

BENCH TEST REPORT ON A POWERTRAIN

VAZ-21011 engine and gearbox: compression, fuel and exhaust fixed without disassembly

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Russia, 2000 · contract No. 1003/KYa 4 · report with signatures and seal

PRODUCT

XADO technology® (XADO RVS)

three 9 ml doses into the engine oil · 4.5 ml into the gearbox oil

TEST OBJECT

VAZ-21011 powertrain with VAZ-2103 gearbox

vehicle mileage about 100,000 km · bench running time after treatment ≈ 26 h

DOCUMENT TYPE

Bench test report of the Engine Diagnostics Center

ASSEMBLY	CONDITION AT START OF TESTS	WHAT WAS MEASURED
VAZ-21011 engine, petrol, complete	vehicle mileage about 100,000 km , oil burn 4 l per 100 l of petrol	compression per cylinder, CO and HC in the exhaust gases, fuel consumption, power, oil pressure
VAZ-2103 gearbox	part of the same vehicle	run together with the engine on the load bench

Both units were treated: {{27 ml}} of XADO RVS into the engine oil in three doses and {{4.5 ml}} into the gearbox oil; numerical measurements were taken on the engine.

Key results

↑ **10-20 %**

compression per cylinder on a warm engine, 5-7.5 → 7.1-9.6 kgf/cm²

↓ **4 %**

specific fuel consumption at 3500 rpm, 306 → 294 g/hp·h

↓ **75-80 %**

HC content at 2500 rpm, 2100 → 430 ppm

Compression per cylinder

CYLINDER	85-95 °C, BEFORE	85-95 °C, AFTER	50-55 °C, BEFORE	50-55 °C, AFTER
1	5	7.1	6.5	7.5
2	6	7.6	7	9.5
3	7	9	7	11.2
4	7.5	9.6	9.5	11.0

Values in kgf/cm², automotive compression gauge. According to the report's conclusion, compression rose by **10-20 %** in all cylinders; the growth is limited by the manufacturer's nominal value.

Exhaust gas toxicity

PARAMETER	MODE	BEFORE TREATMENT	AFTER TREATMENT
CO	1000 rpm	1.9 %	1.6 %
CO	2500 rpm	0.6 %	0.5 %
HC	2500 rpm	2100 ppm	430 ppm

GIAM-27 gas analyzer, samples taken from the exhaust valve. According to the report's conclusion — CO down by **16-17 %**, HC by **75-80 %** depending on the mode.

Fuel consumption and power at n = 3500 rpm

PARAMETER	BEFORE TREATMENT	AFTER 2 DOSES	AFTER 3 DOSES
Specific fuel consumption, g/hp·h	306	295	294
Power measured on the bench, hp	32.7	41.5	45.5
Hourly fuel consumption, kg/h	10.0	—	13.4

Measurements at one and the same mode, gravimetric method. The power taken from the engine rose by **12.8 hp**, hence the higher hourly consumption at a lower specific one.

Conclusion of the Engine Diagnostics Center

The engine arrived at the bench after a mileage of about **100,000 km**, with an oil burn of **4 l** per 100 l of petrol and compression of **5 kgf/cm²** in the weakest cylinder. Introducing XADO technology® into the engine oil and the gearbox oil of the tested powertrain led to the following changes:

1. An increase in compression in all cylinders by **10-20 %**;
2. A reduction of CO emissions by **16-17 %** and HC by **75-80 %**, depending on the engine operating mode;
3. A reduction of specific fuel consumption by **4 %**;
4. Restoration of the oil pressure in the engine's oil system to the values specified by the manufacturer. On the whole, we consider that the use of XADO technology®, subject to compliance with the run-in recommendations for the powertrain, unequivocally provides an improvement of the engine's main technical, economic and environmental indicators.



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The results refer to a VAZ-21011 petrol engine assembled with a VAZ-2103 gearbox on a load bench; on other equipment and under other modes the figures may differ. RVS is an obsolete XADO designation, the zero-generation compounds; the current product generation is revitalizants. The original report with signatures and seal is published in full and available for download.