

# **OIL ANALYSIS REPORT**



### Machine Id **1017** Component **Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 15W40 (--- GAL)**

#### 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.

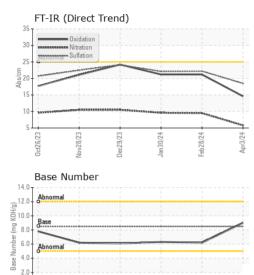
# Fluid Condition

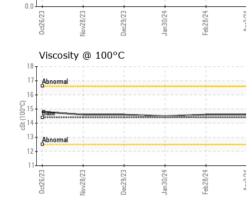
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0897860	WC0893979	WC0894031
Sample Date		Client Info		03 Apr 2024	28 Feb 2024	30 Jan 2024
Machine Age	mls	Client Info		811818	0	0
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	٧	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method	20.2	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
					· · · · ·	
Iron	ppm		>100	5	12	11
Chromium	ppm		>20	<1	<1	1
Nickel	ppm		>4	0	0	<1
Titanium Silver	ppm	ASTM D5185m ASTM D5185m	. 0	0	0	<1 0
	ppm			0	0	0
Aluminum	ppm	ASTM D5185m		<1	<1	
Lead	ppm		>40	0	0	<1
Copper	ppm	ASTM D5185m		<1	3	
Tin	ppm		>15	0	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	<1	0	1
Boron Barium	ppm ppm		250 10		0	1 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250	<1 0 56	0 0 61	1 0 58
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	250 10	<1 0	0	1 0 58 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	<1 0 56 0 923	0 0 61 0 1001	1 0 58 <1 934
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	<1 0 56 0 923 1030	0 0 61 0 1001 1057	1 0 58 <1 934 1052
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	<1 0 56 0 923 1030 994	0 0 61 0 1001 1057 1077	1 0 58 <1 934 1052 1109
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	<1 0 56 0 923 1030 994 1163	0 0 61 0 1001 1057 1077 1297	1 0 58 <1 934 1052 1109 1219
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	250 10 100 450 3000 1150	<1 0 56 0 923 1030 994	0 0 61 0 1001 1057 1077	1 0 58 <1 934 1052 1109
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	250 10 100 450 3000 1150 1350	<1 0 56 0 923 1030 994 1163	0 0 61 0 1001 1057 1077 1297	1 0 58 <1 934 1052 1109 1219
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	250 10 100 450 3000 1150 1350 4250	<1 0 56 0 923 1030 994 1163 3376	0 0 61 0 1001 1057 1077 1297 2800	1 0 58 <1 934 1052 1109 1219 3192 history2 5
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	250 10 100 450 3000 1150 1350 4250	<1 0 56 0 923 1030 994 1163 3376 current	0 0 61 00 1001 1057 1077 1297 2800 history1 4 1	1 0 58 <1 934 1052 1109 1219 3192 history2 5 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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 <b>limit/base</b>	<1 0 56 0 923 1030 994 1163 3376 current 22	0 0 61 00 1001 1057 1077 1297 2800 history1	1 0 58 <1 934 1052 1109 1219 3192 history2 5
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158	<1 0 56 0 923 1030 994 1163 3376 <u>current</u> 22 1	0 0 61 00 1001 1057 1077 1297 2800 history1 4 1	1 0 58 <1 934 1052 1109 1219 3192 history2 5 2
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	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20	<1 0 56 0 923 1030 994 1163 3376 current 22 1 0	0 0 61 00 1001 1057 1077 1297 2800 history1 4 1 2	1 0 58 <1 934 1052 1109 1219 3192 history2 5 2 2 2
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	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >158 >20 <b>Imit/base</b>	<1 0 56 0 923 1030 994 1163 3376 <u>current</u> 22 1 0 0	0 0 61 00 1001 1057 1077 1297 2800 history1 4 1 <1 <1 kistory1	1 0 58 <1 934 1052 1109 1219 3192 history2 5 2 2 2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 <b>limit/base</b> >3	<1 0 56 0 923 1030 994 1163 3376 <u>current</u> 22 1 0 <u>current</u>	0 0 61 00 1001 1057 1077 1297 2800 history1 4 1 <1 <1 .5	1 0 58 <1 934 1052 1109 1219 3192 history2 5 2 2 2 history2 0.6
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 >25 >158 >20 <b>i</b> mit/base >3 >20	<1 0 56 0 923 1030 994 1163 3376 <u>current</u> 22 1 0 <u>current</u> 0.2 5.8	0 0 61 00 1001 1057 1077 1297 2800 history1 4 1 <1 <1 history1 0.5 9.5	1 0 58 <1 934 1052 1109 1219 3192 history2 5 2 2 2 history2 0.6 9.6
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> >25 >158 >20 <b>imit/base</b> >3 >20	<1 0 56 0 923 1030 994 1163 3376 <u>current</u> 22 1 0 <u>current</u> 0.2 5.8 18.5	0 0 61 00 1001 1057 1077 1297 2800 history1 4 1 <1 <1 history1 0.5 9.5 22.2	1 0 58 <1 934 1052 1109 1219 3192 history2 5 2 2 2 history2 0.6 9.6 22.1
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	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >158 >20 <b>imit/base</b> >3 >20 >30	<1 0 56 0 923 1030 994 1163 3376 22 1 0 22 1 0 0 0.2 5.8 18.5 Current	0 0 61 00 1001 1057 1077 1297 2800 history1 4 1 <1 ×1 history1 0.5 9.5 22.2 history1	1 0 58 <1 934 1052 1109 1219 3192 history2 5 2 2 2 history2 0.6 9.6 22.1 history2



# **OIL ANALYSIS REPORT**





V								
	SUAL		method			history1	l histor	
Wh	ite Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
Yel	ow Metal	scalar	*Visual	NONE	NONE	NONE	NONE	
	cipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
Silt	cipitate	scalar	*Visual	NONE	NONE	NONE	NONE	
	ui a			NONE				
Del		scalar	*Visual		NONE	NONE	NONE	
	nd/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE	
	bearance	scalar	*Visual	NORML	NORML	NORML	NORM	
Od		scalar	*Visual	NORML	NORML	NORML	NORM	L
	ulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
Fre	e Water	scalar	*Visual		NEG	NEG	NEG	
	UID PROPER	TIES	method	limit/base	current	history1		y2
	c@100°C	cSt	ASTM D445	14.4	14.6	14.6	14.5	
G	RAPHS							
	on (ppm)				Lead (ppm)			
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			ů.	-	_		р	
Б0 т	uminum (ppm)			, - 5	Chromium (p	pm)		
1	vere			4	Severa			
	onormal			ш <sup>3</sup>	Abnormal			
10-				1				
10	/23-	(23 -	/24		153 153 153	1/23	124	
0ct26/23	Nov28/23	uecz 3/23 Jan 30/24	Feb28/24	Apr3/24	0ct26/23 Nov28/23	Dec29/23	Jan 3 U/ 24 Feb 2 8/ 24	
	opper (ppm)				Silicon (ppm)	_		
400	,			8				
300	evere mommal			6	0	1		
툡 200 -				ud 4	Abnormal	1		
100				2	0-			/
0					0			
0ct26/23	Nov28/23	Jan30/24	Feb 28/24	Apr3/24	0ct26/23 Nov28/23	Dec29/23	Jan 3 U/ 24 Feb 2 8/ 24	
0ct2	Nov2	Jan3	Feb2	Ap	Octí Nov2	Deci	Feb2	
V	scosity @ 100°	C			Base Number			
18 -		1			0			
16 -	onormal			(b)HOX 0 Jumper 8ase 10.	Abnormal	1		
00.0				B <sup>10.</sup>	Base	1		
E14-	onormal		1	nuper 5.	Abnormal			
12-				N as				
10				0.	0			
	Nov28/23	Jan30/24	Feb28/24	Apr3/24	0ct26/23 Nov28/23	Dec29/23	Jan 3 U/ 24 Feb 2 8/ 24	
0ct26/23			12	9	N, ct	12	eb 2	

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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Certificate 12367

Contact/Location: Robert Iosiniecki - GODDUR

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