

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Machine Id 800-21-6823 Component Diesel Engine

Fluid CAMPBELL 15W40 (--- QTS)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

### Fluid Condition

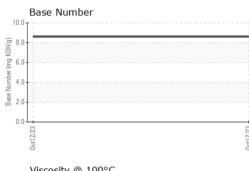
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

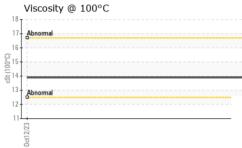
SAMPLE INFORM	<b>MATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0870317		
Sample Date		Client Info		12 Oct 2023		
Machine Age	hrs	Client Info		9932		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				NORMAL		
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Glycol		WC Method		NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	3		
Chromium	ppm	ASTM D5185m	>20	0		
Nickel	ppm	ASTM D5185m	>4	0		
Titanium	ppm	ASTM D5185m		0		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>20	4		
Lead	ppm	ASTM D5185m	>40	0		
Copper	ppm	ASTM D5185m	>330	2		
Tin	ppm	ASTM D5185m	>15	0		
Vanadium	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 348	history1	history2
	ppm ppm		limit/base			
Boron		ASTM D5185m	limit/base	348		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	348 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	348 0 120		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	348 0 120 <1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	348 0 120 <1 646		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	348 0 120 <1 646 1516	  	  
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	limit/base	348 0 120 <1 646 1516 743		
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	limit/base	348 0 120 <1 646 1516 743 872	    	
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	limit/base	348 0 120 <1 646 1516 743 872 2558		
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	limit/base	348 0 120 <1 646 1516 743 872 2558 current	     history1	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base >25	348 0 120 <1 646 1516 743 872 2558 current 6	     history1 	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base >25	348 0 120 <1 646 1516 743 872 2558 Current 6 <1	     history1 	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	348 0 120 <1 646 1516 743 872 2558 current 6 <1 4	     history1  	     history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base	348 0 120 <1 646 1516 743 872 2558 current 6 <1 4	    history1   history1	     history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	348 0 120 <1 646 1516 743 872 2558 <u>current</u> 6 <1 4 <u>current</u>	     history1   history1  history1	     history2  history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	348 0 120 <1 646 1516 743 872 2558 current 6 <1 4 current 0.1 5.1	     history1   history1  history1	     history2   history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20 >3 >20	348 0 120 <1 646 1516 743 872 2558 current 6 <1 4 current 0.1 5.1 21.5	      history1  history1  history1	    history2  history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	limit/base >25 >20 limit/base >3 >20 >30 >30	348 0 120 <1 646 1516 743 872 2558 Current 6 <1 4 Current 0.1 5.1 21.5 Current	history1 history1 history1	    history2  history2  history2  history2  history2



# **OIL ANALYSIS REPORT**

VISUAL





	10	Vhite Metal	scalar	*\/icual	NONE	NONE		
		ellow Metal		*Visual	NONE	NONE		
		recipitate	scalar	*Visual	NONE	NONE		
		ilt			NONE	NONE		
		lebris	scalar scalar	*Visual *Visual	NONE	NONE		
		and/Dirt		*Visual	NONE	NONE		
- 23		ppearance	scalar	*Visual	NORML	NORML		
0ct12/23		)dor			NORML			
0		mulsified Water	scalar scalar	*Visual *Visual	>0.2	NORML NEG		
		ree Water			>0.2	NEG		
	_			*Visual				
		FLUID PROPERT	IES	method	limit/base	current	history1	history2
	_	/isc @ 100°C	cSt	ASTM D445		13.9		
		GRAPHS						
		Ferrous Alloys						
	10	iron						
	8 -	chromium						
		in order						
	6 - Wdd							
	4							
	2							
	0	_						
		0ct12/23 -			0ct12/23			
		0ct1			0ct1			
		Non-ferrous Metal	s					
	<sup>10</sup>	copper						
	8	nananananan lead						
		ssesses tin						
	6 - ج							
	udd 4							
	2							
	04	123			/23			
		0ct12/23			0ct12/23			
		Viscosity @ 100°C						
	<sup>18</sup> T				9.0	Base Number		
	17-	Abnormal			8.0			
	16-				() (67.0- Но КНО 6.0-			
	© 15				9.0 -			
	(2-001) ts:				ຍິ 5.0- ສູດ 4.0- ພູ 3.0-			
	-				4.0-			
	13	Abnormal						
	12				1.0			
	11				0.0-			
		0ct12/23			0ct12/23	0ct12/23		
		00			0ct	00		
Laboratory		NearCheck LIGA 5	01 Madia		ny NC 27512		<b>UI</b>	EBC RENTAL
Laboratory Sample No.	: V	VearCheck USA - 5 VC0870317						
Laboratory Sample No. Lab Number	: V : V	VC0870317	01 Madis Received Diagnose	: 13 (	ry, NC 27513 Oct 2023 Oct 2023		532 THRE	E SISTERS R
Sample No. Lab Number Unique Number	: V : V : 0 r : 1	VC0870317 I 05978007 I 0695302 I	Received Diagnose Diagnosti	ed : 13 ( ician : Jon	Oct 2023		532 THRE KN	E <b>RC RENTAL</b> E SISTERS R IGHTDALE, N US 2754
Sample No. Lab Number Unique Number Test Package	: V : V : 0 : 1 : 1	VC0870317	Received Diagnose Diagnosti Tests: TE	ed : 13 ( ed : 19 ( i <b>cian</b> : Jon 3N )	Oct 2023 Oct 2023 athan Hester		532 THRE KN	E SISTERS R IGHTDALE, N US 2754 INE HANSSO

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)