

SIX TECHNICAL ACTS · 4 SEPTEMBER — 9 NOVEMBER 2001

# KRAZ, KamAZ, YuMZ-6 diesels: compression and oil pressure rose on every machine

Tatneft JSC, Almeteyevneft oil and gas production division (NGDU), Almeteyevsk Transport Department No. 1 (AUTT-1) · measurements witnessed by the AUTT-1 engineering department, treatment performed by AI-XADO LLC

Almeteyevsk, Republic of Tatarstan, Russia · measurements 4.09.2001 and 9.11.2001 · contract No. 15 of 23.08.2001

**PRODUCT**

Treatment by XADO technology

no engine disassembly, the machines stayed in service

**TEST OBJECT**

Diesel engines of six machines

KamAZ-5320 · KRAZ-250 · KRAZ-260 · KRAZ-25551 · KRAZ-65101 · YuMZ-6 tractor excavator

**CUSTOMER'S CONCLUSION**

"I consider the use of XADO technology for restoring worn mechanisms under normal operating conditions expedient when 25-75 % of the engine service life is used up and there are no oil leaks"

S. A. Brusov, Head of Vehicle Operations, AUTT-1, Almeteyevneft NGDU, 4.09.2001, contract No. 15 of 23.08.2001

| MACHINE    | PLATE No. | YEAR | ODOMETER AT START | RUN OVER THE CYCLE |
|------------|-----------|------|-------------------|--------------------|
| KamAZ-5320 | V 855 OR  | 1993 | 109 951 km        | 10 154 km          |
| KRAZ-250   | V 481AN   | 1993 | 89 875 km         | 3 895 km           |
| KRAZ-65101 | V 468RO   | 1995 | 41 960 km         | 2 350 km           |
| KRAZ-260   | 63-07 TTV | 1996 | 14 274 km         | 1 456 km           |
| KRAZ-25551 | 65-84 TTV | 1993 | 10 275 km         | 2 036 km           |

| MACHINE                  | PLATE No. | YEAR | ODOMETER AT START | RUN OVER THE CYCLE |
|--------------------------|-----------|------|-------------------|--------------------|
| YuMZ-6 tractor excavator | 57-41 TS  | 1992 | —                 | 390 engine-h       |

Baseline measurements — 4.09.2001, control measurements — 9.11.2001; cylinder compression and oil pressure were measured on every machine.

## What repeated on every machine of the series

**↑ 14-22 %**

cylinder compression, 17-27.7 → 22-30 kgf/cm<sup>2</sup>

**↑ 11-33 %**

oil pressure at 2000 rpm, 2-6 → 4-7.1 kgf/cm<sup>2</sup>

## Cylinder compression — machine by machine

| MACHINE               | BEFORE TREATMENT | AFTER TREATMENT | AVERAGE GAIN |
|-----------------------|------------------|-----------------|--------------|
| KamAZ-5320, V 855 OR  | 23.0-23.4        | 27.0-30.0       | 22.3 %       |
| KRAZ-250, V 481AN     | 23.7-25.1        | 28.0-29.0       | 16.8 %       |
| KRAZ-65101, V 468RO   | 24.0-25.0        | 28.0            | 14.3 %       |
| KRAZ-260, 63-07 TTV   | 23.0-24.0        | 27.9-28.3       | 20.1 %       |
| KRAZ-25551, 65-84 TTV | 27.0-27.7        | 28.9-29.1       | 6 %          |
| YuMZ-6, 57-41 TS      | 17.0-17.5        | 22.0            | 27.53 %      |

Compression in kgf/cm<sup>2</sup>; the average gain is taken from the "Results" section of each act. The lower the initial compression, the larger the gain: growth is capped by the factory nominal.

## Oil pressure at an engine temperature of 60 °C

| MACHINE               | IDLE SPEED | 2000 RPM  |
|-----------------------|------------|-----------|
| KamAZ-5320, V 855 OR  | 1.5 → 2.5  | 2.0 → 4.0 |
| KRAZ-250, V 481AN     | 5.5 → 6.2  | 6.0 → 7.1 |
| KRAZ-65101, V 468RO   | 2.5 → 4.0  | 4.5 → 5.0 |
| KRAZ-260, 63-07 TTV   | 2.0 → 4.0  | 4.5 → 6.0 |
| KRAZ-25551, 65-84 TTV | 3.5 → 6.0  | 6.0 → 7.0 |

| MACHINE          | IDLE SPEED | 2000 RPM  |
|------------------|------------|-----------|
| YuMZ-6, 57-41 TS | 1.0 → 2.5  | 2.0 → 4.0 |

Pressure in kgf/cm<sup>2</sup>. The increase was recorded on all six machines and in both modes — at idle and under load.

## What the acts recorded

The acts of Almet'yevsk UTT-1 record the same thing for every machine: "Compression increased by an average of **16.8 %**, evened out across the cylinders. Oil pressure increased" — so for KRAZ-250, and likewise for the other five, from **6** to **27.53 %**. On not a single machine did compression stay the same, and on not a single one did oil pressure drop. All six engines completed the cycle in regular service, without disassembly and without taking the machines out of work: between the measurements the vehicles covered from **1 456** to **10 154 km**, and the tractor excavator **390 engine hours**. For the KamAZ-5320 the act adds a service observation: "According to the driver the truck became more powerful; previously a hill climb was managed in 3rd gear with difficulty, now it climbs easily in 4th". Following the work, the customer recognised the use of the technology as expedient at **25-75 %** of engine service life used up.

**XADO**

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The results refer to the diesel engines of KRAZ and KamAZ trucks and a YuMZ-6 tractor excavator under the operating conditions of Almet'yevsk UTT-1; on other equipment and in other duty cycles the figures may differ. The originals of all six technical acts, with signatures and stamps, are published in full and available for download.