese ppm ASTM D5185m 1 <1 <1 <1 Magnesium ppm ASTM D5185m 616 674 701 588 Calcium ppm ASTM D5185m 1554 1273 1416 1329 Phosphorus ppm ASTM D5185m 899 747 883 832 Zinc ppm ASTM D5185m 1069 934 1034 1040 Sulfur ppm ASTM D5185m 2624 2632 2758 3099 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 20 2 4 0 Potassium ppm ASTM D5185m 20 2 5 0 INFRA-RED method limit/base <	Boron	ppm	ASTM D5185m	39	42	23	132
Manganese 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 <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 <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 <1 <1 <1 <1 <1	Barium	ppm	ASTM D5185m	1	0	0	0
Magnesium ppm ASTM D5185m 616 674 701 588 Calcium ppm ASTM D5185m 1554 1273 1416 1329 Phosphorus ppm ASTM D5185m 199 747 883 832 Zinc ppm ASTM D5185m 1069 934 1034 1040 Sulfur ppm ASTM D5185m 2624 2632 2758 3099 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 20 2 4 0 Potassium ppm ASTM D5185m >20 2 5 0 INFRA-RED method limit/base current history1 history2 Soot % % ASTM D7844 >3 0.4 1.1 0.4 Nitration Abs/:1mm *ASTM D7415 >30	Molybdenum	ppm			62	68	73
Calcium ppm ASTM D5185m 1554 1273 1416 1329 Phosphorus ppm ASTM D5185m 899 747 883 832 Zinc ppm ASTM D5185m 1069 934 1034 1040 Sulfur ppm ASTM D5185m 2624 2632 2758 3099 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 20 2 4 0 Potassium ppm ASTM D5185m >20 2 5 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 1.1 0.4 Nitration Abs/.1mm *ASTM D7415 >30 22.9 32.1 23.0 FLUID DEGRADATION *ASTM D7414 >25 <th>Manganese</th> <td>ppm</td> <td>ASTM D5185m</td> <td>1</td> <th><1</th> <td><1</td> <td><1</td>	Manganese	ppm	ASTM D5185m	1	<1	<1	<1
Phosphorus ppm ASTM D5185m 899 747 883 832 Zinc ppm ASTM D5185m 1069 934 1034 1040 Sulfur ppm ASTM D5185m 2624 2632 2758 3099 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 2 4 0 Potassium ppm ASTM D5185m >20 2 5 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 1.1 0.4 Nitration Abs/.1mm *ASTM D7624 >20 10.6 15.9 10.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 32.1 23.0 FLUID DEGRADATION method l	Magnesium	ppm	ASTM D5185m	616	674	701	588
Zinc ppm ASTM D5185m 1069 934 1034 1040 Sulfur ppm ASTM D5185m 2624 2632 2758 3099 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 2 4 0 Potassium ppm ASTM D5185m >20 2 5 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 1.1 0.4 Nitration Abs/cm *ASTM D7624 >20 10.6 15.9 10.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 32.1 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D	Calcium	ppm	ASTM D5185m	1554	1273	1416	1329
Sulfur ppm ASTM D5185m 2624 2632 2758 3099 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 2 4 0 Potassium ppm ASTM D5185m >20 2 5 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 1.1 0.4 Nitration Abs/cm *ASTM D7624 >20 10.6 15.9 10.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 32.1 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.2 35.0 19.7	Phosphorus	ppm	ASTM D5185m	899	747	883	832
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 2 4 0 Potassium ppm ASTM D5185m >20 2 5 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 1.1 0.4 Nitration Abs/cm *ASTM D7624 >20 10.6 15.9 10.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 32.1 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.2 35.0 19.7	Zinc	ppm	ASTM D5185m	1069	934	1034	1040
Silicon ppm ASTM D5185m >25 5 8 7 Sodium ppm ASTM D5185m 2 4 0 Potassium ppm ASTM D5185m >20 2 5 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 1.1 0.4 Nitration Abs/cm *ASTM D7624 >20 10.6 15.9 10.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 32.1 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.2 35.0 19.7	Sulfur	ppm	ASTM D5185m	2624	2632	2758	3099
Sodium ppm ASTM D5185m 2 4 0 Potassium ppm ASTM D5185m >20 2 5 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 1.1 0.4 Nitration Abs/cm *ASTM D7624 >20 10.6 15.9 10.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 32.1 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.2 35.0 19.7	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 2 5 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.4 1.1 0.4 Nitration Abs/cm *ASTM D7624 >20 10.6 15.9 10.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 32.1 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.2 35.0 19.7	Silicon	ppm	ASTM D5185m	>25	5	8	7
INFRA-RED	Sodium	ppm	ASTM D5185m		2	4	0
Soot % % *ASTM D7844 >3 0.4 1.1 0.4 Nitration Abs/cm *ASTM D7624 >20 10.6 15.9 10.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 32.1 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.2 35.0 19.7	Potassium	ppm	ASTM D5185m	>20	2	5	0
Nitration Abs/cm *ASTM D7624 >20 10.6 15.9 10.4 Sulfation Abs/.1mm *ASTM D7415 >30 22.9 32.1 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.2 35.0 19.7	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 22.9 32.1 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.2 35.0 19.7	Soot %	%	*ASTM D7844	>3	0.4	1.1	0.4
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 20.2 35.0 19.7	Nitration	Abs/cm	*ASTM D7624	>20	10.6	15.9	10.4
Oxidation Abs/.1mm *ASTM D7414 >25 20.2 35.0 19.7	Sulfation	Abs/.1mm	*ASTM D7415	>30	22.9	32.1	23.0
	FLUID DEGRADAT	ΓΙΟΝ	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	20.2	35.0	19.7
			ASTM D2896		5.9		

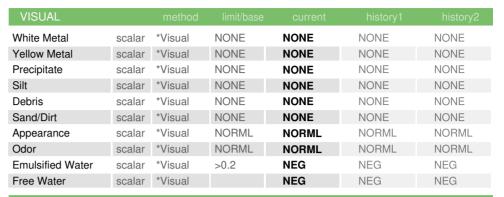


OIL ANALYSIS REPORT



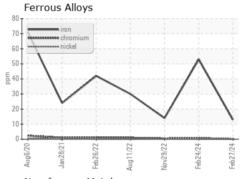


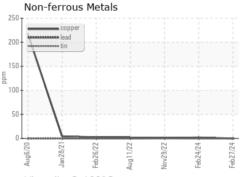


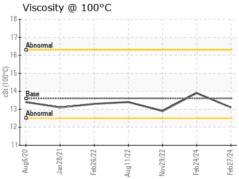


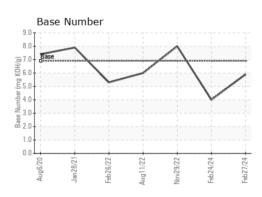
FLUID PROPER	RTIES	method				history2
Visc @ 100°C	cSt	ASTM D445	13.6	13.1	13.9	12.9

GRAPHS













Certificate 12367

Laboratory Sample No. : IL0034254 Lab Number : 06143804 Unique Number : 10968612 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 10 Apr 2024 **Tested** : 11 Apr 2024 Diagnosed

: 11 Apr 2024 - Wes Davis

TAMPA IDEALEASE 5951 ORIENT ROAD TAMPA, FL US 33610-9565 Contact: Russ Cook

T: (813)626-9285

russcook@idealease.com

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: (844)270-1356

Report Id: IDETAMFL [WUSCAR] 06143804 (Generated: 04/11/2024 04:39:34) Rev: 1

Contact/Location: Russ Cook - IDETAMFL