

### **OIL ANALYSIS REPORT**

#### Sample Rating Trend



# Machine Id 6914406

Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 10W30 (--- 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

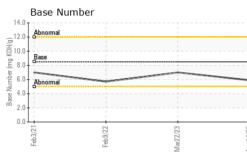
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

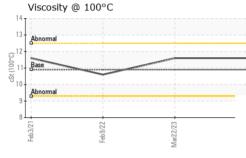
	Feb2021 Feb2022 Mar2023 Aug2023									
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2				
Sample Number		Client Info		IL05967523	IL05828634	IL05477559				
Sample Date		Client Info		14 Aug 2023	22 Mar 2023	09 Feb 2022				
Machine Age	mls	Client Info		229475	210722	0				
Oil Age	mls	Client Info		0	0	0				
Oil Changed		Client Info		N/A	N/A	N/A				
Sample Status				NORMAL	NORMAL	NORMAL				
CONTAMINATION	٧	method	limit/base	current	history1	history2				
Fuel		WC Method	>5	<1.0	<1.0	<1.0				
Glycol		WC Method		NEG	NEG	NEG				
WEAR METALS		method	limit/base	current	history1	history2				
Iron	ppm	ASTM D5185m	>100	62	50	57				
Chromium	ppm	ASTM D5185m	>20	1	1	2				
Nickel	ppm		>4	<1	0	<1				
Titanium	ppm	ASTM D5185m		0	0	<1				
Silver	ppm	ASTM D5185m	>3	0	0	0				
Aluminum	ppm	ASTM D5185m	>20	16	9	18				
Lead	ppm	ASTM D5185m	>40	<1	0	<1				
Copper	ppm	ASTM D5185m	>330	2	1	2				
Tin	ppm	ASTM D5185m	>15	<1	<1	<1				
Antimony	ppm	ASTM D5185m				<1				
Vanadium	ppm	ASTM D5185m		<1	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 21	history1 19	history2 25				
	ppm ppm									
Boron		ASTM D5185m	250	21	19	25				
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	21 0	19 0	25 0				
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	21 0 80	19 0 58	25 0 39				
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	21 0 80 <1	19 0 58 <1	25 0 39 <1				
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	21 0 80 <1 245	19 0 58 <1 672	25 0 39 <1 721				
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	21 0 80 <1 245 2046	19 0 58 <1 672 1613	25 0 39 <1 721 1512				
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	21 0 80 <1 245 2046 973	19 0 58 <1 672 1613 870	25 0 39 <1 721 1512 868				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm 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	21 0 80 <1 245 2046 973 1222	19 0 58 <1 672 1613 870 1080	25 0 39 <1 721 1512 868 977				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	21 0 80 <1 245 2046 973 1222 3277	19 0 58 <1 672 1613 870 1080 2603	25 0 39 <1 721 1512 868 977 3010				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm 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	21 0 80 <1 245 2046 973 1222 3277 current 9	19 0 58 <1 672 1613 870 1080 2603 history1 10	25 0 39 <1 721 1512 868 977 3010 history2				
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	250 10 100 450 3000 1150 1350 4250	21 0 80 <1 245 2046 973 1222 3277 current	19 0 58 <1 672 1613 870 1080 2603 history1	25 0 39 <1 721 1512 868 977 3010 history2 9				
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 ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	21 0 80 <1 245 2046 973 1222 3277 current 9 3	19 0 58 <1 672 1613 870 1080 2603 history1 10 <1	25 0 39 <1 721 1512 868 977 3010 history2 9 3				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >20 <b>Imit/base</b>	21 0 80 <1 245 2046 973 1222 3277 current 9 3 9 3 9	19 0 58 <1 672 1613 870 1080 2603 history1 10 <1 10 <1 10 history1	25 0 39 <1 721 1512 868 977 3010 history2 9 3 25 history2				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >20 <b>limit/base</b>	21 0 80 <1 245 2046 973 1222 3277 current 9 3 9 2 3 9 current 1.1	19 0 58 <1 672 1613 870 1080 2603 history1 10 <1 10 <1 10 0.8	25 0 39 <1 721 1512 868 977 3010 history2 9 3 25 history2 1				
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 <b>i</b> mit/base >25 >20 <b>i</b> mit/base >3 >20	21 0 80 <1 245 2046 973 1222 3277 current 9 3 9 3 9 current 1.1 14.6	19 0 58 <1 672 1613 870 1080 2603 history1 10 <1 10 <1 10 .8 13.3	25 0 39 <1 721 1512 868 977 3010 history2 9 3 25 history2 1 1 13.1				
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 <b>imit/base</b> >25 <b>imit/base</b> >3 >20 >30	21 0 80 <1 245 2046 973 1222 3277 current 9 3 9 3 9 <u>current</u> 1.1 1.1 1.1	19 0 58 <1 672 1613 870 1080 2603 history1 10 <1 10 <1 10 0.8 13.3 24.7	25 0 39 <1 721 1512 868 977 3010 history2 9 3 25 history2 1 1 13.1 28.4				
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 D7844 *ASTM D7844	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20 >30	21 0 80 <1 245 2046 973 1222 3277 Current 9 3 9 Current 1.1 14.6 27.9 Current	19 0 58 <1 672 1613 870 1080 2603 history1 10 <10 10 <1 10 0.8 13.3 24.7 history1	25 0 39 <1 721 1512 868 977 3010 history2 9 3 25 history2 1 1 3.1 28.4 history2				
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 <b>imit/base</b> >3 >20 30 <b>imit/base</b>	21 0 80 <1 245 2046 973 1222 3277 current 9 3 9 3 9 current 1.1 14.6 27.9 current 25.8	19 0 58 <1 672 1613 870 1080 2603 history1 10 <1 10 <1 10 0.8 13.3 24.7 history1 25.1	25 0 39 <1 721 1512 868 977 3010 history2 9 3 25 history2 1 1 13.1 28.4 history2 22.6				
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	ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	250 10 100 450 3000 1150 1350 4250 <b>imit/base</b> >25 >20 <b>imit/base</b> >3 >20 >30	21 0 80 <1 245 2046 973 1222 3277 Current 9 3 9 Current 1.1 14.6 27.9 Current	19 0 58 <1 672 1613 870 1080 2603 history1 10 <10 10 <1 10 0.8 13.3 24.7 history1	25 0 39 <1 721 1512 868 977 3010 history2 9 3 25 history2 1 1 3.1 28.4 history2				



## **OIL ANALYSIS REPORT**

VISUAL





Laboratory Sample No. Lab Number	: WearCheck USA : IL05967523 : 05967523		d : 03 (			4571 NORTH I NC	
Laboratory						2	
	2 5 5 8	7	<u></u>	0.0	51		) <u>c</u>
	9			2.0	1 1 1 1		
	10-			1.0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Abnormal		
	000 11- Base			E 8.0			
	12 20 0	_		H0.0	Base		
	13 - Abnormal			12.0	Abhormai		
				14.0	T :		
	, -	0°C			Base Number		
	Feb3	1603	Mar22/	Aug14/			
	3 2	Akadaalaalaalaalaadaadaalaadaalaadaa					
	2						
	4						
	udd						
	6-						
	copper 8						
	Non-ferrous M	etals					
			Mar22	Aug14			
	2 J	77/					
	10-						
	40						
Mar2	50 - nickel						
2/23	60						
	Ferrous Alloys						
	GRAPHS						
	Visc @ 100°C	cSt			11.6	11.6	10.6
			method	limit/base	current		history2
	Free Water	scalar	*Visual	20.L	NEG	NEG	NEG
A A							NORML NEG
Aar22/2 .ug14/2							NORML
							NONE
		scalar	*Visual	NONE	-	NONE	NONE
	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	White Metal	scalar	*Visual	NONE	NONE	NONE	history2 NONE
	Laboratory Sample No.	Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE Visc @ 100°C GRAPHS Ferrous Alloys Total Stress Non-ferrous M Sample No. EWEARCHECK US/ Sample No. EWEARCHECK US/	White Metal scalar Yellow Metal scalar Precipitate scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Free Water scalar Mon-ferrous Alloys Uscosity @ 100°C Uscosity @ 100°C	White Metal scalar *Visual Precipitate scalar *Visual Precipitate scalar *Visual Debris scalar *Visual Debris scalar *Visual Debris scalar *Visual Debris scalar *Visual Codor scalar *Visual Free Water scalar *Visual Visc @ 100°C cSt ASTM D445 GRAPHS Visc @ 100°C cSt State Viscosity @ 100°C Viscosity @ 100°C Viscosity @ 100°C Uscosity @ 100°C	White Metal scalar 'Visual NONE Precipitate scalar 'Visual NONE Sitt scalar 'Visual NONE Sand/Dirt scalar 'Visual NONE Sand/Dirt scalar 'Visual NONE Debris scalar 'Visual NONE Sand/Dirt scalar 'Visual NONE Emulsified Water scalar 'Visual NORML Codor scalar 'Visual NORML Emulsified Water scalar 'Visual NORML Prec Water scalar 'Visual NORML Visc @ 100°C cSt ASTM D445 10.9 GRAPHS Ferrous Alloys Viscosity @ 100°C Viscosity @ 100°C	White Metal scalar 'Visual NONE NONE Precipitate scalar 'Visual NONE NONE Sit scalar 'Visual NONE NONE Sit scalar 'Visual NONE NONE Appearance scalar 'Visual NORML NORML Odor scalar 'Visual NORML NORML Odor scalar 'Visual NORML NORML NORML Emulsified Water scalar 'Visual NORML NORML NORML Sit scalar 'Visual NORML NORML NORML MORML NORML	White Metal scalar 'Visual NONE NONE NONE NONE Precipitate scalar 'Visual NONE NONE NONE NONE Siti scalar 'Visual NONE NONE NONE Sand/Dirt scalar 'Visual NONE NONE NONE Sand/Dirt scalar 'Visual NONE NONE NONE Sand/Dirt scalar 'Visual NORML

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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