

FIELD TRIAL REPORT · 29 NOVEMBER 2001

ZiL-130 bus engine: compression increased and evened out across cylinders

JSC "Bus Fleet No. 1" · company commission: chief engineer B. A. Kusainov, head of the technical department D. N. Zhanguzhinov, head of the vehicle column E. T. Ibraev · treatment performed by XADO-Asia LLP

Kazakhstan · treatment 08.11.2001 · repeat measurement 28.11.2001 · report signed 29.11.2001

PRODUCT

XADO compound
treatment to XADO technology,
carried out by XADO-Asia LLP
specialists on 08.11.2001

TEST OBJECT

ZiL-130 engine
LaZ-695 bus, reg. no. Z 892 AO
· engine no. 040690 · 8
cylinders

DOCUMENT TYPE

Commission report
JSC "Bus Fleet No. 1"
signatures of four officials,
stamps of two organisations

EQUIPMENT

LaZ-695 bus
reg. no. Z 892 AO

CONDITION BEFORE TREATMENT

ZiL-130 engine no. 040690, 8 cylinders;
compression uneven across cylinders, in
cylinder no. 3 — below 4.0

WHAT WAS MEASURED

Compression of each cylinder:
before treatment and after 2500
km of running

The treatment was carried out on 8 November 2001 by XADO-Asia LLP specialists; the repeat measurement was taken on 28 November 2001, after 2500 km of running.

Key results

↑ **4.1-16.7 %**

compression across cylinders, 6.0-7.3 → 7.0-7.6; a gain
in 6 of 7 measurements; in one, compression fell

**compression evened out
across the cylinders**

Compression by cylinder: before treatment and after 2500 km of running

CYLINDER	BEFORE TREATMENT	AFTER 2500 KM	CHANGE	GAIN
No. 1	7.5	7.0	-0.5	-6.7 %
No. 2	6.3	7.3	+1.0	+15.9 %
No. 3	below 4.0	6.9	—	—
No. 4	6.0	7.0	+1.0	+16.7 %
No. 5	7.0	7.5	+0.5	+7.1 %
No. 6	7.0	7.5	+0.5	+7.1 %
No. 7	7.3	7.6	+0.3	+4.1 %
No. 8	7.0	7.4	+0.4	+5.7 %

Compression is given in the units used in the original report. Notes from the report: the drop in cylinder no. 1 is an error of the first measurement; the gain in cylinder no. 3 follows repair of the valve timing mechanism.

Commission conclusion

The commission of JSC "Bus Fleet No. 1" recorded in the report: "the additives of XADO-Asia LLP have coped with the task set and can be recommended for use". By the time of treatment the engine was running unevenly: compression ranged from **6.0** to **7.3**, and in one cylinder it did not reach **4.0**. Over **2500 km** of scheduled service, without disassembly and without removing the engine, compression rose and the range closed up within **7.0-7.6**. The gain proved to be the greater the more worn the cylinder was: the metal-ceramic layer builds up where there is wear and does not build up where there is none. Compression cannot rise above the factory nominal value — therefore all cylinders reaching one and the same value is the maximum attainable without repair, while even compression across cylinders means even engine operation and lower fuel consumption.

XADO

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The results relate to the petrol ZIL-130 engine of a LaZ-695 bus under scheduled-service operation in a bus fleet; on other engines and operating modes the figures may differ. The original report of 29.11.2001 with signatures and stamps is published in full and available for download.