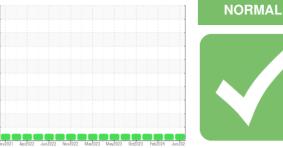


OIL ANALYSIS REPORT

SAMPLE INFORMATION method

Sample Rating Trend





1955 **Diesel Engine** Fluid DIESEL ENGINE OIL SAE 5W30 (--- GAL)

Machine Id

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.

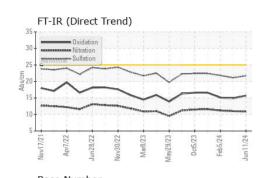
Fluid Condition

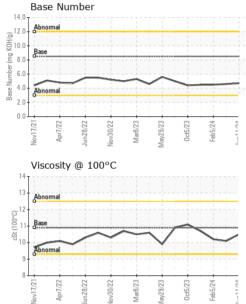
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Sample Date		Client Info Client Info		HRE0000503 11 Jun 2024	HRE0000131 09 Apr 2024	WC0887585 05 Feb 2024
Machine Age	mls	Client Info		115627	0	0
Oil Age	mls	Client Info		0	0	0
Oil Changed	iiiio	Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
			1	-	-	
CONTAMINATION	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	16	12	9
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	4	4
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	0	<1	<1
Tin	ppm	ASTM D5185m	>15	0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		mathad	limit/base	ourropt	biotom	history2
//BBHHVE0		method	IIIII/Dase	current	history1	mstoryz
Boron	ppm	ASTM D5185m	250	18	32	23
	ppm ppm					
Boron		ASTM D5185m	250	18	32	23
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	18 0	32 <1	23 10
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10	18 0 216	32 <1 204	23 10 187
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	18 0 216 33	32 <1 204 4	23 10 187 4
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	18 0 216 33 674	32 <1 204 4 543	23 10 187 4 557
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	18 0 216 33 674 1420	32 <1 204 4 543 1150	23 10 187 4 557 1068
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	18 0 216 33 674 1420 615	32 <1 204 4 543 1150 520	23 10 187 4 557 1068 597
Boron 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	250 10 100 450 3000 1150 1350	18 0 216 33 674 1420 615 782	32 <1 204 4 543 1150 520 637	23 10 187 4 557 1068 597 667
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	18 0 216 33 674 1420 615 782 3210	32 <1 204 4 543 1150 520 637 2264	23 10 187 4 557 1068 597 667 2641
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250	18 0 216 33 674 1420 615 782 3210 current	32 <1 204 4 543 1150 520 637 2264 history1	23 10 187 4 557 1068 597 667 2641 history2
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 method ASTM D5185m	250 10 100 450 3000 1150 1350 4250	18 0 216 33 674 1420 615 782 3210 current 18	32 <1 204 4 543 1150 520 637 2264 history1 18	23 10 187 4 557 1068 597 667 2641 history2 17
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 method ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	18 0 216 33 674 1420 615 782 3210 current 18 1 0	32 <1 204 4 543 1150 520 637 2264 history1 18 1	23 10 187 4 557 1068 597 667 2641 history2 17 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >20	18 0 216 33 674 1420 615 782 3210 current 18 1 0	32 <1 204 4 543 1150 520 637 2264 history1 18 1 2	23 10 187 4 557 1068 597 667 2641 history2 17 17 1 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >25 -20 Imit/base	18 0 216 33 674 1420 615 782 3210 current 18 1 0 current	32 <1 204 4 543 1150 520 637 2264 history1 18 1 2 2 history1	23 10 187 4 557 1068 597 667 2641 history2 17 1 2 history2
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 ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >20 limit/base	18 0 216 33 674 1420 615 782 3210 current 18 1 0 current 0.1	32 <1 204 4 543 1150 520 637 2264 history1 18 1 2 history1 0	23 10 187 4 557 1068 597 667 2641 history2 17 1 2 17 1 2 history2 0
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 imit/base >25 >20 imit/base >3 >20	18 0 216 33 674 1420 615 782 3210 <i>current</i> 18 1 0 <i>current</i> 0.1 10.9	32 <1 204 4 543 1150 520 637 2264 history1 18 1 2 18 1 2 <i>history1</i> 0 11.0	23 10 187 4 557 1068 597 667 2641 history2 17 1 2 history2 0 11.2
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 imit/base >25 imit/base >3 >20 >30	18 0 216 33 674 1420 615 782 3210 current 18 1 0 current 0.1 10.9 21.7 current	32 <1 204 4 543 1150 520 637 2264 history1 18 1 2 history1 0 11.0 21.1	23 10 187 4 557 1068 597 667 2641 history2 17 1 2 17 1 2 <i>history2</i> 0 11.2 21.8 <i>history2</i>
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	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >20 Iimit/base >3 >20 >30	18 0 216 33 674 1420 615 782 3210 current 18 1 0 current 0.1 0.1 0.1 0.1 0.1 10.9 21.7	32 <1 204 4 543 1150 520 637 2264 history1 18 1 2 history1 0 11.0 21.1 history1	23 10 187 4 557 1068 597 667 2641 history2 17 1 2 history2 0 11.2 21.8

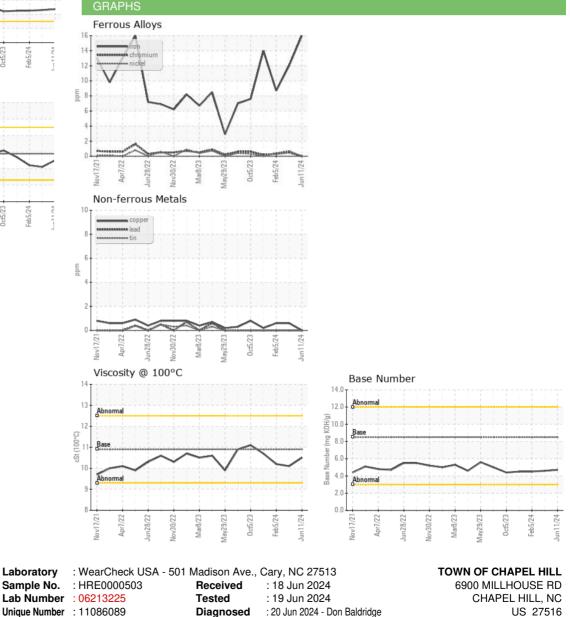


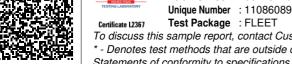
OIL ANALYSIS REPORT





VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	LIGHT	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	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	10.9	10.5	10.1	10.2





To discuss this sample report, contact Customer Service at 1-800-237-1369. * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

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