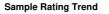
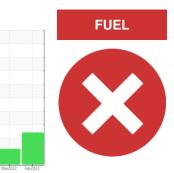


OIL ANALYSIS REPORT





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

DIAGNOSIS

Machine Id 9494

Recommendation

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0737489	WC0654459	WC0581279
Sample Date		Client Info		23 Feb 2023	07 Mar 2022	04 Sep 2021
Machine Age	kms	Client Info		371943	343068	318823
Oil Age	kms	Client Info		0	0	0
Oil Changed		Client Info		Changed	Not Changd	Not Changd
Sample Status				SEVERE	ABNORMAL	NORMAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>100	23	12	14
Chromium	ppm	ASTM D5185(m)	>20	2	<1	1
Nickel	ppm	ASTM D5185(m)	>4	0	<1	<1
Titanium	ppm	ASTM D5185(m)		<1	0	0
Silver	ppm	ASTM D5185(m)	>3	0	<1	<1
Aluminum	ppm	ASTM D5185(m)	>20	3	2	2
Lead	ppm	ASTM D5185(m)	>40	2	2	1
Copper	ppm	ASTM D5185(m)	>330	2	2	3
Tin	ppm	ASTM D5185(m)	>15	<1	<1	<1
Antimony	ppm	ASTM D5185(m)		<1	0	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
			limit/base	ourropt	historyd	history2
ADDITIVES		method	innii/base	current	history1	motoryz
Boron	ppm	ASTM D5185(m)	250	35	65	80
	ppm ppm					80 0
Boron		ASTM D5185(m)	250	35 0 7	65 0 4	80 0 3
Boron Barium	ppm	ASTM D5185(m) ASTM D5185(m)	250 10	35 0	65 0 4 <1	80 0 3 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450	35 0 7 <1 654	65 0 4 <1 704	80 0 3 <1 728
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100	35 0 7 <1 654 1303	65 0 4 <1 704 1308	80 0 3 <1 728 1324
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450	35 0 7 <1 654 1303 669	65 0 4 <1 704 1308 715	80 0 3 <1 728 1324 718
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350	35 0 7 <1 654 1303 669 675	65 0 4 <1 704 1308 715 757	80 0 3 <1 728 1324 718 801
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150	35 0 7 <1 654 1303 669	65 0 4 <1 704 1308 715 757 2492	80 0 3 <1 728 1324 718 801 2540
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350	35 0 7 <1 654 1303 669 675	65 0 4 <1 704 1308 715 757	80 0 3 <1 728 1324 718 801
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 limit/base	35 0 7 <1 654 1303 669 675 2390	65 0 4 <1 704 1308 715 757 2492	80 0 3 <1 728 1324 718 801 2540
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250	35 0 7 <1 654 1303 669 675 2390 <1 <u>current</u> 5	65 0 4 <1 704 1308 715 757 2492 <1	80 0 3 <1 728 1324 718 801 2540 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 limit/base	35 0 7 <1 654 1303 669 675 2390 <1 current	65 0 4 <1 704 1308 715 757 2492 <1 kistory1	80 0 3 <1 728 1324 718 801 2540 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 binit/base >25 >158 >20	35 0 7 <1 654 1303 669 675 2390 <1 <u>current</u> 5	65 0 4 <1 704 1308 715 757 2492 <1 history1 4	80 0 3 <1 728 1324 718 801 2540 <1 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 binit/base >25 >158 >20	35 0 7 <1 654 1303 669 675 2390 <1 current 5 2	65 0 4 <1 704 1308 715 757 2492 <1 *1 history1 4 3	80 0 3 <1 728 1324 718 801 2540 <1 2540 <1 history2 4 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 binit/base >25 >158 >20	35 0 7 <1 654 1303 669 675 2390 <1 Current 5 2 2 3	65 0 4 <1 704 1308 715 757 2492 <1 history1 4 3 4	80 0 3 <1 728 1324 718 801 2540 <1 2540 <1 history2 4 3 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >5	35 0 7 <1 654 1303 669 675 2390 <1 Current 5 2 3 9	65 0 4 <1 704 1308 715 757 2492 <1 ×1 history1 4 3 4 2.2	80 0 3 <1 728 1324 718 801 2540 <1 2540 <1 history2 4 3 4 3 4 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm %	ASTM D5185(m) ASTM D5185(m)	250 10 100 450 3000 1150 1350 4250 binit/base >25 >5 binit/base >3	35 0 7 <1 654 1303 669 675 2390 <1 Current 5 2 3 9 9 Current	65 0 4 <1 704 1308 715 757 2492 <1 history1 4 3 4 3 4 2.2 history1	80 0 3 <1 728 1324 718 801 2540 <1 bistory2 4 3 4 <1.0 bistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm %	ASTM D5185(m) ASTM D7593*	250 10 100 450 3000 1150 1350 4250 binit/base >25 >5 binit/base >3	35 0 7 <1 654 1303 669 675 2390 <1 Current 5 2 3 9 Current 0.1	 65 0 4 <1 704 1308 715 757 2492 <1 history1 4 3 4 < 2.2 history1 0 	80 0 3 <1 728 1324 718 801 2540 <1 history2 4 3 4 <1.0 history2 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7593*	250 10 100 450 3000 1150 1350 4250 bimit/base >25 >158 >20 >5 5 bimit/base >3 >20	35 0 7 <1 654 1303 669 675 2390 <1 Current 5 2 3 9 9 Current 0.1 12.0	 65 0 4 <1 704 1308 715 757 2492 <1 history1 4 3 4 2.2 history1 0 9.9 	80 0 3 <1 728 1324 718 801 2540 <1 history2 4 3 4 <1.0 history2 0 9.2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7593*	250 10 100 450 3000 1150 1350 4250 binit/base >25 >158 >20 >5 binit/base >3 >20 >3 >20	35 0 7 <1 654 1303 669 675 2390 <1 Current 5 2 3 9 Current 0.1 12.0 27.2	 65 0 4 <1 704 1308 715 757 2492 <1 history1 4 3 4 2.2 history1 0 9.9 21.3 	80 0 3 <1 728 1324 718 801 2540 <1 history2 4 3 4 <1.0 history2 0 9.2 20.2



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