

OIL ANALYSIS REPORT



Machine Id **0740** Component **Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 15W40 (--- GAL)**

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

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	1ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0921950		
Sample Date		Client Info		22 Apr 2024		
Machine Age	hrs	Client Info		6079		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				NORMAL		
CONTAMINATION	١	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	47		
Chromium	ppm	ASTM D5185m	>20	2		
Nickel	ppm	ASTM D5185m	>4	0		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>20	8		
Lead	ppm	ASTM D5185m	>40	10		
Copper	ppm	ASTM D5185m	>330	29		
Tin	ppm	ASTM D5185m	>15	1		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 35	history1	history2
	ppm ppm					-
Boron		ASTM D5185m	250	35		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	35 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	35 0 87		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	35 0 87 <1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	35 0 87 <1 136		
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	35 0 87 <1 136 2629	 	
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	35 0 87 <1 136 2629 1183		
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	35 0 87 <1 136 2629 1183 1476	 	
Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINANTS Silicon	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 limit/base >25	35 0 87 <1 136 2629 1183 1476 4539 current 12		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	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 limit/base >25 >158	35 0 87 <1 136 2629 1183 1476 4539 <u>current</u> 12 3	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINANTS Silicon	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 limit/base >25	35 0 87 <1 136 2629 1183 1476 4539 current 12	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	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 limit/base >25 >158	35 0 87 <1 136 2629 1183 1476 4539 <u>current</u> 12 3	 history1	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	35 0 87 <1 136 2629 1183 1476 4539 current 12 3 2	 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 ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >158 >20 Imit/base	35 0 87 <1 136 2629 1183 1476 4539 current 12 3 2 2	 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	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3	35 0 87 <1 136 2629 1183 1476 4539 <u>current</u> 12 3 2 2 <u>current</u> 1.5	 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	250 10 100 450 3000 1150 1350 4250 i mit/base >25 >158 >20 i mit/base >3 >20	35 0 87 <1 136 2629 1183 1476 4539 current 12 3 2 2 current 12 3 2 1.5 1.5 13.1	 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 D5185m	250 10 100 450 3000 1150 1350 4250 imit/base >25 >158 >20 imit/base >3 >20	35 0 87 <1 136 2629 1183 1476 4539 <u>current</u> 12 3 2 <u>current</u> 1.5 1.5 13.1 27.2	 history1 history1 history1	 history2 history2 history2



OIL ANALYSIS REPORT

FT-IR (Direct Trend)	VISUAL		method	limit/base	current	history1	history2
35 - Oxidation	White Metal	scalar	*Visual	NONE	NONE		
30 - Sulfation	Yellow Metal	scalar	*Visual	NONE	NONE		
g 25 - Abnormal	Precipitate	scalar	*Visual	NONE	NONE		
20	Silt	scalar	*Visual	NONE	NONE		
15 -	Debris	scalar	*Visual	NONE	NONE		
10	Sand/Dirt	scalar	*Visual	NONE	NONE		
5 Apr22/24	Appearance	scalar	*Visual	NORML	NORML		
Aprž	Odor Odor	scalar	*Visual	NORML	NORML		
Base Number	Emulsified Wa	ater scalar	*Visual	>0.2	NEG		
14.0	Free Water	scalar	*Visual		NEG		
(12.0 + Abnormal (10.0 + Base (10.0 + Base) (10.0 + Base)	FLUID PRO	PERTIES	method	limit/base	current	history1	history2
Base E 8.0	Visc @ 100°C	cSt	ASTM D445	14.4	15.8		
boomal Abnormal	GRAPHS						
2.0	Ferrous Allo	ys					
0.0	50						
Apr22/24	40 - 40 - nickel	um					
Apr	<						
Viscosity @ 100°C	30 - 통						
¹⁸	20						
17- Abnormal							
16 © 15	10-						
0 15 Base 7 14		*****					
¹³ Abnomal	Apr22/24			Apr22/24			
12				Apr			
11	Non-ferrous	s Metals					
Apr22/24	copper	1					
A	< 25 - another lead						
	20 -						
	톮 15						
	5						
	0	*****		5			
	pr22/5			pr22/2			
		10000		A			
	Viscosity @	100-C			Base Number		
	17- Abnormal			14.0	Abnormal		
	16			12.0			-
				(D/H10.0 But NOT	Base		1
	()- 15- Base 73 14-			٤.0 ق	-		
	tg 14			ag mn N	Abnormal		
	13 - Abnormal			8 4.0			
	12			2.0			
	11				4		
	Apr22/24			Apr22/24	Apr22/24		Apr22/24
	AF			Ag	A		Ap
Certificate 12367 To discuss this s * - Denotes test	Laboratory: WearCheck USSample No.: WC0921950Lab Number: 06160062Unique Number: 10995485Test Package: CONST (Additisample report, contact Customemethods that are outside of the	Recei Teste Diagn ional Tests: TBN er Service at 1-8 ISO 17025 sco	ved : 25 d : 25 osed : 25 N) 00-237-1369 pe of accred	5 Apr 2024 5 Apr 2024 6 Apr 2024 - Wo 9. <i>Ditation.</i>	es Davis	Contac dwillis@ T:	555 WISE RD CLAYTON, NC US 27528 t: DAN WILLIS nedealers.com (919)773-1424
	onformity to specifications are b				rule (JCGM 106		(919)355-0161

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