

# **OIL ANALYSIS REPORT**



Machine Id

## 1706 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.

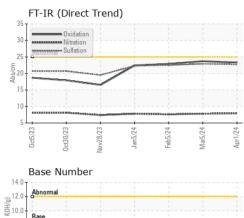
# Fluid Condition

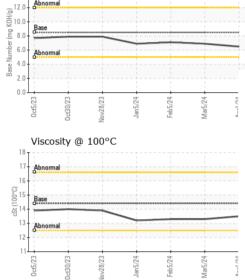
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	<b>/IATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0893952	WC0894058	WC0893995
Sample Date		Client Info		01 Apr 2024	05 Mar 2024	05 Feb 2024
Machine Age	mls	Client Info		0	0	0
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	8	10	8
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	1	3	3
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	8	21	32
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
	ppm			U	0	0
ADDITIVES	ppm	method	limit/base	current	history1	history2
ADDITIVES Boron	ppm		limit/base 250			-
		method		current	history1	history2
Boron	ppm	method ASTM D5185m	250	current <1	history1 1	history2 <1
Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	250 10	current <1 0	history1 1 2	history2 <1 0
Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	250 10	current <1 0 53	history1 1 2 58	history2 <1 0 55
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	<pre>current &lt;1 0 53 &lt;1</pre>	history1 1 2 58 0	history2 <1 0 55 0
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	current <1 0 53 <1 869	history1 1 2 58 0 889	history2 <1 0 555 0 991
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	Current <1 0 53 <1 869 1038	history1 1 2 58 0 889 1072	history2 <1 0 55 0 991 1053
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	Current <1 0 53 <1 869 1038 950	history1	history2 <1 0 55 0 991 1053 998
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	<1           0           53           <1           869           1038           950           1144	history1	history2 <1 0 55 0 991 1053 998 1240
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	Current <1 0 53 <1 869 1038 950 1144 3267	history1	history2 <1 0 55 0 991 1053 998 1240 2792
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	method 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	Current <1 0 53 <1 869 1038 950 1144 3267 Current	history1         1         2         58         0         889         1072         997         1178         3106         history1	history2 <1 0 55 0 991 1053 998 1240 2792 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method 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 imit/base >25	<1         0         53         <1         869         1038         950         1144         3267         current         10	history1         1         2         58         0         889         1072         997         1178         3106         history1         4	<1         0         55         0         991         1053         998         1240         2792         history2         6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158	<1         0         53         <1         869         1038         950         1144         3267         current         10         2	history1         1         2         58         0         889         1072         997         1178         3106         history1         4         <1	<1         0         55         0         991         1053         998         1240         2792         history2         6         2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20	<1         0         53         <1         869         1038         950         1144         3267         current         10         2         0	history1         1         2         58         0         889         1072         997         1178         3106         history1         4         <1         4	<1         0         55         0         991         1053         998         1240         2792         history2         6         2         <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Iimit/base</b> >25 >158 >20 <b>Iimit/base</b> >3	Current <1 0 53 <1 869 1038 950 1144 3267 Current 10 2 0 0	history1         1         2         58         0         889         1072         997         1178         3106         history1         4         <1         4         +istory1	<1         0         55         0         991         1053         998         1240         2792         history2         6         2         <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	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Iimit/base</b> >25 >158 >20 <b>Iimit/base</b> >3	current         <1         0         53         <1         869         1038         950         1144         3267         current         10         2         0         current         0         current         0.2	history1         1         2         58         0         889         1072         997         1178         3106         history1         4         <1         4         <1         4         0.2	<1         0         55         0         991         1053         998         1240         2792         history2         6         2         <1         history2         6         2         <1         history2         0.2
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	250 10 100 450 3000 1150 1350 4250 <b>i</b> mit/base >25 >158 >20 <b>i</b> mit/base >3 >20	current         <1         0         53         <1         869         1038         950         1144         3267         current         10         2         0         current         0         current         0.2         7.9	history1         1         2         58         0         889         1072         997         1178         3106         history1         4         <1         4         <1         4         0.2         7.8	<1         0         55         0         991         1053         998         1240         2792         history2         6         2         <1         0         0         0         0         0.2         7.6
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 D5185m	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >158 >20 <b>Imit/base</b> >3 >20	<1         0         53         <1         869         1038         950         1144         3267         current         10         2         0         current         0         current         0.2         7.9         22.7	history1         1         2         58         0         889         1072         997         1178         3106         history1         4         <1         4         0.2         7.8         22.9	<1         0         55         0         991         1053         998         1240         2792         history2         6         2         <1         history2         0         2792         history2         0         2         2         2         2         2         2         0.2         7.6         22.5



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	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
Mar5/24 - Apr1/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Mar	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	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	13.5	13.3	13.3
	GRAPHS						
	Iron (ppm)			10	Lead (ppm)		
24	200 - Severe			8	Severe		
Mar5/24	_ 150			0	0-		
	Abnormal			ца 1 4	Abaranal		
	50-			2	0-		
	0		_		0		
	0ct5/23 0ct30/23 Nov28/23	Jan5/24	Feb5/24 . Mar5/24	Apr1/24	0ct5/23 0ct30/23	Vov28/23 Jan5/24	Feb5/24 Mar5/24 Apr1/24
		Ъ	A R	A		2	A <sub>1</sub> M
	Aluminum (ppm)			5	Chromium (p	opm)	
	40 Severe	1		4	Saura	1 1	
lar5/24 -	20 - Abnormal		· · ·	und 2	Abnormal		
Mar5/24	10			1			
	0		_		0		
	0ct5/23 0ct30/23 Nov28/23	Jan5/24	Feb5/24 . Mar5/24	Apr1/24	0ct5/23 0ct30/23	Vov28/23 Jan5/24	Feb5/24 Mar5/24 Apr1/24
	Copper (ppm)	7	ш 2	4	Silicon (ppm)	2	L 2 4
	400 Severe			<sup>80</sup>		/	
	300			6	0		
	<u>۾</u> 200			<u></u> 4	0		
					Abnormal	1 1 1 1	
	100			2			
		24 -	24 -		53 - 53 - 0	23 +	24
	0ct5/23 0ct30/23 Nov28/23	Jan5/24	Feb5/24 - Mar5/24 -	Apr1/24	0ct5/23 0ct30/23	Nov28/23 Jan5/24	Feb5/24 - Mar5/24 - Apr1/24 -
	Viscosity @ 100°C				Base Numbe	—	
	Abnormal	I I	1 1	15. P	Abnormal		
	- <sup>16</sup>			Q	0 - Base		
	Base			ber (n	Abarrah		
	경 12			1.0.1 Base Number (mg KOH(g)	0 - Abnormal		
	10			0.1	0		
	0ct5/23 - 0ct30/23 - Nov28/23 -	Jan5/24 -	Feb 5/24 - Mar5/24 -	Apr1/24 -	0ct5/23 - 0ct5/23 - 0ct30/23 -	Nov28/23 - Jan5/24 -	Feb5/24 - Mar5/24 - Apr1/24 -
	0c 0ct8 Nov2	Jar	Fet Mai	Ap	0c 0ct3	Jar	Fel Ma
				NO 07-11		• •	
Laboratory Sample No.	: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0893952 <b>Received</b> : 17 Apr 2024						VETTEVILLE ST
	: 06151535	Teste		Apr 2024		100017	DURHAM, NC
Unique Number	: 10981613	Diagr	nosed : 18	Apr 2024 - W	les Davis		US 27701
Test Package	: MOB 1 ( Additional Te		Contact: Robert Iosiniecki				



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* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.
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Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: GODDUR [WUSCAR] 06151535 (Generated: 04/18/2024 04:37:34) Rev: 1

Certificate 12367

Contact/Location: Robert Iosiniecki - GODDUR

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