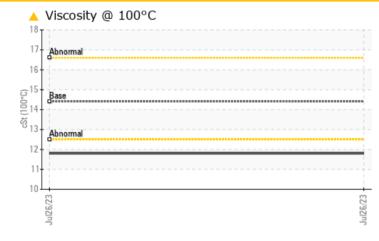






#### Machine Id **384** Component **Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 15W40 (--- GAL)**

#### 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					
Visc @ 100°C	cSt	ASTM D445	14.4	<u> </u>					

Customer Id: APPLEVWB Sample No.: WC0758983 Lab Number: 05925282 Test Package: CONST



To manage this report scan the QR code

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

*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



### **OIL ANALYSIS REPORT**



Machine Id

#### 384 Component

### **Diesel Engine**

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

#### DIAGNOSIS

#### Recommendation

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

#### Wear

Metal levels are typical for a new component breaking in.

#### Contamination

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

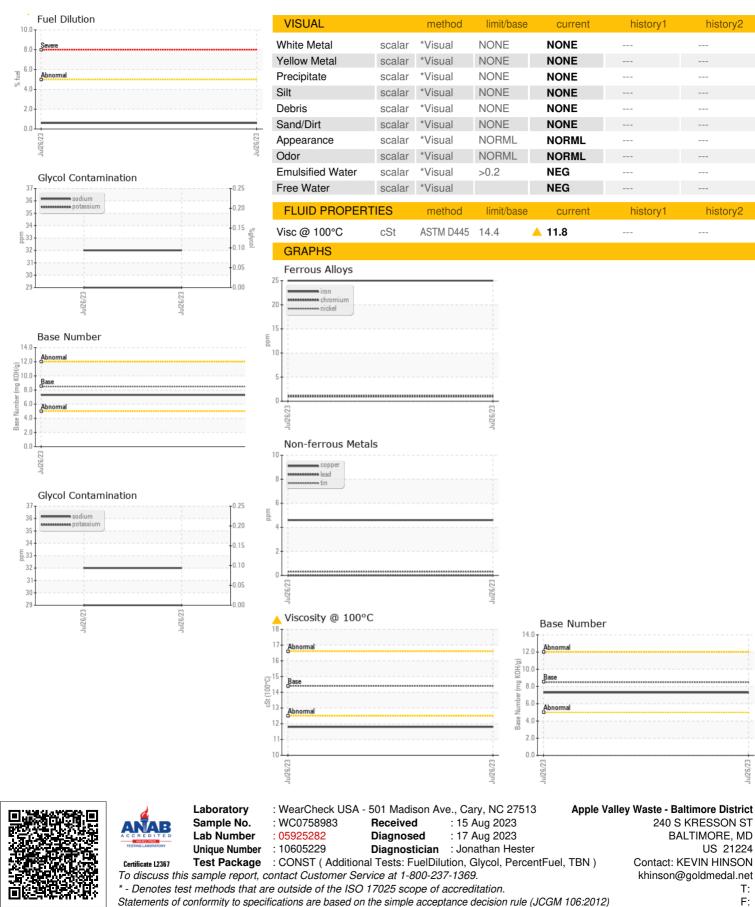
#### Fluid Condition

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

Sample NumberClient InfoWC0758983Sample DateInClient Info26 Jul 2023Machine AgemlsClient Info6310Oil AgemlsClient InfoChangedOil ChangedIClient InfoChangedSample StatusIClient InfoCurrentWEAR METALSremoteMsth 05155NickelppmASTM 05155	SAMPLE INFORM	<b>IATION</b>	method	limit/base	current	history1	history2
Machine AgemisClient Info6910Oil ChangedClient InfoCChangedSample StatusCImit/basATTENTIONWEAR METALSmethodImit/bascurrenthistory1history2IronppmASTM D5185m>201NickelppmASTM D5185m>201NickelppmASTM D5185m>201NickelppmASTM D5185m>3<1	Sample Number		Client Info		WC0758983		
Oil Age         mls         Client Info         Changed             Sample Status         I         I         ATTENTION             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         25             Chromium         ppm         ASTM D5185m         >4         1             Nickel         ppm         ASTM D5185m         >3         <1	Sample Date		Client Info		26 Jul 2023		
Oil Changed Sample Status         Client Info         Changed ATTENTION             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         25             Nickel         ppm         ASTM D5185m         >20         1             Nickel         ppm         ASTM D5185m         >20         1             Silver         ppm         ASTM D5185m         >20         2             Copper         ppm         ASTM D5185m         >20         2             Vanadium         ppm         ASTM D5185m         >20         2             ADDITIVES         ppm         ASTM D5185m         >30         5             ADDITIVES         ppm         ASTM D5185m         >15         <1	Machine Age	mls	Client Info		6910		
Sample Status         Imathed         Imit/base         current         history1         history2           WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >100         25             Nickel         ppm         ASTM D5185m         >20         1             Nickel         ppm         ASTM D5185m         >3         <1	Oil Age	mls	Client Info		0		
WEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>10025NickelppmASTM D5185m>41NickelppmASTM D5185m>41SilverppmASTM D5185m>3<1	Oil Changed		Client Info		Changed		
Iron         ppm         ASTM D5185m         >100         25             Chromium         ppm         ASTM D5185m         >20         1             Nickel         ppm         ASTM D5185m         >4         1             Silver         ppm         ASTM D5185m         >3         <1	Sample Status				ATTENTION		
Chromium         ppm         ASTM D5185m         >20         1             Nickel         ppm         ASTM D5185m         >4         1             Titanium         ppm         ASTM D5185m         >3         <1             Silver         ppm         ASTM D5185m         >3         <1             Aluminum         ppm         ASTM D5185m         >30         5             Copper         ppm         ASTM D5185m         >15         <1             Yanadium         ppm         ASTM D5185m         >15         <1             Cadmium         ppm         ASTM D5185m         15         <1             ADDITIVES         method         imit/base         current         history1         history2           Boron         ppm         ASTM D5185m         100         82             Marganese         ppm         ASTM D5185m         100         82             Marganesium         ppm         ASTM D5185m         150 </th <th>WEAR METALS</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	WEAR METALS		method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185n         >4         1             Titanium         ppm         ASTM D5185n         >3         <1	Iron	ppm	ASTM D5185m	>100	25		
Titanium         ppm         ASTM D5185n         >3         <1             Silver         ppm         ASTM D5185n         >3         <1	Chromium	ppm	ASTM D5185m	>20	1		
Silver         ppm         ASTM D5185m         >3         <1             Aluminum         ppm         ASTM D5185m         >20         2             Lead         ppm         ASTM D5185m         >330         5             Copper         ppm         ASTM D5185m         >330         5             Vanadium         ppm         ASTM D5185m         >15         <1	Nickel	ppm	ASTM D5185m	>4	1		
Auminum         ppm         ASTM D5185m         >20         2             Lead         ppm         ASTM D5185m         >40         0             Copper         ppm         ASTM D5185m         >330         5             Tin         ppm         ASTM D5185m         >15         <1	Titanium	ppm	ASTM D5185m		0		
Lead         ppm         ASTM D5185m         >40         0             Copper         ppm         ASTM D5185m         >330         5             Tin         ppm         ASTM D5185m         >15         <1	Silver	ppm	ASTM D5185m	>3	<1		
Copper         ppm         ASTM D5185m         >330         5             Tin         ppm         ASTM D5185m         >15         <1	Aluminum	ppm	ASTM D5185m	>20	2		
Copper         ppm         ASTM D5185m         >330         5             Tin         ppm         ASTM D5185m         >15         <1	Lead		ASTM D5185m	>40	0		
Tin         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         250         32             Molybdenum         ppm         ASTM D5185m         250         32             Manganese         ppm         ASTM D5185m         100         62             Magnesium         ppm         ASTM D5185m         100         61             Magnesium         ppm         ASTM D5185m         450         881              Sulfur         ppm         ASTM D5185m         1150         1011             Sulfur         ppm         ASTM D5185m         250         3974             Sulfur         ppm         ASTM D5185m         250 <t< td=""><td>Copper</td><td></td><td>ASTM D5185m</td><td>&gt;330</td><td>5</td><td></td><td></td></t<>	Copper		ASTM D5185m	>330	5		
Vanadium         ppm         ASTM D5185m         0             Cadmium         ppm         ASTM D5185m         0             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         250         32             Barium         ppm         ASTM D5185m         10         0             Molybdenum         ppm         ASTM D5185m         100         82             Manganese         ppm         ASTM D5185m         100         60             Magnesium         ppm         ASTM D5185m         450         881             Calcium         ppm         ASTM D5185m         3000         1245             Vanadium         ppm         ASTM D5185m         1350         1363             Calcium         ppm         ASTM D5185m         1350         1363             Sulfur         ppm         ASTM D5185m         250	••				<1		
CadmiumppmASTM D5185m0ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m25032BariumppmASTM D5185m100MolybdenumppmASTM D5185m10082ManganeseppmASTM D5185m10082ManganesiumppmASTM D5185m450881CalciumppmASTM D5185m11501011PhosphorusppmASTM D5185m13501363SulfurppmASTM D5185m12503974SulfurppmASTM D5185m>258SodiumppmASTM D5185m>2029Fuel%ASTM D5185m>2029Glycol%'ASTM D5185m>2029INFRA-REDmethodlimit/basecurrenthistory1history2INFRA-RED%'ASTM D7624>2011.3Soti %%'ASTM D7624>2011.3SulfationAbs/rm'ASTM D7624>3023.4FLUID DEGRAD-TIONmethodlimit/basecurrenthistory1history2SulfationAbs/rm	Vanadium		ASTM D5185m		0		
Boron         ppm         ASTM D5185m         250         32             Barium         ppm         ASTM D5185m         10         0             Molybdenum         ppm         ASTM D5185m         100         82             Manganese         ppm         ASTM D5185m         100         82             Magnesium         ppm         ASTM D5185m         450         881             Magnesium         ppm         ASTM D5185m         450         881             Calcium         ppm         ASTM D5185m         3000         1245             Phosphorus         ppm         ASTM D5185m         1150         1011             Sulfur         ppm         ASTM D5185m         1350         1363             Sulfur         ppm         ASTM D5185m         252         8             Sulfur         ppm         ASTM D5185m         >20         29             Sodium         ppm         ASTM D5185m	Cadmium						
Barium         ppm         ASTM D5185m         10         60             Molybdenum         ppm         ASTM D5185m         100         82             Manganese         ppm         ASTM D5185m         450         881             Magnesium         ppm         ASTM D5185m         450         881             Calcium         ppm         ASTM D5185m         3000         12455             Phosphorus         ppm         ASTM D5185m         1050         1011             Zinc         ppm         ASTM D5185m         1350         1363             Sulfur         ppm         ASTM D5185m         4250         3974             Sulfur         ppm         ASTM D5185m         >25         8             Soliton         ppm         ASTM D5185m         >20         29             Soliton         %         ASTM D5185m         >20         29        Fuel         %         ASTM D51	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         100         82             Manganese         ppm         ASTM D5185m         450         881             Magnesium         ppm         ASTM D5185m         450         881             Calcium         ppm         ASTM D5185m         3000         1245             Phosphorus         ppm         ASTM D5185m         1150         1011             Zinc         ppm         ASTM D5185m         1350         1363             Sulfur         ppm         ASTM D5185m         4250         3974             CONTAMINANTS         method         imit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >20         29             Sodium         ppm         ASTM D5185m         >20         29             Fuel         %         ASTM D5282         >5         0.6             Glycol         %         'ASTM	Boron	ppm	ASTM D5185m	250	32		
Manganese         ppm         ASTM D5185m         450         881             Magnesium         ppm         ASTM D5185m         3000         1245             Calcium         ppm         ASTM D5185m         3000         1245             Phosphorus         ppm         ASTM D5185m         1150         1011             Zinc         ppm         ASTM D5185m         1350         1363             Sulfur         ppm         ASTM D5185m         1350         3974             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8             Sodium         ppm         ASTM D5185m         >20         29             Fuel         %         ASTM D3284         >5         0.6             Glycol         %         *ASTM D2824         >5         0.6             Soot %         %         *ASTM D7	Barium	ppm	ASTM D5185m	10	0		
Magnesium         ppm         ASTM D5185m         450         881             Calcium         ppm         ASTM D5185m         3000         1245             Phosphorus         ppm         ASTM D5185m         1150         1011             Zinc         ppm         ASTM D5185m         1350         1363             Sulfur         ppm         ASTM D5185m         1350         1363             Sulfur         ppm         ASTM D5185m         1350         3974             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8             Sodium         ppm         ASTM D5185m         >20         29             Fuel         %         ASTM D3284         >5         0.6             Glycol         %         *ASTM D2824         >5         0.6             INFRA-RED         method         lim	Molybdenum	ppm	ASTM D5185m	100	82		
Calcium         ppm         ASTM D5185m         3000         1245             Phosphorus         ppm         ASTM D5185m         1150         1011             Zinc         ppm         ASTM D5185m         1350         1363             Sulfur         ppm         ASTM D5185m         4250         3974             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8             Sodium         ppm         ASTM D5185m         >158         32             Sodium         ppm         ASTM D5185m         >158         32             Fuel         %         ASTM D5185m         >20         29             Fuel         %         ASTM D5185m         >20         166             Glycol         %         *ASTM D2982         NEG              Soot %         %         *ASTM D7844         >3 </td <td>Manganese</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <td>0</td> <td></td> <td></td>	Manganese	ppm	ASTM D5185m		0		
Phosphorus         ppm         ASTM D5185m         1150         1011             Zinc         ppm         ASTM D5185m         1350         1363             Sulfur         ppm         ASTM D5185m         1350         1363             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8             Sodium         ppm         ASTM D5185m         >25         8             Sodium         ppm         ASTM D5185m         >20         29             Potassium         ppm         ASTM D5185m         >20         29             Fuel         %         ASTM D5185m         >20         29             Glycol         %         *ASTM D5185m         >20         D.6             Fuel         %         ASTM D5185m         >20         D.6             Sodium         %         *ASTM D7844         >3	Magnesium	ppm	ASTM D5185m	450	881		
Zinc         ppm         ASTM D5185m         1350         1363             Sulfur         ppm         ASTM D5185m         4250         3974             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8             Sodium         ppm         ASTM D5185m         >158         32             Sodium         ppm         ASTM D5185m         >20         29             Potassium         ppm         ASTM D5185m         >20         29             Fuel         %         ASTM D5185m         >20         29             Glycol         %         *ASTM D2982         >5         0.6             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >3         0.5             Nitration         Abs/.m         *ASTM D7624         >20 <td>Calcium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>3000</td> <td>1245</td> <td></td> <td></td>	Calcium	ppm	ASTM D5185m	3000	1245		
Zinc         ppm         ASTM D5185m         1350         1363             Sulfur         ppm         ASTM D5185m         4250         3974             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8             Sodium         ppm         ASTM D5185m         >158         32             Sodium         ppm         ASTM D5185m         >20         29             Fuel         %         ASTM D5185m         >20         29             Glycol         %         *ASTM D2982         >5         0.6             Glycol         %         *ASTM D2982         NEG              INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >3         0.5             Nitration         Abs/.m         *ASTM D7624         >20	Phosphorus	ppm	ASTM D5185m	1150	1011		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >25         8             Sodium         ppm         ASTM D5185m         >158         32             Potassium         ppm         ASTM D5185m         >20         29             Fuel         %         ASTM D3524         >5         0.6             Glycol         %         *ASTM D2982         NEG              INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >3         0.5             Nitration         Abs/cm         *ASTM D7624         >20         11.3             Sulfation         Abs/.1mm         *ASTM D7624         >20         11.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm		ppm	ASTM D5185m	1350	1363		
Silicon         ppm         ASTM D5185m         >25         8             Sodium         ppm         ASTM D5185m         >158         32             Potassium         ppm         ASTM D5185m         >20         29             Fuel         %         ASTM D3524         >5         0.6             Glycol         %         *ASTM D2982         NEG             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >20         11.3             Nitration         Abs/cm         *ASTM D7624         >20         11.3             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.4             FLUID DEGRAD/         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.3	Sulfur	ppm	ASTM D5185m	4250	3974		
Sodium         ppm         ASTM D5185m         >158         32             Potassium         ppm         ASTM D5185m         >20         29             Fuel         %         ASTM D5185m         >5         0.6             Glycol         %         *ASTM D2982         NEG             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7624         >3         0.5             Nitration         Abs/cm         *ASTM D7624         >20         11.3             Sulfation         Abs/.1mm         *ASTM D7624         >20         11.3             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7624         >20         11.3	CONTAMINANTS	;	method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         29             Fuel         %         ASTM D3524         >5         0.6             Glycol         %         *ASTM D2982         NEG             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.5             Nitration         Abs/cm         *ASTM D7624         >20         11.3             Sulfation         Abs/.1mm         *ASTM D7624         >20         23.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7624         >20         23.4	Silicon	ppm	ASTM D5185m	>25	8		
Fuel         %         ASTM D3524         >5         0.6             Glycol         %         *ASTM D2982         NEG             INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.5             Nitration         Abs/cm         *ASTM D7624         >20         11.3             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.3	Sodium	ppm	ASTM D5185m	>158	32		
Glycol%*ASTM D2982NEGINFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.5NitrationAbs/cm*ASTM D7624>2011.3SulfationAbs/.1mm*ASTM D7415>3023.4FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2522.3	Potassium	ppm	ASTM D5185m	>20	29		
INFRA-RED         method         limit/base         current         history1         history2           Soot %         %         *ASTM D7844         >3         0.5             Nitration         Abs/cm         *ASTM D7624         >20         11.3             Sulfation         Abs/.1mm         *ASTM D7615         >30         23.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7614         >25         22.3	Fuel		ASTM D3524	>5	0.6		
Soot %         %         *ASTM D7844         >3         0.5             Nitration         Abs/cm         *ASTM D7624         >20         11.3             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.3	Glycol	%	*ASTM D2982		NEG		
Nitration         Abs/cm         *ASTM D7624         >20         11.3             Sulfation         Abs/.1mm         *ASTM D7415         >30         23.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.3	INFRA-RED		method	limit/base	current	history1	history2
Sulfation         Abs/.1mm         *ASTM D7415         >30         23.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.3	Soot %	%	*ASTM D7844	>3	0.5		
Sulfation         Abs/.1mm         *ASTM D7415         >30         23.4             FLUID DEGRADATION         method         limit/base         current         history1         history2           Oxidation         Abs/.1mm         *ASTM D7414         >25         22.3	Nitration	Abs/cm	*ASTM D7624	>20	11.3		
Oxidation         Abs/.1mm         *ASTM D7414         >25         22.3	Sulfation	Abs/.1mm	*ASTM D7415	>30			
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Base Number (BN)         mg KOH/g         ASTM D2896         8.5         7.3	Oxidation	Abs/.1mm	*ASTM D7414	>25	22.3		
	Base Number (BN)	mg KOH/g	ASTM D2896	8.5	7.3		



# **OIL ANALYSIS REPORT**



Report Id: APPLEVWB [WUSCAR] 05925282 (Generated: 08/17/2023 14:41:12) Rev: 1

Contact/Location: KEVIN HINSON - APPLEVWB