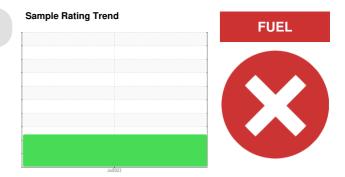


PROBLEM SUMMARY

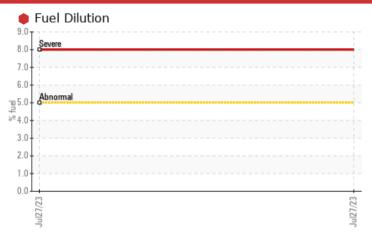
4700 Component

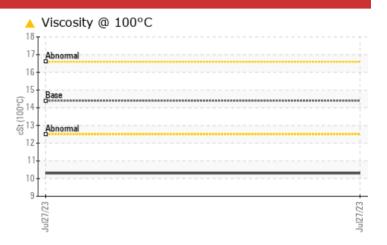
Diesel Engine

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









RECOMMENDATION

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. 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.

PROBLEMATIC T	TEST RE	ESULTS			
Sample Status				SEVERE	
Fuel	%	ASTM D3524	>5	● 8.0	
Vice @ 100°C	cSt	VSTM DAVE	1//	A 10 3	

Customer Id: APPLEVWB **Sample No.:** WC0758984 Lab Number: 05925284 Test Package: CONST



To manage this report scan the QR code

To discuss the diagnosis or test data: Wes Davis +1 905-569-8600 x223 wesd@wearcheck.ca

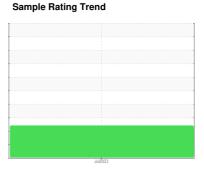
To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED ACTIONS						
Action	Status	Date	Done By	Description		
Change Fluid			?	We recommend that you drain the oil from the component if this has not already been done.		
Resample			?	We recommend an early resample to monitor this condition.		
Information Required			?	Please specify the brand, type, and viscosity of the oil on your next sample. Please specify the component make and model with your next sample.		
Check Fuel/injector System			?	We advise that you check the fuel injection system.		

HISTORICAL DIAGNOSIS



OIL ANALYSIS REPORT





4700 Component

Diesel Engine

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

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. 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 a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition

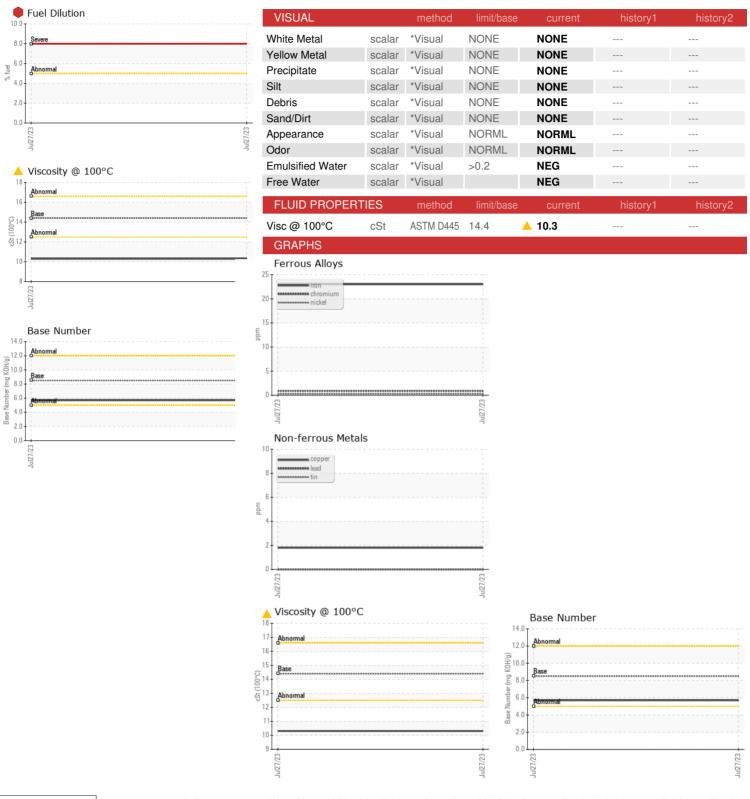
The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Machine Age hrs Client Info 0 0 0 0 0 0 0 0 0							
Client Info WC0758984					Jul2023		
Client Info 27 Jul 2023	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date Client Info 27 Jul 2023	Sample Number		Client Info		WC0758984		
Dil Age	Sample Date		Client Info		27 Jul 2023		
Contamination Contaminatio	Machine Age	hrs	Client Info		2851		
CONTAMINATION method limit/base current history1 history2	Oil Age	hrs	Client Info		0		
CONTAMINATION	Oil Changed		Client Info		N/A		
WEAR METALS	Sample Status				SEVERE		
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 23	CONTAMINATIO	N	method	limit/base	current	history1	history2
ASTM D5185m	Glycol		WC Method		NEG		
Chromium	WEAR METALS		method	limit/base	current	history1	history2
ASTM D5185m ASTM D5185m ASTM D5185m DO	ron	ppm	ASTM D5185m	>100	23		
Description	Chromium	ppm	ASTM D5185m	>20	<1		
ASTM D5185m	Nickel	ppm	ASTM D5185m	>4	<1		
Astroper	Titanium	ppm	ASTM D5185m		0		
Lead ppm ASTM D5185m >40 0 Copper ppm ASTM D5185m >330 2 Fin ppm ASTM D5185m >15 0 Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 Boron ppm ASTM D5185m 10 0 Barium ppm ASTM D5185m 10 0 Molybdenum ppm ASTM D5185m 100 60 Magnesium ppm ASTM D5185m 100 342 Phosphorus ppm ASTM D5185m 3000 1878 Phosphorus ppm ASTM D5185m 1350 1248 Sulfur ppm ASTM D5185m 25 8 <	Silver	ppm	ASTM D5185m	>3	0		
Copper	Aluminum	ppm	ASTM D5185m	>20	4		
Tin	_ead	ppm	ASTM D5185m	>40	0		
Vanadium ppm ASTM D5185m 0 Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 16 Barium ppm ASTM D5185m 10 0 Manganese ppm ASTM D5185m 100 60 Magnesium ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 450 342 Phosphorus ppm ASTM D5185m 3000 1878 Phosphorus ppm ASTM D5185m 1350 1248 Zinc ppm ASTM D5185m 158 1248 CONTAMINANTS method limit/base current history1 <	Copper	ppm	ASTM D5185m	>330	2		
Cadmium ppm ASTM D5185m 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 16 Barium ppm ASTM D5185m 10 0 Molybdenum ppm ASTM D5185m 100 60 Magnesium ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 450 342 Phosphorus ppm ASTM D5185m 3000 1878 Phosphorus ppm ASTM D5185m 1350 1248 Phosphorus ppm ASTM D5185m 1250 4366 Sulfur ppm ASTM D5185m >25 8 Solicon ppm ASTM D5185m >158 <1 <td>Γin</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>15</td> <td>0</td> <td></td> <td></td>	Γin	ppm	ASTM D5185m	>15	0		
ADDITIVES	/anadium	ppm	ASTM D5185m		0		
Boron	Cadmium	ppm	ASTM D5185m		0		
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 100 60 Manganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 3000 1878 Calcium ppm ASTM D5185m 3000 1878 Phosphorus ppm ASTM D5185m 1150 949 Zinc ppm ASTM D5185m 1350 1248 Zinc ppm ASTM D5185m 4250 4366 Sulfur ppm ASTM D5185m 25 8 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 Sodium ppm ASTM D5185m >20 3 Fuel % ASTM D5185m >20 3 Fuel % <td< td=""><td>Boron</td><td>ppm</td><td>ASTM D5185m</td><td>250</td><td>16</td><td></td><td></td></td<>	Boron	ppm	ASTM D5185m	250	16		
Manganese ppm ASTM D5185m 0 Magnesium ppm ASTM D5185m 450 342 Calcium ppm ASTM D5185m 3000 1878 Phosphorus ppm ASTM D5185m 1150 949 Zinc ppm ASTM D5185m 1350 1248 Sulfur ppm ASTM D5185m 4250 4366 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 Coldium ppm ASTM D5185m >25 8 Potassium ppm ASTM D5185m >20 3 Fuel % ASTM D5185m >20 3 Soot % *ASTM D7844 >3 0.5	Barium	nnm	ASTM D5185m	10	0		
Magnesium ppm ASTM D5185m 450 342 Calcium ppm ASTM D5185m 3000 1878 Phosphorus ppm ASTM D5185m 1150 949 Zinc ppm ASTM D5185m 1350 1248 Sulfur ppm ASTM D5185m 4250 4366 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 Sodium ppm ASTM D5185m >158 <1		ppiii	ΔSTM D5185m	100	60		
Calcium ppm ASTM D5185m 3000 1878 Phosphorus ppm ASTM D5185m 1150 949 Zinc ppm ASTM D5185m 1350 1248 Sulfur ppm ASTM D5185m 4250 4366 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 Sodium ppm ASTM D5185m >158 <1	Molybdenum		AO IIVI DO IOOIII	100	00		
Phosphorus ppm ASTM D5185m 1150 949 Zinc ppm ASTM D5185m 1350 1248 Sulfur ppm ASTM D5185m 4250 4366 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 Sodium ppm ASTM D5185m >158 <1		ppm		100			
Zinc	Manganese	ppm	ASTM D5185m		0		
Sulfur ppm ASTM D5185m 4250 4366 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 Sodium ppm ASTM D5185m >158 <1	Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m	450	0 342		
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 8 Sodium ppm ASTM D5185m >158 <1	Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	450 3000	0 342 1878		
Sodium ppm ASTM D5185m >25 8	Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	450 3000 1150	0 342 1878 949		
Sodium	Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	450 3000 1150 1350	0 342 1878 949 1248		
Potassium ppm ASTM D5185m >20 3 Fuel % ASTM D3524 >5 ■ 8.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 Nitration Abs/cm *ASTM D7624 >20 9.3 Sulfation Abs/.1mm *ASTM D7415 >30 19.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9	Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	450 3000 1150 1350 4250	0 342 1878 949 1248 4366		
Fuel % ASTM D3524 >5	Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	450 3000 1150 1350 4250 limit/base	0 342 1878 949 1248 4366	 history1	 history2
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.5 Nitration Abs/cm *ASTM D7624 >20 9.3 Sulfation Abs/.1mm *ASTM D7415 >30 19.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9	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 method ASTM D5185m	450 3000 1150 1350 4250 limit/base >25	0 342 1878 949 1248 4366 current	 history1	 history2
Soot % *ASTM D7844 >3 0.5 Nitration Abs/cm *ASTM D7624 >20 9.3 Sulfation Abs/.1mm *ASTM D7415 >30 19.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m ASTM D5185m	450 3000 1150 1350 4250 Iimit/base >25 >158	0 342 1878 949 1248 4366 current 8 <1	 history1	 history2
Nitration Abs/cm *ASTM D7624 >20 9.3 Sulfation Abs/.1mm *ASTM D7415 >30 19.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	450 3000 1150 1350 4250 limit/base >25 >158 >20	0 342 1878 949 1248 4366 current 8 <1 3	 history1	 history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	450 3000 1150 1350 4250 Iimit/base >25 >158 >20 >5	0 342 1878 949 1248 4366 current 8 <1 3 • 8.0	history1	history2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 13.9	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524	450 3000 1150 1350 4250 Iimit/base >25 >158 >20 >5	0 342 1878 949 1248 4366 current 8 <1 3 8.0 current	history1 history1	history2 history2
Oxidation	Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524	450 3000 1150 1350 4250 limit/base >25 >158 >20 >5 limit/base >3	0 342 1878 949 1248 4366 current 8 <1 3 8.0 current 0.5	history1 history1	history2 history2
	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 D7844 *ASTM D7624	450 3000 1150 1350 4250 limit/base >25 >158 >20 >5 limit/base >3 >20	0 342 1878 949 1248 4366 current 8 <1 3 • 8.0 current 0.5 9.3	history1 history1	history2 history2
Base Number (BN) mg KOHIg ASTM D2896 8.5 5.7	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 D3524 method *ASTM D7624 *ASTM D76145	450 3000 1150 1350 4250 limit/base >25 >158 >20 >5 limit/base >3 >20 >30	0 342 1878 949 1248 4366 current 8 <1 3 • 8.0 current 0.5 9.3 19.7	history1 history1	history2 history2
	Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D7624 *ASTM D7624 *ASTM D7615 method	450 3000 1150 1350 4250 limit/base >25 >158 >20 >5 limit/base >3 >20 >30 limit/base	0 342 1878 949 1248 4366 current 8 <1 3 ■ 8.0 current 0.5 9.3 19.7 current	history1 history1 history1	history2 history2 history2 history2

Contact/Location: KEVIN HINSON - APPLEVWB



OIL ANALYSIS REPORT







Laboratory Sample No. Lab Number **Unique Number**

: 05925284 : 10605231

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0758984 Received : 15 Aug 2023 Diagnosed : 17 Aug 2023 Diagnostician : Wes Davis

Test Package : CONST (Additional Tests: FuelDilution, PercentFuel, TBN)

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)

Apple Valley Waste - Baltimore District

240 S KRESSON ST BALTIMORE, MD US 21224

Contact: KEVIN HINSON khinson@goldmedal.net

T: F:

Contact/Location: KEVIN HINSON - APPLEVWB