

### **OIL ANALYSIS REPORT**

#### Sample Rating Trend

NORMAL

# ROSENBAUER E-5

#### Component Diesel Engine Fluid

Fluid DIESEL ENGINE OIL SAE 15W40 (26 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.

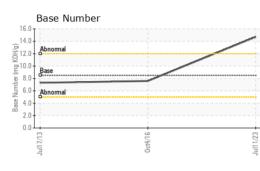
#### Fluid Condition

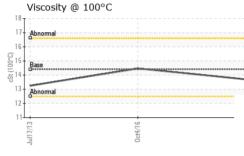
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

				Oct2016 Jul20		
SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		RW0004291	RWM2286640	WCM2226187
Sample Date		Client Info		11 Jul 2023	04 Oct 2016	17 Jul 2013
Machine Age	hrs	Client Info		2126	457	3146
Oil Age	hrs	Client Info		164	457	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>165	14	73	<b>1</b> 83
Chromium	ppm	ASTM D5185m	>5	<1	2	7
Nickel	ppm	ASTM D5185m	>4	0	1	<1
Titanium	ppm	ASTM D5185m	>2	0	7	<1
Silver	ppm	ASTM D5185m	>2	<1	<1	<1
Aluminum	ppm	ASTM D5185m	>20	2	12	<u>∧</u> 79
Lead	ppm	ASTM D5185m	>150	1	1	39
Copper	ppm	ASTM D5185m	>90	26	80	52
Tin	ppm	ASTM D5185m	>5	<1	1	<1
Antimony	ppm	ASTM D5185m			0	0
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
				-	÷	
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES					history1	
ADDITIVES Boron	ppm	ASTM D5185m	250	current 7 0		history2 2 0
ADDITIVES Boron Barium	ppm ppm			7	history1 22	2
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10	7 0	history1 22 7	2 0
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	7 0 63	history1 22 7 43	2 0 148
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	7 0 63 <1	history1 22 7 43 5	2 0 148 5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	7 0 63 <1 969	history1 22 7 43 5 674	2 0 148 5 704
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	7 0 63 <1 969 1136	history1 22 7 43 5 674 1312	2 0 148 5 704 1224
ADDITIVES 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	250 10 100 450 3000 1150	7 0 63 <1 969 1136 1045	history1 22 7 43 5 674 1312 811	2 0 148 5 704 1224 838
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	7 0 63 <1 969 1136 1045 1246	history1 22 7 43 5 674 1312 811 984	2 0 148 5 704 1224 838 1149
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	7 0 63 <1 969 1136 1045 1246 3691	history1 22 7 43 5 674 1312 811 984 2422	2 0 148 5 704 1224 838 1149 1832
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm 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	250 10 100 450 3000 1150 1350 4250	7 0 63 <1 969 1136 1045 1246 3691 current	history1 22 7 43 5 674 1312 811 984 2422 history1	2 0 148 5 704 1224 838 1149 1832 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm 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>	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >35	7 0 63 <1 969 1136 1045 1246 3691 current 4	history1         22         7         43         5         674         1312         811         984         2422         history1         37	2 0 148 5 704 1224 838 1149 1832 history2 10
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm 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	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >35 >158	7 0 63 <1 969 1136 1045 1246 3691 <u>current</u> 4 2	history1         22         7         43         5         674         1312         811         984         2422         history1         37         10	2 0 148 5 704 1224 838 1149 1832 history2 10 ▲ 768
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >35 >158 >20	7 0 63 <1 969 1136 1045 1246 3691 current 4 2 1	history1         22         7         43         5         674         1312         811         984         2422         history1         37         10         0	2 0 148 5 704 1224 838 1149 1832 history2 10 ▲ 768 ▲ 31
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >35 >158 >20 <b>Imit/base</b>	7 0 63 <1 969 1136 1045 1246 3691 current 4 2 1 1	history1         22         7         43         5         674         1312         811         984         2422         history1         37         10         0         history1	2 0 148 5 704 1224 838 1149 1832 history2 10 ▲ 768 ▲ 31 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >35 >158 >20 <b>limit/base</b> >7.5	7 0 63 <1 969 1136 1045 1246 3691 <i>current</i> 4 2 1 <i>current</i> 0.4	history1         22         7         43         5         674         1312         811         984         2422         history1         37         10         0         history1         1	2 0 148 5 704 1224 838 1149 1832 history2 10 ▲ 768 31 history2 0.6
ADDITIVES 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	250 10 100 450 3000 1150 1350 4250 <b>i</b> mit/base >35 >158 >20 <b>i</b> mit/base >7.5 >20	7 0 63 <1 969 1136 1045 1246 3691 <i>current</i> 4 2 1 <i>current</i> 0.4 7.8	history1         22         7         43         5         674         1312         811         984         2422         history1         37         10         0         history1         1         12.	2 0 148 5 704 1224 838 1149 1832 history2 10 ▲ 768 31 history2 0.6 12.
ADDITIVES 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	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >35 >158 >20 <b>imit/base</b> >7.5 >20	7 0 63 <1 969 1136 1045 1246 3691 <i>current</i> 4 2 1 <i>current</i> 0.4 7.8 19.6 <i>current</i>	history1         22         7         43         5         674         1312         811         984         2422         history1         37         10         0         history1         1         12.         25.         history1	2 0 148 5 704 1224 838 1149 1832 history2 10 ▲ 768 31 history2 0.6 12. 23.
ADDITIVES 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 D7624 *ASTM D7415	250 10 100 450 3000 1150 1350 4250 <b>Iimit/base</b> >35 >158 >20 <b>Iimit/base</b> >7.5 >20 >30	7 0 63 <1 969 1136 1045 1246 3691 <u>current</u> 4 2 1 <u>current</u> 0.4 7.8 19.6	history1         22         7         43         5         674         1312         811         984         2422         history1         37         10         0         history1         1         12.         25.	2 0 148 5 704 1224 838 1149 1832 history2 10 ▲ 768 31 history2 0.6 12. 23.



## **OIL ANALYSIS REPORT**





scalar		limit/base	current	history1	history2
	*Visual	NONE	NONE	NONE	NONE
scalar	*Visual	NONE	NONE	NONE	NONE
scalar	*Visual	NONE	NONE	NONE	NONE
scalar	*Visual	NONE	NONE	NONE	NONE
scalar	*Visual	NONE	NONE	NONE	NONE
scalar	*Visual	NONE	NONE	NONE	NONE
scalar	*Visual	NORML	NORML	NORML	NORML
scalar	*Visual	NORML	NORML	NORML	NORML
scalar	*Visual	>0.2	NEG	NEG	NEG
scalar	*Visual		NEG	NEG	NEG
ES	method	limit/base	current	history1	history2
cSt	ASTM D445	14.4	13.7	14.47	13.25
			Lead (ppm)		
			Severe		
		200			
		톱 150·	Abnormal	1	
		100.			
4/16 -		1/23	7/13	4/16 -	2 2 7
Oct		Jull	Jult	0 cth	
			Chromium (pp	om)	
		12	[]		
			· · · · · · · · · · · · · · · · · · ·		
			Abnormal		
		4.			
		2			
-116			/13	+ 91/	5
0ct4		Jull 1	Jull7	0ct4	
			Silicon (ppm)		
		80-	Severe		
		60·	- Ocvere		
		틆 40	Abnormal		
		20.			
4/16 -			7/13	4/16 -	ŝ
Oct		Jult	Jult	Oct	
		15.0	Base Number		
		(B/HC	Abnormal	1	
		¥10.0	Base		
		nber	Abnormal		
		5.0·	- <b>Q</b>		
0ct4/16		Jul11/23	Jul17/13.	0ct4/16 .	60 E E E E
	scalar scalar scalar scalar scalar ES	scalar *Visual scalar *Visual scalar *Visual scalar *Visual scalar *Visual ES method cSt ASTM D445	scalar *Visual NONE scalar *Visual NORML scalar *Visual NORML scalar *Visual >0.2 scalar *Visual >0.2 scalar *Visual ES method limit/base cSt ASTM D445 14.4	scalar *Visual NONE NORML scalar *Visual NORML NORML scalar *Visual >0.2 NEG scalar *Visual >0.2 NEG test ASTM D445 14.4 13.7 Lead (ppm)	scalar *Visual NONE NONE NONE NONE scalar *Visual NORML NORML NORML NORML scalar *Visual >0.2 NEG NEG scalar *Visual >0.2 NEG NEG ES method limit/base current history1 cSt ASTM D445 14.4 13.7 14.47 Lead (ppm) Chromium (ppm) Chromium (ppm) Silicon (ppm) Base Number 150 

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)

Certificate L2367

Laboratory

Sample No. Lab Number Unique Number Test Package

Contact/Location: JERRY BROCK - CITFARMI

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