

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **1005** 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				history2
Sample Number		Client Info		WC0894026	WC0894038	WC0868178
Sample Date		Client Info		13 Mar 2024	02 Feb 2024	13 Dec 2023
Machine Age	mls	Client Info		0	0	0
Oil Age	mls	Client Info	0		0 0	
Oil Changed		Client Info	N/A		N/A	Changed
Sample Status			NORMAL		NORMAL	ATTENTION
CONTAMINATION	J	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	nom	ASTM D5185m	>100	16	16	14
Chromium	ppm	ASTM D5185m	>100	10	-1	-1
Nickol	ppm	ASTM D5185m	>20	0	0	0
Titonium	ppm	ASTM DE105m	>4	-1	0	-1
Silvor	ppm	ASTM D5185m	<u>_3</u>	0	0	0
Aluminum	ppm	ASTM D5105III	>20	3	2	3
Lood	ppm	ASTM D5185m	>20	J _1	0	0
Coppor	ppm	ASTM D5185m	>40	2	-1	0
Tin	ppill	ASTM D5105III	>330	2	< 1	0
Vanadium	ppm	ASTM D5185m	>15	<1	-1	0
Cadmium	ppm	ASTM D5185m		0	0	0
Caumum	ppin	ACTIVI DOTODITI		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 0	history1 1	history2 1
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 250 10	current 0 2	history1 1 0	history2 1 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 0 2 62	history1 1 0 59	history2 1 0 48
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 0 2 62 0	history1 1 0 59 0	history2 1 0 48 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450	current 0 2 62 0 966	history1 1 0 59 0 1026	history2 1 0 48 <1 747
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000	current 0 2 62 0 966 1158	history1 1 0 59 0 1026 1141	history2 1 0 48 <1 747 818
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150	Current 0 2 62 0 966 1158 1097	history1 1 0 59 0 1026 1141 1079	history2 1 0 48 <1 747 818 755
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350	Current 0 2 62 0 966 1158 1097 1273	history1 1 0 59 0 1026 1141 1079 1306	history2 1 0 48 <1 747 818 755 930
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250	Current 0 2 62 0 966 1158 1097 1273 3333	history1 1 0 59 0 1026 1141 1079 1306 2976	history2 1 0 48 <1 747 818 755 930 2204
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 450 3000 1150 1350 4250	Current 0 2 62 0 966 1158 1097 1273 3333 Current	history1	history2 1 0 48 <1 747 818 755 930 2204 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 4 ppm 4 ppm 4 ppm 4 ppm 4 ppm 4	method ASTM D5185m	imit/base 250 10 100 450 3000 1150 1350 4250 imit/base >25	current 0 2 62 0 966 1158 1097 1273 3333 current 6	history1 1 0 59 0 1026 1141 1079 1306 2976 history1 6	history2 1 0 48 <1 747 818 755 930 2204 history2 6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 4 ppm 4 ppm 4 ppm 4 ppm 4	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	current 0 2 62 0 966 1158 1097 1273 3333 current 6 0	history1 1 0 59 0 1026 1141 1079 1306 2976 history1 6 1	history2 1 0 48 <1 747 818 755 930 2204 history2 6 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 25 >25 >158 >20	current 0 2 62 0 966 1158 1097 1273 3333 current 6 0 3	history1 1 0 59 0 1026 1141 1079 1306 2976 history1 6 1 -1	history2 1 0 48 <1 747 818 755 930 2204 history2 6 <1 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 40 450 3000 1150 1350 4250 25 >25 >158 >20 limit/base	current 0 2 62 0 966 1158 1097 1273 3333 current 6 0 3 current	history1 1 0 59 0 1026 1141 1079 1306 2976 history1 6 1 <1 history1	history2 1 0 48 <1 747 818 755 930 2204 history2 6 <1 2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm 1 ppm 2 ppm 2 ppm 4 ppm 4	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 20 225 >158 >20 limit/base >20	current 0 2 62 0 966 1158 1097 1273 3333 current 6 0 3 current 0.7	history1 1 0 59 0 1026 1141 1079 1306 2976 history1 6 1 <1 history1 0.7	history2 1 0 48 <1 747 818 755 930 2204 history2 6 <1 2 history2 1.1
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	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 20 imit/base >25 >158 >20 imit/base >3 >20	current 0 2 62 0 966 1158 1097 1273 3333 current 6 0 3 current 0 3.3	history1 1 0 59 0 1026 1141 1079 1306 2976 history1 6 1 <1 history1 0.7 9.6	history2 1 0 48 <1 747 818 755 930 2204 history2 6 <1 2 history2 1.1 9.6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3 >20 >30	current 0 2 62 0 966 1158 1097 1273 3333 current 6 0 3 current 0.7 9.5 20.8	history1 1 0 59 0 1026 1141 1079 1306 2976 history1 6 1 0.7 9.6 20.4	history2 1 0 48 <1 747 818 755 930 2204 history2 6 <1 2 history2 1.1 9.6 20.1
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	method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 method	limit/base 250 10 10 450 3000 1150 1350 4250 25 >158 >20 >30 limit/base >30 limit/base	current 0 2 62 0 966 1158 1097 1273 3333 current 6 0 3 current 0.7 9.5 20.8	history1 1 0 59 0 1026 1141 1079 1306 2976 history1 6 1 history1 0.7 9.6 20.4	history2 1 0 48 <1 747 818 755 930 2204 history2 6 <1 2 history2 1.1 9.6 20.1 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415 method *ASTM D7414	imit/base 250 10 10 450 3000 1150 1350 4250 255 >158 >20 imit/base >30 >30 imit/base >25	current 0 2 62 0 966 1158 1097 1273 3333 current 6 0 3 current 0.7 9.5 20.8 current 18.4	history1 1 0 59 0 1026 1141 1079 1306 2976 history1 6 1 - 0.7 9.6 20.4 history1 18.2	history2 1 0 48 <1 747 818 755 930 2204 history2 6 <1 2 history2 1.1 9.6 20.1 history2 17.2



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				
		Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE				
13/23	13/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML				
Deci	Fet	Odor	scalar	*Visual	NORML	NORML	NORML	NORML				
C		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG				
		Free Water	scalar	*Visual		NEG	NEG	NEG				
		FLUID PROPERT	IES	method	limit/base	current	history1	history2				
		Visc @ 100°C	cSt	ASTM D445	14.4	14.8	14.3	14.6				
		GRAPHS										
		Iron (ppm)			10	Lead (ppm)						
en	+ +	250 Severe			· · · · · · · · · · · · · · · · · · ·	Severe						
sc13/2	-eb 2/2	150			6		1					
ă		Abnormal			E d 4	Abnormal	1					
		50 -				0 -						
		0				0						
		21/23 v1/23	:13/23	b2/24	13/24	21/23 v1/23	:13/23	b2/24				
		Sep	Dec	E	Mai	Sep Sep	Dec	Fe				
		Aluminum (ppm)			51	Chromium ((ppm)					
		40 - Severe			41	0 - Severe						
		g 30 -			E ³⁰	0						
		a 20 - Abnormal			² 2	0 - Abnormal						
		10-			10	0-						
		0	23-	24-	24	3 23	23 -	24				
		Sep 21/ Nov1/	Jec13/	Feb2/	/lar13/	Sep21/	Jec13/	Feb 2/				
		Copper (ppm)			~	Silicon (ppm) 	2				
		400 Severe				⁰ Severe	.,					
		300			60	0						
		Ē 200			E.4	0						
		100			21	Abnormal	1					
		100	\sim		2							
		123	1/23	124	1/24	23+ 23	/23 -	/24 +				
		Sep 21 Nov1	Dec13	Feb2	Mar13	Sep21	Dec13	Feb2 Mar13				
		Viscosity @ 100°C			15.0	Base Numb	er					
		Abnormal			(B/HO	Abnormal	1					
		Base			E 10.0	Base						
		은 14 경 Abnormal	1	1	uper 5	Abnormal						
		12-			ase N							
			33	4			33	***				
		Sep21/7 Nov1/7	Jec13/2	Feb 2//	/lar13//	3ep21/2)ec13//	Feb2// Aar13//				
	Laboratory Sample No. Lab Number Unique Number Test Package	: WearCheck USA - 50 : WC0894026 : 06124585 : 10938736 : MOB 1 (Additional Te	1 Madisc Rece Teste Diagr ests: TBN	on Ave., Cary ived : 21 ed : 21 nosed : 21	Cary, NC 27513 : 21 Mar 2024 : 21 Mar 2024 : 21 Mar 2024 - Wes Davis		GO DURHAM - RAPT 1903 FAYETTEVILLE ST DURHAM, NC US 27701 Contact: Robert Iosiniecki					
To discuss this * - Denotes tes Statements of	Centrificate L2367 Lest Package INIOBI (Additional Lests: LBN) Contact: Robert Iosiniecki Fo discuss this sample report, contact Customer Service at 1-800-237-1369. Robert.Iosiniecki@ratpdev.com Fo Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:											



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Contact/Location: Robert Iosiniecki - GODDUR