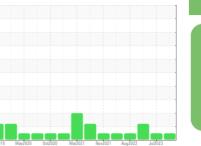


OIL ANALYSIS REPORT

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Sample Rating Trend





NORMAL

Machine Id 624016 Component Diesel Engine Fluid MOBIL 15W40 (--- QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

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	1ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		IL0030572	IL0030440	IL0026678
Sample Date		Client Info		04 Jan 2024	20 Jul 2023	02 Feb 2023
Machine Age	mls	Client Info		162318	148153	0
Oil Age	mls	Client Info		33850	46156	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	MARGINAL
CONTAMINATION	١	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	2 .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	19	19	18
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	6	8	11
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	0	0	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 2	history1 5	history2 6
Boron Barium	ppm ppm		limit/base		· · · · ·	
Boron		ASTM D5185m	limit/base	2	5	6
Boron Barium	ppm	ASTM D5185m ASTM D5185m	limit/base	2 0	5	6 0 62 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 64	5 1 64	6 0 62
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 64 <1	5 1 64 <1	6 0 62 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 64 <1 1037	5 1 64 <1 927 1199 1025	6 0 62 <1 960 1284 1026
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	2 0 64 <1 1037 1095 1124 1327	5 1 64 <1 927 1199	6 0 62 <1 960 1284
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	limit/base	2 0 64 <1 1037 1095 1124	5 1 64 <1 927 1199 1025	6 0 62 <1 960 1284 1026
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	limit/base	2 0 64 <1 1037 1095 1124 1327	5 1 64 <1 927 1199 1025 1225	6 0 62 <1 960 1284 1026 1343
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		2 0 64 <1 1037 1095 1124 1327 3364	5 1 64 <1 927 1199 1025 1225 3302	6 0 62 <1 960 1284 1026 1343 3971
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	limit/base	2 0 64 <1 1037 1095 1124 1327 3364 current	5 1 64 <1 927 1199 1025 1225 3302 history1	6 0 62 <1 960 1284 1026 1343 3971 history2
Boron 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 method	limit/base	2 0 64 <1 1037 1095 1124 1327 3364 current 5	5 1 64 <1 927 1199 1025 1225 3302 history1 5	6 0 62 <1 960 1284 1026 1343 3971 history2 7
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	limit/base >25 >118	2 0 64 <1 1037 1095 1124 1327 3364 current 5 2 7	5 1 64 <1 927 1199 1025 1225 3302 history1 5 0	6 0 62 <1 960 1284 1026 1343 3971 history2 7 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >118 >20	2 0 64 <1 1037 1095 1124 1327 3364 current 5 2 7	5 1 64 <1 927 1199 1025 1225 3302 history1 5 0 10	6 0 62 <1 960 1284 1026 1343 3971 history2 7 2 12
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	limit/base >25 >118 >20 limit/base	2 0 64 <1 1037 1095 1124 1327 3364 current 5 2 7 7 current	5 1 64 <1 927 1199 1025 1225 3302 history1 5 0 10 history1	6 0 62 <1 960 1284 1026 1343 3971 history2 7 2 12 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	limit/base >25 >118 >20 limit/base >3	2 0 64 <1 1037 1095 1124 1327 3364 <u>current</u> 5 2 7 2 7 <u>current</u> 0.7	5 1 64 <1 927 1199 1025 1225 3302 history1 5 0 10 history1 0.6	6 0 62 <1 960 1284 1026 1343 3971 history2 7 2 12 12 history2 0.5
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	limit/base >25 >118 >20 limit/base >3 >20	2 0 64 <1 1037 1095 1124 1327 3364 <i>current</i> 5 2 7 <i>current</i> 0.7 10.0	5 1 64 <1 927 1199 1025 1225 3302 history1 5 0 10 history1 0.6 10.1	6 0 62 <1 960 1284 1026 1343 3971 history2 7 2 12 7 2 12 history2 0.5 10.1
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	limit/base >25 >118 >20 limit/base >3 >20 >30	2 0 64 <1 1037 1095 1124 1327 3364 current 5 2 7 7 current 0.7 10.0 20.5	5 1 64 <1 927 1199 1025 1225 3302 history1 5 0 10 history1 0.6 10.1 20.7	6 0 62 <1 960 1284 1026 1343 3971 history2 7 2 12 7 2 12 0.5 10.1 19.4

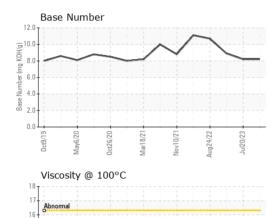


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OIL ANALYSIS REPORT

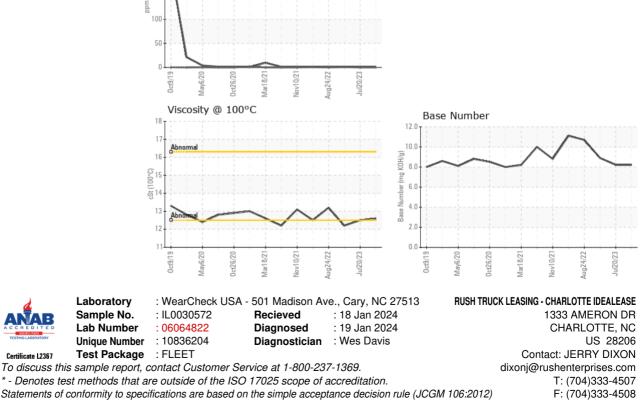


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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		12.6	12.5	1 2.2
GRAPHS						

Ferrous Alloys 80 Aug24/22 Vov10/21 70 Mar18/21 60 icke 50 E 40 30 20 10 Π. Aug24/22 Mav6/20 Oct26/20 Vov10/21 0ct9/19 Aar18/7 Non-ferrous Metals 250 ead 200

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

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