

OIL ANALYSIS REPORT



MR. KENNETH R WINTER YANMAR M56093 - PORT DIESEL ENGINE

Sample No: VPA036334
Oil Type: CITGO CITGUARD 600 15W40

SAMPLE INFORMATION

Sample Number	VPA036334	VPA047512	VPA040145	VPA039829
Sample Date	24 Apr 2024	02 Jun 2023	03 Nov 2022	24 Feb 2022
Machine Hours	5037	4746	4468	4106
Oil Hours	291	276	362	273
Oil Changed	Changed	Changed	Changed	Changed
Sample Status	ABNORMAL	ABNORMAL	ABNORMAL	ABNORMAL

Monmouth Marine Engines Inc
 536 UNION LN
 BRIELLE, NJ
 US 08730-1421
 Contact: Kenneth Mika
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 T: x:
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OIL CONDITION

Visc @ 100°C	cSt	▲ 11.8	▲ 11.9	▲ 12.4	▲ 12.3
Base Number (BN)	mg KOH/g	■ 8.3	■ 7.3	■ 8.2	■ 10.8
Oxidation (PA)	%	68	74	73	72

CONTAMINATION

Water	%	NEG	NEG	NEG	NEG
Soot %	%	■ 0.1	■ 0.1	■ 0.1	■ 0.2
Nitration (PA)	%	70	73	94	78
Sulfation (PA)	%	53	55	58	59
Glycol	%	NEG	NEG	NEG	NEG
Fuel	%	▲ 3.8	▲ 4.3	▲ 3.6	▲ 4.4
Silicon	ppm	■ 4	■ 3	■ 3	■ 6
Sodium	ppm	■ 1	■ 1	■ 4	■ 2
Potassium	ppm	■ 3	■ 4	■ 8	■ <1

WEAR METALS

Iron	ppm	■ 4	■ 3	■ 4	■ 6
Copper	ppm	■ 19	■ 21	■ 69	■ 51
Lead	ppm	■ <1	■ <1	■ <1	■ 3
Tin	ppm	■ <1	■ <1	■ <1	■ 0
Aluminum	ppm	■ 2	■ 1	■ 2	■ <1
Chromium	ppm	■ <1	■ <1	■ <1	■ <1
Molybdenum	ppm	■ 60	■ 64	■ 76	■ 48
Nickel	ppm	■ 0	■ <1	■ 2	■ 0
Titanium	ppm	■ <1	■ 0	■ 0	■ 0
Silver	ppm	■ <1	■ 0	■ 1	■ 0
Manganese	ppm	■ 0	■ <1	0	<1
Vanadium	ppm	<1	<1	<1	0

ADDITIVES

Calcium	ppm	■ 1703	■ 1887	■ 1938	■ 1775
Magnesium	ppm	■ 376	■ 382	■ 245	■ 657
Zinc	ppm	■ 1235	■ 1354	■ 1175	■ 1193
Phosphorus	ppm	■ 993	■ 1085	■ 974	■ 1030
Barium	ppm	■ 0	■ 0	■ 0	■ 0
Boron	ppm	■ 4	■ 10	■ 43	■ 72

Diagnosis

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. There is a moderate amount of fuel present in the oil. Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil.

Depot: VP153457
Unique No: 11045488
Signed: Sean Felton
Report Date: 28 May 2024

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VOLVO PENTA

GRAPHS

