

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id L4865 Component

Fluid

Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (--- GAL)

DIAGNOSIS
Recommendation

Resample at the next service interval to monitor. 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

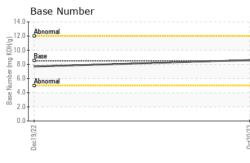
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

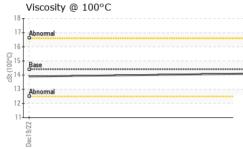
Sample Date Client Info 30 Oct 2023 19 Dec 2022 Machine Age hrs Client Info 6006 3801 Oil Age hrs Client Info 6006 0 Oil Changed Client Info Changed Changed	AE 15W40 (G	AL)		Dec2022	0ct2023		
Sample Date Client Info S0 Oct 2023 19 Dec 2022 Machine Age hrs Client Info 6006 3801 Oil Age hrs Client Info 6006 0 Sample Status Client Info Changed Changed CONTAMINATION method Imit/base current NoRMAL CONTAMINATION method Job< NoRMAL Glycol WC Method >3.0 <1.0 WARM ETALS method imit/base current history1 history2 Ifon ppm ASTM D5165m >120 35 18 Nickel ppm ASTM D5165m >20 <1 Nickel ppm ASTM D5165m >20 <1 Nickel ppm ASTM D5165m >20 <1 Silver ppm	SAMPLE INFORM	NATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 6006 3801 Oil Age hrs Client Info 6006 0 Oil Changed Client Info 6006 0 Sample Status Info NORMAL NORMAL NORMAL CONTAMINATION method infi/base current history1 History2 Fuel WC Method >3.0 <1.0	Sample Number		Client Info		WC0847978	WC0759977	
Oil Age hrs Client Info 6006 0	Sample Date		Client Info		30 Oct 2023	19 Dec 2022	
Dil Changed Sample Status Client Info Changed NORMAL Changed NORMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >3.0 <1.0	Machine Age	hrs	Client Info		6006	3801	
Sample Status Image: Normal status Normal matrix Normal matrix CONTAMINATION method imit/base current history1 history2 Fuel WC Method >3.0 <1.0	Oil Age	hrs	Client Info		6006	0	
CONTAMINATION method imit/base current history1 history2 Fuel WC Method >3.0 <1.0	Oil Changed		Client Info		Changed	Changed	
Fuel WC Method >3.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG Glycol WC Method >0.2 NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >20 <1	Sample Status				NORMAL	NORMAL	
Water WC Method >0.2 NEG NEG Glycol WC Method Imil/base current history1 history2 WEAR METALS method limil/base current history1 history2 Iron ppm ASTM D5185m >20 <1	CONTAMINATION	N	method	limit/base	current	history1	history2
Citycol WC Method NEG NEG	Fuel		WC Method	>3.0	<1.0	<1.0	
WEAR METALS method limit/base current history1 history2 iron ppm ASTM D5185m >120 35 18 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	
ron ppm ASTM D5185m >120 35 18	Glycol		WC Method		NEG	NEG	
Chromium ppm ASTM D5185m >20 <1 <1 Nickel ppm ASTM D5185m >5 1 4 Titanium ppm ASTM D5185m >2 0 0 Silver ppm ASTM D5185m >2 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >5 1 4 Titanium ppm ASTM D5185m >2 0 0 Silver ppm ASTM D5185m >2 0 <1	ron	ppm	ASTM D5185m	>120	35	18	
Titanium ppm ASTM D5185m >2 0 0 Silver ppm ASTM D5185m >2 0 <1	Chromium	ppm	ASTM D5185m	>20	<1	<1	
Silver ppm ASTM D5185m >2 0 <1 Aluminum ppm ASTM D5185m >20 <1	Nickel	ppm	ASTM D5185m	>5	1	4	
Auminum ppm ASTM D5185m >20 <1 1 Lead ppm ASTM D5185m >40 0 <1	Titanium	ppm	ASTM D5185m	>2	0	0	
Lead ppm ASTM D5185m >40 0 <1 Copper ppm ASTM D5185m >330 3 5 Tin ppm ASTM D5185m >15 <1	Silver	ppm	ASTM D5185m	>2	0	<1	
Copper ppm ASTM D5185m >330 3 5 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	<1	1	
Tin ppm ASTM D5185m >15 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 6 2 Barium ppm ASTM D5185m 10 0 0 Molybdenum ppm ASTM D5185m 100 67 59 Manganese ppm ASTM D5185m 100 67 59 Vagnesium ppm ASTM D5185m 150 891 869 Calcium ppm ASTM D5185m 150 1005 964 Sulfur ppm ASTM D5185m 14250 2810 3161 CONTAMINANTS method limit/base current h	Lead	ppm	ASTM D5185m	>40	0	<1	
Vanadium ppm ASTM D5185m <1 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 6 2 Barium ppm ASTM D5185m 10 0 0 Magnese ppm ASTM D5185m 100 67 59 Magnesium ppm ASTM D5185m 100 67 59 Vagnesium ppm ASTM D5185m 100 67 59 Vagnesium ppm ASTM D5185m 100 67 59 Vagnesium ppm ASTM D5185m 450 891 869 Calcium ppm ASTM D5185m 1350 1229 1305 Sulfur ppm ASTM D5185m >25 4 3	Copper	ppm	ASTM D5185m	>330	3	5	
Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 6 2 Barium ppm ASTM D5185m 10 0 0 Manganese ppm ASTM D5185m 100 67 59 Manganesum ppm ASTM D5185m 40 891 869 Calcium ppm ASTM D5185m 3000 1238 1298 Sulfur ppm ASTM D5185m 350 1229 1305 Sulfur ppm ASTM D5185m>225 4	Tin	ppm	ASTM D5185m	>15	<1	<1	
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 250 6 2 Barium ppm ASTM D5185m 10 0 0 Molybdenum ppm ASTM D5185m 100 67 59 Maganese ppm ASTM D5185m 100 67 59 Magnesium ppm ASTM D5185m 450 891 869 Calcium ppm ASTM D5185m 450 891 869 Calcium ppm ASTM D5185m 100 1238 1298 Calcium ppm ASTM D5185m 1350 1229 1305 Sulfur ppm ASTM D5185m 250 2810 3161 Solium ppm ASTM D5185m >158 4 5 Sodium ppm ASTM D5185m	Vanadium	ppm	ASTM D5185m		<1	0	
Boron ppm ASTM D5185m 250 6 2 Barium ppm ASTM D5185m 10 0 0 Molybdenum ppm ASTM D5185m 100 67 59 Manganese ppm ASTM D5185m 100 67 59 Magnesium ppm ASTM D5185m 100 67 59 Magnesium ppm ASTM D5185m 100 67 59 Magnesium ppm ASTM D5185m 450 891 869 Calcium ppm ASTM D5185m 450 891 869 Zinc ppm ASTM D5185m 1350 1229 1305 Sulfur ppm ASTM D5185m >25 4 3 Solicon ppm ASTM D5185m >20 <1	Cadmium	ppm	ASTM D5185m		0	0	
Barium ppm ASTM D5185m 10 0 0 Molybdenum ppm ASTM D5185m 100 67 59 Manganese ppm ASTM D5185m 100 67 59 Magnesium ppm ASTM D5185m 450 891 869 Calcium ppm ASTM D5185m 3000 1238 1298 Calcium ppm ASTM D5185m 3000 1238 1298 Calcium ppm ASTM D5185m 1350 1229 1305 Zinc ppm ASTM D5185m 1350 1229 1305 Sulfur ppm ASTM D5185m 4250 2810 3161 Solicon ppm ASTM D5185m >25 4 3 Soldium ppm ASTM D5185m >158 4 5 Potassium ppm ASTM	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 100 67 59 Manganese ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m	250	6	2	
Manganese ppm ASTM D5185m <1 <1 Magnesium ppm ASTM D5185m 450 891 869 Calcium ppm ASTM D5185m 3000 1238 1298 Phosphorus ppm ASTM D5185m 1150 1005 964 Zinc ppm ASTM D5185m 1350 1229 1305 Sulfur ppm ASTM D5185m 4250 2810 3161 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >20 <1		ppm	ASTM D5185m	10	0	0	
Magnesium ppm ASTM D5185m 450 891 869 Calcium ppm ASTM D5185m 3000 1238 1298 Phosphorus ppm ASTM D5185m 1150 1005 964 Zinc ppm ASTM D5185m 1350 1229 1305 Sulfur ppm ASTM D5185m 4250 2810 3161 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >20 <1	Nolybdenum	ppm	ASTM D5185m	100	67	59	
Calcium ppm ASTM D5185m 3000 1238 1298 Phosphorus ppm ASTM D5185m 1150 1005 964 Zinc ppm ASTM D5185m 1350 1229 1305 Sulfur ppm ASTM D5185m 4250 2810 3161 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >20 <1	Vanganese	ppm	ASTM D5185m		<1		
Phosphorus ppm ASTM D5185m 1150 1005 964 Zinc ppm ASTM D5185m 1350 1229 1305 Sulfur ppm ASTM D5185m 4250 2810 3161 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >20 <1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.5 1.2 Nitration Abs/cm *ASTM D7624 >20 8.9 8.8 Sulfation Abs/.1mm *ASTM D7415	Vagnesium	ppm					
Zinc ppm ASTM D5185m 1350 1229 1305 Sulfur ppm ASTM D5185m 4250 2810 3161 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >20 <1		ppm	ASTM D5185m	3000			
SulfurppmASTM D5185m425028103161CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>2543SodiumppmASTM D5185m>15845PotassiumppmASTM D5185m>20<1							
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>2543SodiumppmASTM D5185m>15845PotassiumppmASTM D5185m>20<1		ppm			1229		
Silicon ppm ASTM D5185m >25 4 3 Sodium ppm ASTM D5185m >158 4 5 Potassium ppm ASTM D5185m >158 4 5 INFRA-RED ppm ASTM D5185m >20 <1			ASTM D5185m	4250	2810	3161	
Sodium ppm ASTM D5185m >158 4 5 Potassium ppm ASTM D5185m >20 <1							history2
Potassium ppm ASTM D5185m >20 <1 1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.5 1.2 Nitration Abs/cm *ASTM D7624 >20 8.9 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 22.1 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.4							
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 1.5 1.2 Nitration Abs/cm *ASTM D7624 >20 8.9 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 22.1 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.4							
Soot % % *ASTM D7844 >4 1.5 1.2 Nitration Abs/cm *ASTM D7624 >20 8.9 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 22.1 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.4		ppm					
Nitration Abs/cm *ASTM D7624 >20 8.9 8.8 Sulfation Abs/.1mm *ASTM D7415 >30 22.1 21.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.4							
SulfationAbs/.1mm*ASTM D7415>3022.121.7FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/.1mm*ASTM D7414>2515.915.4							
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.4							
Oxidation Abs/.1mm *ASTM D7414 >25 15.9 15.4	Sulfation	Abs/.1mm	*ASTM D7415	>30	22.1	21.7	
		TION		limit/base			history2
Base Number (BN) mg KOH/g ASTM D2896 8.5 8.6 7.7							
	Base Number (BN)	mg KOH/g	ASTM D2896	8.5	8.6	7.7	



OIL ANALYSIS REPORT

VISUAL





	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
0ct30/23	Appearance	scalar	*Visual	NORML	NORML	NORML	
0	Odor	scalar	*Visual	NORML	NORML	NORML	
0°C	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPERT		method	limit/base	current	biotonut	history?
						history1	history2
	Visc @ 100°C GRAPHS	cSt	ASTM D445	14.4	14.1	13.9	
	Ferrous Alloys						
	iron		- Harrison and a second	and the second sec			
	30 - newseenee chromium	and the second se	and the second se				
	25-						
	E 20						
	^E 15-						
	10-						
	5						
				0/23 -			
	Dec19/22			0ct30/23			
	Non-ferrous Metal	s					
	¹⁰ T						
	copper						
	8 - management tin						
	6 -						
	m dd						
	4-						
	2						
	2						
	0			~			
	c19/22			0ct30/23			
	D			00			
	Viscosity @ 100°C	;			Base Number		
	18			14.0	1		
	17- Abnormal			12.0	Abnormal		
	16			(0) HOX Bu 8.0 			
	0 15 - Base			¥ 8.0	Base		
	2015 Base to 14			 			
	12			e Nur	Abnormal		
	Abnormai						
	12-			2.0	1		
	114			10.0	22		23 +
	Dec19/22			0ct30/23	Dec19/22		0ct30/23
				0			0
Laboratory	: WearCheck USA - 5	01 Madi	son Ave., Ca	ry, NC 27513	Apple Valle	y Waste - Chamber	sburg Location
ANAR Sample No.	: WC0847978	Recieved	d :16.	Jan 2024		5436	Sunset Pike
Lab Number		Diagnos		Jan 2024		Cham	bersburg, PA
Unique Number		Diagnost		s Davis			US 17202
Certificate L2367 Test Package	: CONST (Additional			2		Contact: Ser	vice Manager
To discuss this sample report, * - Denotes test methods that a							T:
Statements of conformity to spec					CGM 106:2012)		F:
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