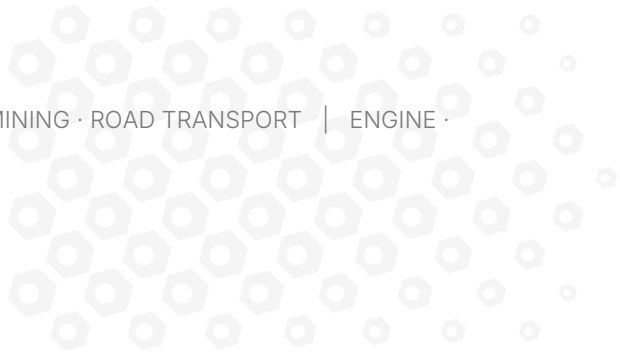




EXPERIMENT PROTOCOL AT THE MINE VEHICLE FLEET

ZIL 433: compression and oil pressure rose without engine teardown

Mini Maritsa Iztok EAD, Troyanovo-3 mine branch, vehicle fleet · experiment carried out jointly with May OOD, Plovdiv — XADO distributor

Mednikarovo village, Bulgaria · measurements on 06.04.2004 and 01.06.2004 · observation period 56 days

PRODUCT	TEST OBJECT	DOCUMENT TYPE
XADO revitalizant gel 63 ml into the engine lubrication system · 27 ml into the fuel tank · 36 ml into the gearbox	ZIL 433 truck 8-cylinder engine · fuel system · gearbox	Experiment protocol of the Troyanovo-3 mine signed by five participants of the experiment

EQUIPMENT	MILEAGE AT TEST START	WHAT WAS MEASURED
ZIL 433 truck, 8-cylinder engine	53,413 km	Cylinder compression, oil pressure in the engine lubrication system

The engine, the fuel system and the gearbox were treated; repeat measurements were taken after {{1556 km}} of normal service.

Key results

↑ 14-33 % cylinder compression, 18-22 → 24-26 atm	↑ 46-50 % oil pressure at 300-1200 rpm, 2.6-4.2 → 3.8-6.2 bar
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Compression in the engine cylinders

CYLINDER	BEFORE TREATMENT	AFTER 1556 KM	CHANGE
No. 5	22 atm	26 atm	+18.2 %
No. 7	18 atm	24 atm	+33.3 %
No. 8	21 atm	24 atm	+14.3 %

Measured on three cylinders out of eight, before and after on the same cylinders. The spread between them narrowed from **4 atm** to **2 atm**.

Oil pressure in the engine lubrication system

ENGINE SPEED, RPM	BEFORE TREATMENT	AFTER 1556 KM	CHANGE
300	2.6 bar	3.8 bar	+46.2 %
800	2.8 bar	4.2 bar	+50.0 %
1000	3.0 bar	4.4 bar	+46.7 %
1200	4.2 bar	6.2 bar	+47.6 %

Both measurement cycles were run at the same engine temperature of **45-50 °C** — the conditions are directly comparable.

What the protocol recorded

After **1556 km** of normal service the protocol of the Troyanovo-3 mine recorded: "The increase in oil pressure was: at 300 rpm – **+46 %**, at 800 rpm – **+50 %**, at 1,000 rpm – **+46 %**, at 1,200 rpm – **+48 %**". Compression rose in all three measured cylinders — **18-22 → 24-26 atm**, and the largest gain came from the weakest of them, cylinder No. 7: **18 → 24 atm**. This is how a revitalizant works: the coating builds up where the wear is, sealing of the cylinder-piston group is restored and the cylinders even out with one another. As a separate item the protocol notes: "A reduction of gearbox operating noise was observed". The experiment was carried out in the presence of representatives of the Troyanovo-3 mine and May OOD, Plovdiv.

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The results refer to a ZIL 433 truck with an 8-cylinder engine in open-pit mine service; on other equipment and under other operating conditions the figures may differ. The experiment was carried out with the participation of the XADO distributor May OOD, Plovdiv. The original protocol is published in full and available for download.