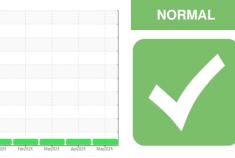


OIL ANALYSIS REPORT



1205 Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 15W40 (--- GAL)

DIAGNOSIS

Machine Id

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.

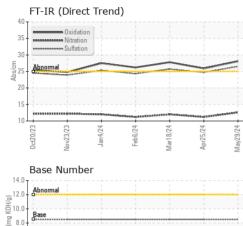
Fluid Condition

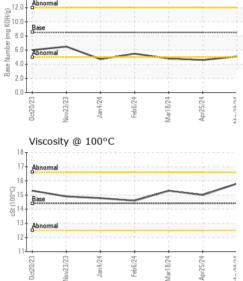
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0897811	WC0897921	WC0894052
Sample Date		Client Info		29 May 2024	25 Apr 2024	18 Mar 2024
Machine Age	mls	Client Info		429850	0	0
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	٨	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	25	13	19
Chromium	ppm	ASTM D5185m	>20	2	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	1	<1
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	2	2	1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 1	history1 2	history2 0
	ppm ppm					
Boron		ASTM D5185m	250	1	2	0
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	1 0	2 0	0 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	1 0 65	2 0 60	0 0 63
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	1 0 65 <1	2 0 60 <1	0 0 63 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 65 <1 1068	2 0 60 <1 969	0 0 63 0 1025
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	1 0 65 <1 1068 1234	2 0 60 <1 969 1158	0 0 63 0 1025 1152
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 65 <1 1068 1234 1101	2 0 60 <1 969 1158 1028	0 0 63 0 1025 1152 1078
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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 65 <1 1068 1234 1101 1431	2 0 60 <1 969 1158 1028 1281	0 0 63 0 1025 1152 1078 1320
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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	1 0 65 <1 1068 1234 1101 1431 3568	2 0 60 <1 969 1158 1028 1281 3420	0 0 63 0 1025 1152 1078 1320 3582
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250	1 0 65 <1 1068 1234 1101 1431 3568 current	2 0 60 <1 969 1158 1028 1281 3420 history1	0 0 63 0 1025 1152 1078 1320 3582 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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	1 0 65 <1 1068 1234 1101 1431 3568 current 18	2 0 60 <1 969 1158 1028 1281 3420 history1 17	0 0 63 0 1025 1152 1078 1320 3582 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 method ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	1 0 65 <1 1068 1234 1101 1431 3568 <u>current</u> 18 3	2 0 60 <1 969 1158 1028 1281 3420 history1 17 2	0 0 63 0 1025 1152 1078 1320 3582 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 limit/base >25 >158 >20	1 0 65 <1 1068 1234 1101 1431 3568 current 18 3 7	2 0 60 <1 969 1158 1028 1281 3420 history1 17 2 1	0 0 63 0 1025 1152 1078 1320 3582 history2 5 2 2 <1
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 Imit/base >25 >158 >20 Imit/base	1 0 65 <1 1068 1234 1101 1431 3568 current 18 3 7 Current	2 0 60 <1 969 1158 1028 1281 3420 history1 17 2 1 1 history1	0 0 63 0 1025 1152 1078 1320 3582 history2 5 2 <1 <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	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >25 >158 >20 Imit/base >3	1 0 65 <1 1068 1234 1101 1431 3568 <u>current</u> 18 3 7 <u>current</u> 0.8	2 0 60 <1 969 1158 1028 1281 3420 history1 17 2 1 17 2 1 1 history1 0.5	0 0 63 0 1025 1152 1078 1320 3582 history2 5 2 <1 5 2 <1 history2 0.7
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 imit/base >25 >158 >20 imit/base >3 >20	1 0 65 <1 1068 1234 1101 1431 3568 <i>current</i> 18 3 7 <i>current</i> 0.8 12.6	2 0 60 <1 969 1158 1028 1281 3420 history1 17 2 1 17 2 1 history1 0.5 11.2	0 0 63 0 1025 1152 1078 1320 3582 history2 5 2 <1 5 2 <1 history2 0.7 12.0
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 65 <1 1068 1234 1101 1431 3568 <u>current</u> 18 3 7 <u>current</u> 0.8 12.6 26.5	2 0 60 <1 969 1158 1028 1281 3420 history1 17 2 1 1 17 2 1 1 0.5 11.2 24.7	0 0 63 0 1025 1152 1078 1320 3582 history2 5 2 <1 5 2 <1 history2 0.7 12.0 25.7
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 D7615	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 Iimit/base >3 >20 >30	1 0 65 <1 1068 1234 1101 1431 3568 Current 18 3 7 Current 0.8 12.6 26.5 Current	2 0 60 <1 969 1158 1028 1281 3420 history1 17 2 1 17 2 1 1 0.5 11.2 24.7 history1	0 0 63 0 1025 1152 1078 1320 3582 history2 5 2 <1 history2 0.7 12.0 25.7 history2



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		
AND DESCRIPTION OF THE OWNER	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE		
/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML		
Apr/25/24 May29/24	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		
				1					
	FLUID PROPERT		method	limit/base	current	history1	history2		
	Visc @ 100°C	cSt	ASTM D445	14.4	15.8	15.0	15.3		
	GRAPHS								
	Iron (ppm)			10	Lead (ppm)				
24	200 - Severe			8	0 - Severe				
VCCC-W	= 150-			6	0				
4	100 - Abnormal			und 4	0 - Abnormal				
	50-			2	0-				
	0				0				
	0ct20/23 Vov23/23 Jan4/24	Feb 6/24	Mar18/24 Apr25/24	May29/24	0ct20/23 Nov23/23	Jan 4/24 Feb 6/24	Mar18/24 Apr25/24		
Statement and a statement	Deti Novi	19	Apr	May	0cti Novi	Fel	Mar18/24 Apr25/24		
	Aluminum (ppm)				Chromium (ppm)			
	50 Severe			5	Severe				
	+0 - 4	1	I I I I	4					
V	Abnormal			ed 2	Abnormal				
VC/DC/VV									
ΨV	10			1					
	/23 0 /24 0 /24 0	/24 -	/24 - /24 -		123	/24 -	/24 -		
	0ct20/23 Nov23/23 Jan4/24	Feb 6/24	Mar18/24 Apr25/24	May29/24	0ct20/23 Nov23/23	Jan 4/24 Feb 6/24	Mar18/24 Apr25/24		
	Copper (ppm)				Silicon (ppm)			
	400 Severe		+	8	0 Severe				
	300			6	0				
	툡 200 -			틆4	0				
	100 -			2	Abnormal				
	0				0				
		Feb 6/24 -	Mar18/24 Apr25/24 -			Jan4/24 + Feb6/24 +	8/24 - 5/24 -		
	0ct20/23 Nov23/23 Jan 4/24	Feb	Mar18/24 Apr25/24	May29/24	0ct20/23 Nov23/23	Feb	Mar18/24 Apr25/24		
	Viscosity @ 100°C				Base Number				
	Abnormal	1		(B)HO	Abnormal				
	16-			.0. Base Number (mg KOH/g)	Base				
	Base			ber (n	Akazamat				
	경 12 - Abnormal			^{En} N 5.	0 - Abnormal				
	10			⁸⁸ 0.	0				
		Feb 6/24 -	8/24			Jan4/24 + Feb6/24 +	Mar18/24 + Apr25/24 +		
	0ct20/23 Nov23/23 Jan4/24	Feb6	Mar18/24 Apr25/24	May29/24	0ct20/23 Nov23/23	Jan4 Feb6	Mar18/24 Apr25/24		
	_		_	~	_		_		
	: WearCheck USA - 50 ⁻	1 Madieo	n Ave Carv	NC 27513		GO D	URHAM - RAF		
oratory			,	,					
	: WC0897811	Recei	i ved : 12	2 Jun 2024		1903 FA	YETTEVILLE S		
oratory ple No. Number		Recei Teste		2 Jun 2024 Jun 2024		1903 FA`	YETTEVILLE S DURHAM, N		

Unique Number : 11 Test Package : MOB 1 (Additional Tests: TBN) 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)

Report Id: GODDUR [WUSCAR] 06208327 (Generated: 06/14/2024 19:04:46) Rev: 1

Certificate 12367

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