

PROBLEM SUMMARY

Sample Rating Trend

VISCOSITY

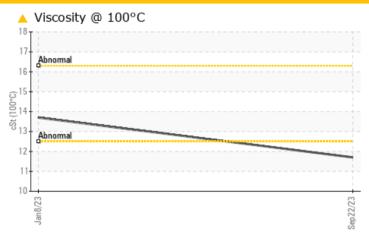


Machine Id C5501 Component

Diesel Engine

SHELL 15W40 (--- QTS)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

PROBLEMATIC T	EST RE	SULTS			
Sample Status			ATTENTION	NORMAL	
Visc @ 100°C	cSt	ASTM D445	<u></u> 11.7	13.7	

Customer Id: GUYGRE Sample No.: WC0831964 Lab Number: 05964039 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 customerservice@wearcheck.com

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

08 Jan 2023 Diag: Wes Davis

NORMAL



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. Metal levels are typical for a new component breaking in. 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.





OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id C5501 Component

Diesel Engine

SHELL 15W40 (--- QTS)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

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

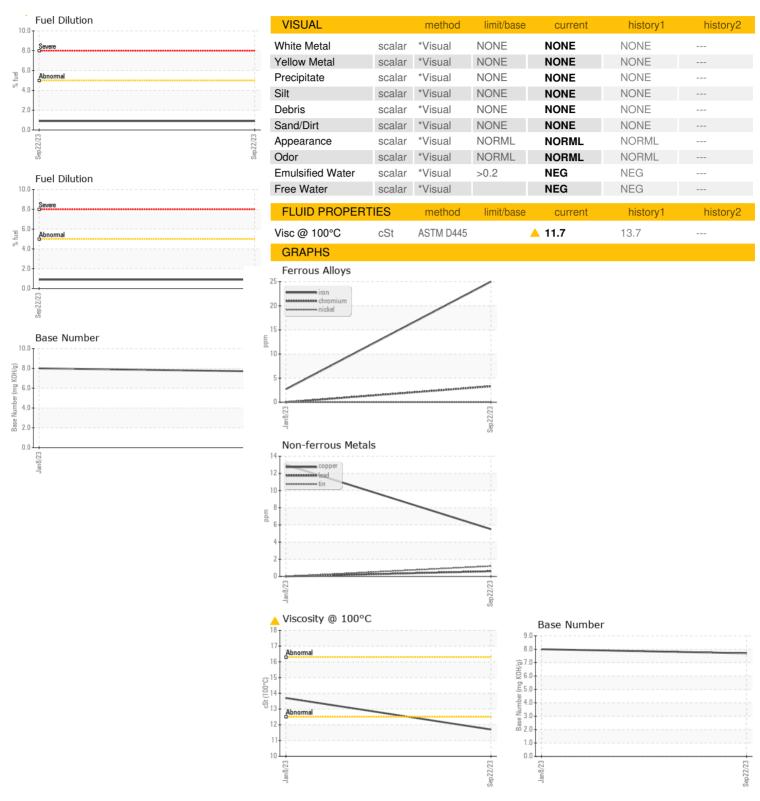
▲ Fluid Condition

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

Client Info							
Sample Number Client Info WC0831964 WC0766637 WC076637 WC0766337 WC0766337				Jan 2023	Sep.2023		
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 250	Sample Number		Client Info		WC0831964	WC0766637	
Machine Age hrs Client Info 1398 492	Sample Date		Client Info		22 Sep 2023	08 Jan 2023	
Oil Changed	•	hrs	Client Info		•	492	
Contamed Client Info N/A Changed Client Info ATTENTION NORMAL CONTAMINATION Method Ilmil/base current history1 history2 history2		hrs	Client Info		0	250	
CONTAMINATION	Oil Changed		Client Info		N/A	Changed	
WEAR METALS	Sample Status				ATTENTION	NORMAL	
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 25 3 Chromium ppm ASTM D5185m >20 3 0 Nickel ppm ASTM D5185m >20 0 0 Titanium ppm ASTM D5185m >3 0 0 Silver ppm ASTM D5185m >3 0 0 Aluminum ppm ASTM D5185m >40 <1	CONTAMINATION	V	method	limit/base	current	history1	history2
	Glycol		WC Method		NEG	NEG	
Chromium	WEAR METALS		method	limit/base	current	history1	history2
Nickel	ron	ppm	ASTM D5185m	>100	25	3	
STIM DSTM DSTM	Chromium	ppm	ASTM D5185m	>20	3	0	
Silver	Nickel		ASTM D5185m	>4	0	0	
Silver	Titanium		ASTM D5185m		<1	0	
Aluminum	Silver			>3	0	0	
Lead	Aluminum		ASTM D5185m	>20	6	0	
Copper ppm ASTM D5185m >330 6 13 Tin ppm ASTM D5185m >15 1 0 Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 44 152 Barium ppm ASTM D5185m 14 2 Molybdenum ppm ASTM D5185m 2 0 Manganese ppm ASTM D5185m 2 0 Manganesium ppm ASTM D5185m 213 109 Calcium ppm ASTM D5185m 951 958 Phosphorus ppm ASTM D5185m 951 958 Zinc ppm ASTM D5185m 3420 3209 </td <td>Lead</td> <td></td> <td>ASTM D5185m</td> <td>>40</td> <td><1</td> <td>0</td> <td></td>	Lead		ASTM D5185m	>40	<1	0	
Trin	Copper		ASTM D5185m	>330		13	
Vanadium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 44 152 Barium ppm ASTM D5185m 14 2 Molybdenum ppm ASTM D5185m 76 26 Manganese ppm ASTM D5185m 2 0 Manganesium ppm ASTM D5185m 213 109 Calcium ppm ASTM D5185m 1938 2057 Phosphorus ppm ASTM D5185m 951 958 Zinc ppm ASTM D5185m 951 1175 1114 Sulfur ppm ASTM D5185m >25 17 3 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m			ASTM D5185m	>15	1	0	
Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 44 152 Barium ppm ASTM D5185m 14 2 Molybdenum ppm ASTM D5185m 76 26 Manganese ppm ASTM D5185m 2 0 Magnesium ppm ASTM D5185m 1938 2057 Phosphorus ppm ASTM D5185m 951 958 Zinc ppm ASTM D5185m 951 958 Zinc ppm ASTM D5185m 3420 3209 Sulfur ppm ASTM D5185m >25 17 3 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20	Vanadium		ASTM D5185m		0	0	
ADDITIVES							
Boron					_		
Barium	ADDITIVEC		mathad	limit/booo	OT IRKO IST	hiotomut	hiotom/0
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Manganese ppm ASTM D5185m 2 0 Magnesium ppm ASTM D5185m 213 109 Calcium ppm ASTM D5185m 1938 2057 Phosphorus ppm ASTM D5185m 951 958 Zinc ppm ASTM D5185m 3420 3209 Sulfur ppm ASTM D5185m 3420 3209 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 17 3 Sodium ppm ASTM D5185m >25 17 3 Potassium ppm ASTM D5185m >20 7 5 Fuel % ASTM D5185m >20 7 5 Fuel % ASTM D5185m >20 7 5 Fuel %	Boron		ASTM D5185m	limit/base	44	152	
Magnesium ppm ASTM D5185m 213 109 Calcium ppm ASTM D5185m 1938 2057 Phosphorus ppm ASTM D5185m 951 958 Zinc ppm ASTM D5185m 1175 1114 Sulfur ppm ASTM D5185m 3420 3209 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 17 3 Sodium ppm ASTM D5185m >150 11 0 Potassium ppm ASTM D5185m >20 7 5 Fuel % ASTM D3524 >5 0.9 <1.0	Boron Barium		ASTM D5185m ASTM D5185m	limit/base	44 14	152 2	
Calcium ppm ASTM D5185m 1938 2057 Phosphorus ppm ASTM D5185m 951 958 Zinc ppm ASTM D5185m 1175 1114 Sulfur ppm ASTM D5185m 3420 3209 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 17 3 Sodium ppm ASTM D5185m >150 11 0 Potassium ppm ASTM D5185m >20 7 5 Fuel % ASTM D5185m >20 7 5 Fuel % ASTM D5185m >150 11 0 Fuel % ASTM D5185m >20 7 5 Fuel % ASTM D5185m >20 7 5 Fuel <td>Boron Barium Molybdenum</td> <td>ppm ppm</td> <td>ASTM D5185m ASTM D5185m ASTM D5185m</td> <td>limit/base</td> <td>44 14 76</td> <td>152 2 26</td> <td></td>	Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	44 14 76	152 2 26	
Phosphorus ppm ASTM D5185m 951 958 Zinc ppm ASTM D5185m 1175 1114 Sulfur ppm ASTM D5185m 3420 3209 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 17 3 Sodium ppm ASTM D5185m >150 11 0 Sodium ppm ASTM D5185m >20 7 5 Fuel % ASTM D5185m >20 7 5 Fuel % ASTM D3524 >5 0.9 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 6.7 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 20.2	Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	44 14 76 2	152 2 26 0	
Zinc ppm ASTM D5185m 1175 1114 Sulfur ppm ASTM D5185m 3420 3209 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 17 3 Sodium ppm ASTM D5185m >150 11 0 Potassium ppm ASTM D5185m >20 7 5 Fuel % ASTM D5185m >20 7 5 Fuel % ASTM D5185m >10.9 <1.0	Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	44 14 76 2 213	152 2 26 0 109	
Sulfur ppm ASTM D5185m 3420 3209 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 17 3 Sodium ppm ASTM D5185m >150 11 0 Potassium ppm ASTM D5185m >20 7 5 Fuel % ASTM D3524 >5 0.9 <1.0	Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	44 14 76 2 213 1938	152 2 26 0 109 2057	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 17 3 Sodium ppm ASTM D5185m >150 11 0 Potassium ppm ASTM D5185m >20 7 5 Fuel % ASTM D3524 >5 0.9 <1.0	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	44 14 76 2 213 1938 951	152 2 26 0 109 2057 958	
Silicon ppm ASTM D5185m >25 17 3 Sodium ppm ASTM D5185m >150 11 0 Potassium ppm ASTM D5185m >20 7 5 Fuel % ASTM D3524 >5 0.9 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.7 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 16.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	44 14 76 2 213 1938 951 1175	152 2 26 0 109 2057 958 1114	
Sodium	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	44 14 76 2 213 1938 951 1175	152 2 26 0 109 2057 958 1114	
Potassium ppm ASTM D5185m >20 7 5 Fuel % ASTM D3524 >5 0.9 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.7 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 16.7	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 ASTM D5185m ASTM D5185m		44 14 76 2 213 1938 951 1175 3420	152 2 26 0 109 2057 958 1114 3209	
Fuel % ASTM D3524 >5 0.9 <1.0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.7 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 16.7	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 ASTM D5185m ASTM D5185m	limit/base	44 14 76 2 213 1938 951 1175 3420 current	152 2 26 0 109 2057 958 1114 3209 history1	 history2
INFRA-RED	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25	44 14 76 2 213 1938 951 1175 3420 current	152 2 26 0 109 2057 958 1114 3209 history1	history2
Soot % % *ASTM D7844 >3 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 6.7 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 16.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >150	44 14 76 2 213 1938 951 1175 3420 current 17	152 2 26 0 109 2057 958 1114 3209 history1 3	history2
Nitration Abs/cm *ASTM D7624 > 20 6.7 6.6 Sulfation Abs/.1mm *ASTM D7415 > 30 19.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 > 25 15.9 16.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >150 >20	44 14 76 2 213 1938 951 1175 3420 current 17 11 7	152 2 26 0 109 2057 958 1114 3209 history1 3 0 5	history2
Nitration Abs/cm *ASTM D7624 >20 6.7 6.6 Sulfation Abs/.1mm *ASTM D7415 >30 19.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 16.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >150 >20 >5	44 14 76 2 213 1938 951 1175 3420 current 17 11 7 0.9	152 2 26 0 109 2057 958 1114 3209 history1 3 0 5 <1.0	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.5 20.2 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 16.7	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	limit/base >25 >150 >20 >5 limit/base	44 14 76 2 213 1938 951 1175 3420	152 2 26 0 109 2057 958 1114 3209 history1 3 0 5 <1.0	history2 history2
Oxidation	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >150 >20 >5 limit/base >3	44 14 76 2 213 1938 951 1175 3420 current 17 11 7 0.9 current 0.1	152 2 26 0 109 2057 958 1114 3209 history1 3 0 5 <1.0 history1 0.1	history2 history2
	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 D7844 *ASTM D7844	limit/base >25 >150 >20 >5 limit/base >3 >20	44 14 76 2 213 1938 951 1175 3420	152 2 26 0 109 2057 958 1114 3209 history1 3 0 5 <1.0 history1 0.1 6.6	history2 history2
	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 D7844 *ASTM D7624 *ASTM D7624	limit/base >25 >150 >20 >5 limit/base >3 >20 >3	44 14 76 2 213 1938 951 1175 3420	152 2 26 0 109 2057 958 1114 3209 history1 3 0 5 <1.0 history1 0.1 6.6 20.2	history2 history2
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm	ASTM D5185m ASTM D78185m ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7415 method	limit/base >25 >150 >20 >5 limit/base >3 >20 >30 limit/base	44 14 76 2 213 1938 951 1175 3420 current 17 11 7 0.9 current 0.1 6.7 19.5 current	152 2 26 0 109 2057 958 1114 3209 history1 3 0 5 <1.0 history1 0.1 6.6 20.2 history1	history2 history2 history2



OIL ANALYSIS REPORT







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

: WC0831964 : 05964039 : 10670590

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 28 Sep 2023

: 02 Oct 2023 Diagnosed 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)

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