

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **2110** 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.

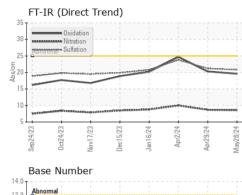
Fluid Condition

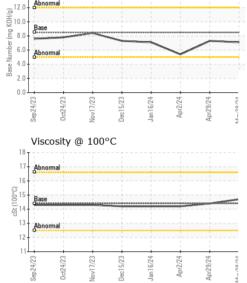
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0897857	WC0897842	WC0897867
Sample Date		Client Info		28 May 2024	29 Apr 2024	02 Apr 2024
Machine Age	mls	Client Info		0	0	170459
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	N	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		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	5	7	8
Chromium	ppm	ASTM D5185m	>20	0	<1	0
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m	~	0	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	2	1
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	0	1	2
Tin	ppm	ASTM D5185m	>15	۰ <1	<1	0
Vanadium	ppm	ASTM D5185m	210	0	<1	<1
Cadmium	ppm	ASTM D5185m		0	<1	0
	1-1-			-		
ADDITIVES		method			history1	history2
ADDITIVES	nnm	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	1	0	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	1 0	0	0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250	1 0 62	0 2 62	0 0 57
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	1 0 62 <1	0 2 62 <1	0 0 57 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	1 0 62 <1 1044	0 2 62 <1 929	0 0 57 0 925
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	1 0 62 <1 1044 1130	0 2 62 <1 929 1118	0 0 57 0 925 1037
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 62 <1 1044 1130 1072	0 2 62 <1 929 1118 1115	0 0 57 0 925 1037 946
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	1 0 62 <1 1044 1130 1072 1391	0 2 62 <1 929 1118 1115 1252	0 0 57 0 925 1037 946 1161
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 62 <1 1044 1130 1072 1391 3728	0 2 62 <1 929 1118 1115 1252 3323	0 0 57 0 925 1037 946 1161 3298
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 62 <1 1044 1130 1072 1391 3728 current	0 2 62 <1 929 1118 1115 1252 3323 history1	0 0 57 0 925 1037 946 1161 3298 history2
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 method	250 10 100 450 3000 1150 1350 4250 limit/base >25	1 0 62 <1 1044 1130 1072 1391 3728 current 7	0 2 62 <1 929 1118 1115 1252 3323 history1 10	0 0 57 0 925 1037 946 1161 3298 history2 4
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	1 0 62 <1 1044 1130 1072 1391 3728 current 7 2	0 2 62 <1 929 1118 1115 1252 3323 history1 10 0	0 0 57 0 925 1037 946 1161 3298 history2 4 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	1 0 62 <1 1044 1130 1072 1391 3728 current 7 2 4	0 2 62 <1 929 1118 1115 1252 3323 history1 10 0 3	0 0 57 0 925 1037 946 1161 3298 history2 4 3 <1
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 Imit/base >25 >158 >20 Imit/base	1 0 62 <1 1044 1130 1072 1391 3728 current 7 2 4 4	0 2 62 <1 929 1118 1115 1252 3323 history1 10 0 3 }	0 0 57 0 925 1037 946 1161 3298 history2 4 3 <1 }
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	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 Iimit/base >3	1 0 62 <1 1044 1130 1072 1391 3728 current 7 2 4 4 current 0.2	0 2 62 <1 929 1118 1115 1252 3323 history1 10 0 3 <u>history1</u> 0.2	0 0 57 0 925 1037 946 1161 3298 history2 4 3 <1 \$ history2 0.3
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 i mit/base >25 >158 >20 i mit/base >3 >20	1 0 62 <1 1044 1130 1072 1391 3728 <i>current</i> 7 2 4 <i>current</i> 0.2 8.6	0 2 62 <1 929 1118 1115 1252 3323 history1 10 0 3 history1 0.2 8.7	0 0 57 0 925 1037 946 1161 3298 history2 4 3 <1 4 3 <1 history2 0.3 10.0
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 imit/base >25 >158 >20 imit/base >3 >20	1 0 62 <1 1044 1130 1072 1391 3728 current 7 2 4 4 current 0.2	0 2 62 <1 929 1118 1115 1252 3323 history1 10 0 3 <u>history1</u> 0.2	0 0 57 0 925 1037 946 1161 3298 history2 4 3 <1 \$ history2 0.3
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 i mit/base >25 >158 >20 i mit/base >3 >20	1 0 62 <1 1044 1130 1072 1391 3728 <i>current</i> 7 2 2 4 <i>current</i> 0.2 8.6 20.8 <i>current</i>	0 2 62 <1 929 1118 1115 1252 3323 history1 10 0 3 history1 0.2 8.7	0 0 57 0 925 1037 946 1161 3298 history2 4 3 <1 4 3 <1 history2 0.3 10.0 23.8 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	250 10 100 450 3000 1150 1350 4250 imit/base >25 >158 >20 imit/base >3 >20	1 0 62 <1 1044 1130 1072 1391 3728 <u>current</u> 7 2 4 <u>current</u> 0.2 8.6 20.8	0 2 62 <1 929 1118 1115 1252 3323 history1 10 0 3 history1 0.2 8.7 21.2	0 0 57 0 925 1037 946 1161 3298 history2 4 3 <1 kistory2 0.3 10.0 23.8



OIL ANALYSIS REPORT





	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
States of Party of Street, or other states of the state o	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
3/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Apr29/24 May28/24	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
~	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual	20.L	NEG	NEG	NEG
	FLUID PROPER	ΓIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	14.4	14.7	14.4	14.2
	GRAPHS						
	Iron (ppm)				Lead (ppm)		
50	250 200 - Severe		1 1	10	Seuera	I I I I	1 1
Apr29/24	150	J					
4	Abnormal			E 4	Abnormal		
	50 -			2			
1	4/23	5/23	Apr2/24		4/23	5/23	Apr2/24
	Sep24/23 0ct24/23 Nov17/23	Dec15/23 Jan16/24	Apr2/24 Apr29/24	May28/24	Sep24/23 0ct24/23 Nov17/23	Dec15/23	Apr29/24 Apr29/24
	Aluminum (ppm)				Chromium (pj	om)	
	50 Severe			50	Seuera		
	40 T L	I I	1 1	41		1 1	
	and a second sec			und 30	Abnormal		
Apr29/24	20 - Abnormal			2			
A.	10			10			
		23 -	24 -		53 53	23	24
	Sep24/23 0ct24/23 Nov17/23	Dec15/23	Apr2/24 Apr29/24	May28/24	Sep24/23 0ct24/23 Nov17/23	Dec15/23 Jan16/24	Apr2/24 Apr29/24
	Copper (ppm)		4	2	Silicon (ppm)		4 7
	400 Severe			80			
	300 -			60)		
	특 200 -			톱 41			
					Abnormal		
	100-			2] •		
		c +	4 4	4		4	4 4
	Sep24/23 0ct24/23 Nov17/23	Dec15/23 Jan16/24	Apr2/24 Apr29/24	May28/24	Sep24/23 0ct24/23 Nov17/23	Dec15/23 Jan16/24	Apr2/24 Apr29/24
			A	Ma		De	AI AI
	Viscosity @ 100°C				Base Number		
	Abnormal 16			(0)HOX Base Number (mg KOH(0)	Abnormal		
	Google Base			E 10.0	Base		
	ਦੇ 14 - ਨੁੱ <mark>Abnormal</mark>				Abnormal		
	12-			N S.I			
	10			0.0)		
	Sep24/23 0ct24/23 Nov17/23	Dec15/23 Jan16/24	Apr2/24	May28/24	Sep24/23 0ct24/23 Nov17/23	Dec15/23 Jan16/24	Apr2/24 Apr29/24
	Sep.	Jan	Ap Aprź	May	Sep. Octi	Jan 1	Apr



Unique Number : 11075792 Diagnosed : 14 Jun 2024 - Wes Davis Test Package : MOB 1 (Additional Tests: TBN) Certificate 12367 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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Contact/Location: Robert Iosiniecki - GODDUR

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T:

F:

Contact: Robert losiniecki

Robert.losiniecki@ratpdev.com