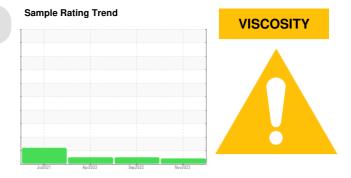
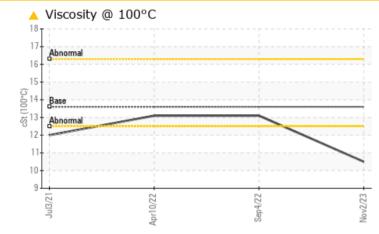
PROBLEM SUMMARY



Machine Id 9110339 Component Diesel Engine Fluid VALVOLINE 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS								
Sample Status				ATTENTION	NORMAL	NORMAL		
Visc @ 100°C	cSt	ASTM D445	13.6	A 10.5	13.1	13.1		

Customer Id: IDETAMFL Sample No.: IL0034223 Lab Number: 06013013 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data: Jonathan Hester +1 919-379-4092 x4092 jhester@wearcheckusa.com

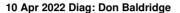
To change component or sample information: Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u> There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS



04 Sep 2022 Diag: Wes Davis

Little or no information is provided as to the component and lubricant being tested. Recommendations are therefore generic in nature and may not apply to the current application. Please forward information as to equipment type, reservoir capacity, lubricant type and any pertinent information to allow for a more accurate assessment. Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. 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. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



03 Jul 2021 Diag: Jonathan Hester





Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

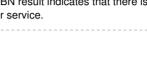


GLYCOL



No corrective action is recommended at this time. Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.Metal levels are typical for a new component breaking in. Sodium and/or potassium levels are high. Fuel content negligible. Test for glycol is negative. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.







OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 9110339

Component Diesel Engine Fluid VALVOLINE 15W40 (--- GAL)

DIAGNOSIS

A Recommendation

The oil change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

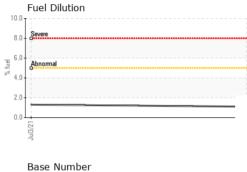
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		IL0034223	IL05644071	IL05515255
Sample Date		Client Info		02 Nov 2023	04 Sep 2022	10 Apr 2022
Machine Age	mls	Client Info		249921	152601	111359
Oil Age	mls	Client Info		23477	0	0
Oil Changed		Client Info		Changed	N/A	N/A
Sample Status				ATTENTION	NORMAL	NORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS	_	una estin e el	line it /le e e e		la la tamand	history O
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	12	20	19
Chromium	ppm	ASTM D5185m	>20	<1	2	2
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	<1	<1
Aluminum	ppm	ASTM D5185m	>20	3	7	8
Lead	ppm	ASTM D5185m	>40	1	4	4
Copper	ppm	ASTM D5185m	>330	1	2	3
Tin	ppm	ASTM D5185m	>15	<1	<1	1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 41	history1 10	history2 67
	ppm ppm					
Boron		ASTM D5185m	39	41	10	67
Boron Barium	ppm	ASTM D5185m ASTM D5185m	39 1	41 0	10 <1	67 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49	41 0 90	10 <1 74	67 0 89
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1	41 0 90 <1	10 <1 74 <1	67 0 89 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616	41 0 90 <1 508	10 <1 74 <1 668	67 0 89 <1 651
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554	41 0 90 <1 508 1223	10 <1 74 <1 668 1221	67 0 89 <1 651 1385
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899	41 0 90 <1 508 1223 721	10 <1 74 <1 668 1221 657	67 0 89 <1 651 1385 693
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069	41 0 90 <1 508 1223 721 924	10 <1 74 <1 668 1221 657 864	67 0 89 <1 651 1385 693 921
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624	41 0 90 <1 508 1223 721 924 2234	10 <1 74 <1 668 1221 657 864 2285	67 0 89 <1 651 1385 693 921 1887
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 limit/base	41 0 90 <1 508 1223 721 924 2234 current	10 <1 74 <1 668 1221 657 864 2285 history1	67 0 89 <1 651 1385 693 921 1887 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 limit/base	41 0 90 <1 508 1223 721 924 2234 2234 current 7	10 <1 74 <1 668 1221 657 864 2285 history1 8	67 0 89 <1 651 1385 693 921 1887 history2 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 limit/base >25	41 0 90 <1 508 1223 721 924 2234 2234 current 7 <1	10 <1 74 <1 668 1221 657 864 2285 history1 8 <1	67 0 89 <1 651 1385 693 921 1887 history2 9 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 limit/base >25	41 0 90 <1 508 1223 721 924 2234 2234 current 7 <1 4	10 <1 74 <1 668 1221 657 864 2285 history1 8 <1 12	67 0 89 <1 651 1385 693 921 1887 history2 9 2 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 limit/base >25 >20 >5	41 0 90 <1 508 1223 721 924 2234 2234 current 7 <1 4 1.1	10 <1 74 <1 668 1221 657 864 2285 history1 8 <1 12 <1.0	67 0 89 <1 651 1385 693 921 1887 history2 9 2 21 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 limit/base >20 >20 >5 limit/base >3	41 0 90 <1 508 1223 721 924 2234 current 7 <1 4 1.1 current	10 <1 74 <1 668 1221 657 864 2285 history1 8 <1 12 <1.0 history1	67 0 89 <1 651 1385 693 921 1887 history2 9 2 21 <1.0 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 limit/base >20 >20 >5 limit/base >3	41 0 90 <1 508 1223 721 924 2234 current 7 <1 4 1.1 current 0.3	10 <1 74 <1 668 1221 657 864 2285 history1 8 <1 12 <1.0 history1 0.6	67 0 89 <1 651 1385 693 921 1887 history2 9 2 21 <1.0 history2 0.5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 limit/base >20 limit/base >3 >20	41 0 90 <1 508 1223 721 924 2234 current 7 <1 4 1.1 current 0.3 9.2	10 <1 74 <1 668 1221 657 864 2285 history1 8 <1 12 <1.0 history1 0.6 12.6	67 0 89 <1 651 1385 693 921 1887 history2 9 2 21 <1.0 history2 0.5 11.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 Imit/base >25 >20 >5 Imit/base >3 >20 >3 >20	41 0 90 <1 508 1223 721 924 2234 current 7 <1 4 1.1 current 0.3 9.2 22.4	10 <1 74 <1 668 1221 657 864 2285 history1 8 <1 12 <1.0 history1 0.6 12.6 26.3	67 0 89 <1 651 1385 693 921 1887 history2 9 2 21 <1.0 history2 0.5 11.9 24.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 limit/base >25 limit/base >3 >20 >30 limit/base	41 0 90 <1 508 1223 721 924 2234 current 7 <1 4 1.1 current 0.3 9.2 22.4 current	10 <1 74 <1 668 1221 657 864 2285 history1 8 <1 12 <1.0 history1 0.6 12.6 26.3 history1	67 0 89 <1 651 1385 693 921 1887 history2 9 2 21 <1.0 history2 0.5 11.9 24.7 history2

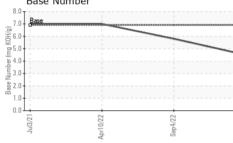
Contact/Location: Russ Cook - IDETAMFL



OIL ANALYSIS REPORT







	VISUAL		method	limit/base	9	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
Nov2/23	Appearance	scalar	*Visual	NORML		NORML	NORML	NORML
Nc	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	limit/base	Э	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	13.6		10.5	13.1	13.1
	GRAPHS							
	Ferrous Alloys							
	60 - iron							
	50 - nickel							
	E 30							
_	20							
	10							
	21 0		52	53				
	Jul3/21		Sep4/22	Nov2/23				
	⊲ Non-ferrous Meta	lc.		-				
	²⁵ T							
	copper							
	20 - tin							
	15							
	10							
	5-							
	Concession and the state of the							
	Jul3/21		/22	/23				
	Jul3/21 Apr10/22		Sep 4/22	Nov2/23				
	🔺 Viscosity @ 100°0	2			F	Base Number	-	
	18				^{8.0} T			
	Abnormal				7.0 - c	Base		
	15			B/HO	6.0 -			
	Base Abnormal			Number (mg KOH/g)	5.0-			
	zi 13 Abnormal			mber	4.0			
	12-							
	11-				2.0-			
	10				1.0			
	Jul3/21		4/22	2/23 -	0.0	17/0	0/22 -	1/23 -
	Jul3/21 Apr10/22		Sep 4/22	Nov2/23	1	5	Apr10/22.	Veb 7/272
aboratory	: WearCheck USA - !	501 Madi	son Ave Co	INC 275	13		TAME	A IDEALEASE
ample No.		Receive		Nov 2023	13			ORIENT ROAD
ab Number		Diagnos		Nov 2023			2251	TAMPA, FL
Inique Number	: 10752157	Diagnos	t ician : Jon	athan Hest				JS 33610-9565
nique Number	· ELEET (Additional			aroontEucl				53 33010-9303

Unique Number : 10752157 Diagnostician : Jonathan Hester Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel) Certificate L2367 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)

Report Id: IDETAMFL [WUSCAR] 06013013 (Generated: 11/30/2023 00:04:26) Rev: 1

Contact/Location: Russ Cook - IDETAMFL

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