

THREE TECHNICAL MEASUREMENT REPORTS · JUNE 2000

PAZ-3205 bus engines: compression rose without teardown, CO emissions fell

Mostransavto branch «Avtokolonna 1785», motor squad No. 4 · reports approved by the branch chief engineer I. N. Kozlov, signed by the driver, the engine mechanic and the squad head

Shchyolkovo, Moscow Region · reports of 06.06 and 08.06.2000 · control measurements after 1542, 5866 and 9892 km of service

PRODUCT

XADO revitalizant
in the reports — «treatment by
XADO technology™» · engine
treated without teardown

TEST OBJECT

PAZ-3205 buses
two vehicles: reg. No. V 233
MK and E 441 MS · petrol
V-type engine, two banks of 4
cylinders

DOCUMENT TYPE

Technical reports on
measured
operating parameters
three reports signed and
stamped by the depot branch
and by the contractor

BUS	MILEAGE AT START	MILEAGE AFTER TREATMENT	REPORT DATE	WHAT WAS MEASURED
PAZ-3205, V 233 MK	95 427 km	1542 km	08.06.2000	Compression on all 8 cylinders, running time on 100 g of petrol, oil pressure, CO and CH
PAZ-3205, V 233 MK	95 427 km	5866 km	06.06.2000	The same, plus oil pressure at 2000 rpm
PAZ-3205, E 441 MS	36 156 km	9892 km	08.06.2000	Compression on all 8 cylinders, running time on 100 g of petrol, oil pressure, CO and CH

Both vehicles stayed in normal line service: the «after» readings were taken not right after the treatment, but thousands of kilometres later.

What repeated on both vehicles

↑ **5.8-61.4 %**

compression by cylinder, 5.6-9.0 → 6.9-10.1 kgf/cm²

↓ **2.3-6.3×**

CO content in the exhaust gases, 1.0-3.4 → 0.16-1.45 %

Cylinder compression — at each control measurement

BUS · MILEAGE AFTER TREATMENT	BEFORE, kgf/cm ²	AFTER, kgf/cm ²	CHANGE
V 233 MK · 1542 km	5.6-6.9	6.9-7.6	+6-29 %, gain in all 8 cylinders
V 233 MK · 5866 km	5.6-6.9	8.7-9.5	+35-61 %, gain in all 8 cylinders
E 441 MS · 9892 km	7.6-9.0	9.6-10.1	+9-28 %, gain in all 8 cylinders

The spread between cylinders narrowed from 1.3-1.4 to 0.5-0.8 kgf/cm²: the weakest cylinders caught up with the strongest, and the gain runs into the factory nominal value.

Fuel consumption — engine running time on a measured 100 g portion of petrol

BUS · MILEAGE AFTER TREATMENT	BEFORE TREATMENT	AFTER TREATMENT
V 233 MK · 1542 km	2 min 36 s	3 min 24 s
E 441 MS · 9892 km	3 min 9 s	4 min 13 s

On one and the same measured portion of petrol the engine runs longer — the same work takes less fuel.

Exhaust gas toxicity

BUS · MILEAGE AFTER TREATMENT	CO, BEFORE → AFTER, %	CH, BEFORE → AFTER, ppm	CO / CH REDUCTION
V 233 MK · 1542 km	1.0 → 0.18	2400 → 1600	82 % / 33 %
V 233 MK · 5866 km	1.0 → 0.16	2400 → 1400	84 % / 42 %
E 441 MS · 9892 km	3.4 → 1.45	2100 → 1200	57.4 % / 42.8 %

The reduction percentages are given exactly as recorded in the conclusions of the reports themselves; the source pairs of values stand alongside.

Oil pressure in the lubrication system

BUS · MILEAGE AFTER TREATMENT	MODE	BEFORE	AFTER
V 233 MK · 1542 km	Idle speed, 80 °C	0.2 kgf/cm ²	0.35 kgf/cm ²
V 233 MK · 5866 km	Idle speed, 80 °C	0.2 kgf/cm ²	0.5 kgf/cm ²
V 233 MK · 5866 km	2000 rpm	0.4 kgf/cm ²	1.8 kgf/cm ²
E 441 MS · 9892 km	Idle speed, 80 °C	0.7 kgf/cm ²	1.0 kgf/cm ²

Higher oil pressure on a warmed-up engine is a sign of restored clearances in the pump: it holds pressure again.

What the reports record

Three depot reports record one and the same result on two buses: compression rose in all eight cylinders of each engine, the spread between cylinders narrowed from **1.3-1.4** to **0.5-0.8 kgf/cm²**, and the CO content in the exhaust gases fell several times over — the reports state a CO emission reduction of **82 %** and **84 %** on V 233 MK and **57.4 %** on E 441 MS. The vehicles were worn: on V 233 MK, at a mileage of **95 427 km**, the weakest cylinders held **5.6-5.9 kgf/cm²**. The recovery was obtained without teardown, on buses that kept working on the line. On V 233 MK the first check was made before the process had finished — «the treatment is considered complete after **3500 km** of running» — and by **5866 km** the compression of the same engine had risen from **6.9-7.6** to **8.7-9.5 kgf/cm²**. The drivers of both vehicles noted that the bus ran quieter and gained noticeably in throttle response.

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The results refer to the petrol engines of PAZ-3205 buses of the Mostransavto branch «Avtokolonna 1785» at the stated mileages; on other equipment and under other operating modes the figures may differ. The originals of the three technical reports, with signatures and stamps, are published in full and available for download.