

# **OIL ANALYSIS REPORT**

Sample Rating Trend



Machine Id

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

#### DIAGNOSIS

#### Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

# Wear

All component wear rates are normal.

# Contamination

Tests indicate that there is no fuel present in the oil. There is no indication of any contamination in the oil.

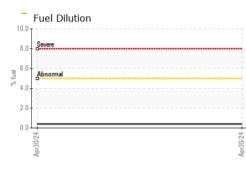
### Fluid Condition

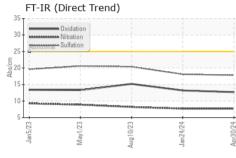
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

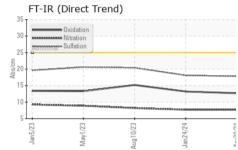
SAMPLE INFORM	1ATI <u>ON</u>	method	limit/base	current	history1	
Sample Number		Client Info		WC0874307	WC0874291	WC0783977
Sample Date		Client Info		30 Apr 2024	24 Jan 2024	10 Aug 2023
Machine Age	hrs	Client Info		13521	12938	11877
Oil Age	hrs	Client Info		571	543	784
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				ATTENTION	NORMAL	NORMAL
CONTAMINATION	J	method	limit/base	current	history1	history2
Water		WC Method		NEG	NEG	NEG
Glycol		WC Method	20.L	NEG	NEG	NEG
WEAR METALS		method	limit/base			history2
					history1	
Iron	ppm	ASTM D5185m	>100	5	3	8
Chromium	ppm			<1	<1 0	<1
Nickel	ppm	ASTM D5185m ASTM D5185m	>4	<1	-	0
Titanium	ppm		. 0	<1	<1	0
Silver	ppm	ASTM D5185m	>3 >20	0 2	0 <1	0
Aluminum	ppm	ASTM D5185m		_		3
Lead	ppm	ASTM D5185m	>40	<1	0	2
Copper Tin	ppm	ASTM D5185m		<1 <1	<1 <1	<1
Vanadium	ppm	ASTM D5185m ASTM D5185m	>15	<1	<1	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
	ppm					-
ADDITIVES						
Boron	ppm	ASTM D5185m	250	18	11	16
Barium	ppm	ASTM D5185m	10	2	0	0
Barium Molybdenum		ASTM D5185m ASTM D5185m		2 100	0 61	0 73
Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	10 100	2 100 <1	0 61 <1	0 73 <1
Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450	2 100 <1 825	0 61 <1 886	0 73 <1 279
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450 3000	2 100 <1 825 1169	0 61 <1 886 1144	0 73 <1 279 1912
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450 3000 1150	2 100 <1 825 1169 1070	0 61 <1 886 1144 982	0 73 <1 279 1912 944
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	10 100 450 3000 1150 1350	2 100 <1 825 1169 1070 1155	0 61 <1 886 1144 982 1199	0 73 <1 279 1912 944 1235
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250	2 100 <1 825 1169 1070	0 61 <1 886 1144 982 1199 3050	0 73 <1 279 1912 944 1235 3803
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	10 100 450 3000 1150 1350 4250 limit/base	2 100 <1 825 1169 1070 1155 3336 current	0 61 <1 886 1144 982 1199 3050 history1	0 73 <1 279 1912 944 1235 3803 history2
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	10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	2 100 <1 825 1169 1070 1155 3336 current 5	0 61 <1 886 1144 982 1199 3050 history1 4	0 73 <1 279 1912 944 1235 3803 history2 10
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 <b>method</b> ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 limit/base >25 >158	2 100 <1 825 1169 1070 1155 3336 current	0 61 <1 886 1144 982 1199 3050 history1	0 73 <1 279 1912 944 1235 3803 history2 10 7
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 Limit/base >25 >158 >20	2 100 <1 825 1169 1070 1155 3336 current 5 0 4	0 61 <1 886 1144 982 1199 3050 history1 4 3 0	0 73 <1 279 1912 944 1235 3803 history2 10 7 4
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 <b>method</b> ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 Limit/base >25 >158 >20	2 100 <1 825 1169 1070 1155 3336 current 5 0	0 61 <1 886 1144 982 1199 3050 history1 4 3	0 73 <1 279 1912 944 1235 3803 history2 10 7
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	10 100 450 3000 1150 1350 4250 Limit/base >25 >158 >20	2 100 <1 825 1169 1070 1155 3336 current 5 0 4	0 61 <1 886 1144 982 1199 3050 history1 4 3 0	0 73 <1 279 1912 944 1235 3803 history2 10 7 4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 >5	2 100 <1 825 1169 1070 1155 3336 current 5 0 4 0.4	0 61 <1 886 1144 982 1199 3050 history1 4 3 0 <1.0	0 73 <1 279 1912 944 1235 3803 history2 10 7 4 <1.0
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 >5 <b>limit/base</b>	2 100 <1 825 1169 1070 1155 3336 current 5 0 4 0.4 0.4 current	0 61 <1 886 1144 982 1199 3050 history1 4 3 0 <1.0 history1	0 73 <1 279 1912 944 1235 3803 history2 10 7 4 <<1.0 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 >5 <b>limit/base</b> >3 >20	2 100 <1 825 1169 1070 1155 3336 Current 5 0 4 0.4 0.4	0 61 <1 886 1144 982 1199 3050 history1 4 3 0 <1.0 history1 0.3	0 73 <1 279 1912 944 1235 3803 history2 10 7 4 <1.0 history2 0.5
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524 <b>method</b> *ASTM D7844 *ASTM D7844	10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 >5 <b>limit/base</b> >3 >20	2 100 <1 825 1169 1070 1155 3336 current 5 0 4 0.4 0.4 0.4 0.4 7.7	0 61 <1 886 1144 982 1199 3050 <u>history1</u> 4 3 0 <1.0 <u>history1</u> 0.3 7.7	0 73 <1 279 1912 944 1235 3803 history2 10 7 4 <1.0 kistory2 0.5 8.2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 >5 <b>limit/base</b> >3 >20 >3 >20	2 100 <1 825 1169 1070 1155 3336 Current 5 0 4 0.4 0.4 0.4 Current 0.4 7.7 17.8	0 61 <1 886 1144 982 1199 3050 history1 4 3 0 <1.0 history1 0.3 7.7 18.1	0 73 <1 279 1912 944 1235 3803 history2 10 7 4 <1.0 history2 0.5 8.2 20.4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524 <b>method</b> *ASTM D7844 *ASTM D7624 *ASTM D7415	10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 >5 <b>limit/base</b> >3 >20 >30 >30 <b>limit/base</b>	2 100 <1 825 1169 1070 1155 3336 current 5 0 4 0.4 0.4 0.4 0.4 7.7 17.8 current	0 61 <1 886 1144 982 1199 3050 history1 4 3 0 <1.0 history1 0.3 7.7 18.1 history1	0 73 <1 279 1912 944 1235 3803 history2 10 7 4 <1.0 kistory2 0.5 8.2 20.4 history2

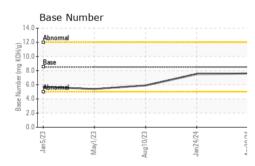


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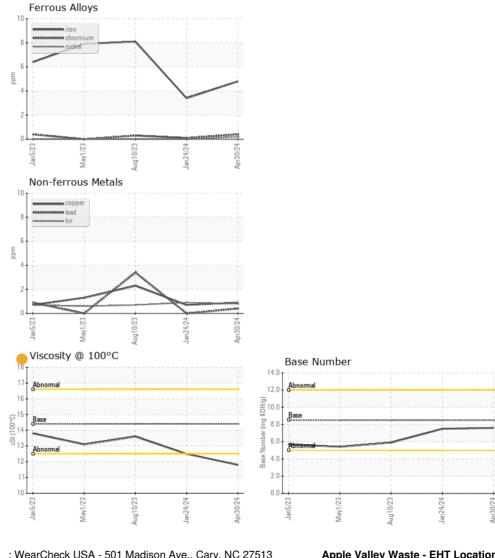


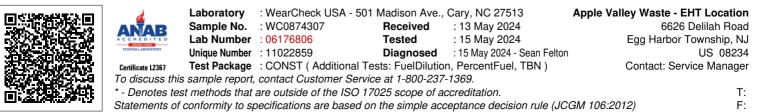




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
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	IFS	method	limit/base	current	history1	history2
		methou	mm base	Current	history i	mstory2
Visc @ 100°C	cSt	ASTM D445	14.4	<mark> </mark> 11.8	12.5	13.6

GRAPHS





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