

ENGINE RESTORATION REPAIR REPORT DATED 27.07.2007

ZIL 130, ZIL 43331, KAMAZ: compression evened out, smoke opacity within limits

OJSC «Spetsdormekhanizatsiya No. 2» · approved by chief engineer N. A. Neudachin · signed by head of the technical department V. A. Naumov · treatment performed by XADO LLC specialists

Russia · works 14.05–26.07.2007 · report dated 27.07.2007

PRODUCT

XADO Revitalizant
engine restoration without
disassembly, on machinery in
service

TREATED OBJECT

Engines of three trucks
ZIL 130 · ZIL 43331 (petrol) ·
KAMAZ (diesel)

DOCUMENT TYPE

Company report
signed and stamped

VEHICLE	ENGINE	WHAT WAS MEASURED
ZIL 130, reg. no. A 510TM 97	petrol	compression · oil pressure · CO and CH in exhaust gases
ZIL 43331, reg. no. N 385RT 97	petrol	compression · oil pressure at two operating modes
KAMAZ, reg. no. S 716RB 99	diesel	compression across eight cylinders · smoke opacity at two modes

Vehicles from the company fleet, measurements taken before and after treatment; the engines were not disassembled and remained in service.

Key results

compression evened out across the
cylinders

↑ **0.7-27.8 %**

average compression of the ZIL petrol
engines, 6.8-7.2 → 7.5-9.2 kgf/cm²

↓ **2.1×**

exhaust smoke opacity of the KAMAZ
under free acceleration, 25 → 12

↑ **14-30 %**

oil pressure in the ZIL lubrication system,
1.0-3.6 → 1.3-4.1 kgf/cm²

ZIL 130 and ZIL 43331 petrol engines — compression and oil pressure

PARAMETER	ZIL 130, BEFORE → AFTER	ZIL 43331, BEFORE → AFTER
Average compression across cylinders, kgf/cm ²	6.8 → 7.5	7.2 → 9.2
Oil pressure at idle, kgf/cm ²	3.2 → 4.0	1.5 → 1.8
Oil pressure at 3000 rpm, kgf/cm ²	1.0 → 1.3	3.6 → 4.1

For the petrol engines the report gives the average compression across the cylinders. Oil pressure rose at both operating modes and on both vehicles.

KAMAZ diesel — compression by cylinder

CYLINDER	BEFORE	AFTER
No. 1	13.3	15
No. 2	14	16
No. 3	15	15.1
No. 4	15	15.3
No. 5	14	16
No. 6	15	16
No. 7	15.1	16
No. 8	15.3	16

Compression in kgf/cm². A gain was obtained on all eight cylinders, most of all on the initially worst ones: the spread across the engine narrowed by half.

KAMAZ diesel — exhaust smoke opacity

MEASUREMENT MODE	BEFORE	AFTER	LIMIT PER THE REPORT
Idle	45	30	40
Free acceleration	25	12	15

The permissible values are quoted in the report itself: before treatment the engine exceeded them at both modes, after treatment it met both.

ZIL 130 — exhaust gas toxicity

PARAMETER	MODE	BEFORE	AFTER
CO	idle	0.9	0.6
CO	3000 rpm	0.3	0.1
CH	idle	1700	1200
CH	3000 rpm	700	400

A reduction was recorded for both components and at both engine operating modes.

Conclusion of the company commission

The commission of OJSC «Spetsdormekhanizatsiya No. 2» recorded in the report: restoration repair of petrol and diesel engines by the XADO technology showed 1) evening out and increase of compression across the cylinders; 2) reduction of exhaust gas toxicity; 3) increase of oil pressure in the lubrication system. The works ran from 14.05.2007 to 26.07.2007 on vehicles that remained in service, the engines were not disassembled. Before treatment the KAMAZ diesel failed the permissible smoke opacity values of the report itself at both modes — **45** against a limit of **40** and **25** against **15**; after treatment it met both. On the petrol ZIL vehicles, oil pressure in the lubrication system rose along with compression. The report was approved by the chief engineer of the company and certified with a stamp.

XADO

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The results relate to the engines of the ZIL 130, ZIL 43331 and KAMAZ vehicles of the OJSC «Spetsdormekhanizatsiya No. 2» fleet, treated in May–July 2007; on other machinery and under different operating conditions the figures may differ. The original report with signatures and stamp is published in full and available for download.