

REPORT UNDER CONTRACT No. 02/XADO OF 19.06.2001

ZIL-MMZ-45021 tipper: compression up in every cylinder, no teardown

Imstalkon JSC, AMF-1 · chief engineer Pak V. M., chief mechanic Dumaev N. P., fleet manager Karlov G. T. · treatment carried out by GAYER LLP

Contract No. 02/XADO of 19.06.2001 · measurements after 2736 km of running over 28 days

PRODUCT

XADO technology
treatment of the engine and
cylinders, gearbox and rear axle
final drive — without
dismantling the units

TEST OBJECT

ZIL-MMZ-45021 tipper
truck
engine No. 080403 · chassis
No. 2456730 · plate A953 VS

DOCUMENT TYPE

Report — annex No. 4
to contract No. 02/XADO

EQUIPMENT

ZIL-MMZ-45021 tipper
truck,
engine No. 080403

CONDITION AT START OF TESTING

built **1986**, **15** years in service by the
time of treatment; compression **4.8-5.0**
kgf/cm², in cylinder 7 **3.0 kgf/cm²**

WHAT WAS MEASURED

Compression across **8** cylinders;
engine running time on **1 l** of petrol
at idle

The contract covered treatment of the engine and cylinders, the gearbox and the rear axle final drive; the measurements given in the report are for the engine.

Key results

↑ **25-46 %**

compression across the cylinders, 3.0-5.0 → 4.0-7.0
kgf/cm²

↑ **2 min**

running time on 1 l of petrol at idle, 16 → 18 min

Compression by cylinder, engine No. 080403

CYLINDER	BEFORE TREATMENT, KG/CM ²	AFTER TREATMENT, KG/CM ²	CHANGE
1st	4.9	6.5	+33 %
2nd	4.9	7.0	+43 %
3rd	4.9	7.0	+43 %
4th	5.0	6.5	+30 %
5th	4.8	6.0	+25 %
6th	4.8	7.0	+46 %
7th	3.0	4.0	+33 %
8th	4.8	6.5	+35 %

Each cylinder was measured before treatment and after 2736 km of running; the engine was not dismantled and the truck stayed in service.

Fuel consumption at idle

PARAMETER	BEFORE TREATMENT	AFTER TREATMENT
Engine running time on 1 l of petrol	16 min	18 min

Measured at idle as the time taken to consume one litre of petrol.

Commission conclusion

The commission of Imstalkon JSC and GAYER LLP recorded in the report: «Thus, the engine operating parameters have been improved, as can be seen from the increase in compression in the cylinders». The increase was recorded in all eight cylinders: in seven of them from **4.8-5.0 to 6.0-7.0 kgf/cm²**, meaning that the sealing of the cylinder-piston group was restored throughout an engine that had by then been in service for **15 years**. The units were not dismantled, the truck stayed in operation and covered **2736 km** in **28 days**. The report separately notes: «The insignificant change in compression in cylinder 7 possibly indicates mechanical damage in that cylinder. The engine should be dismantled in order to establish the true cause of this fact». Even in that cylinder compression rose from **3.0 to 4.0 kgf/cm²**.



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The results relate to the ZIL-MMZ-45021 tipper truck with a petrol engine and to the stated measurement conditions; figures may differ on other equipment. The report was drawn up as an annex to contract No. 02/XADO and signed by both parties — the contractor GAYER LLP and the customer. The original report with signatures and stamps is published in full and available for download.