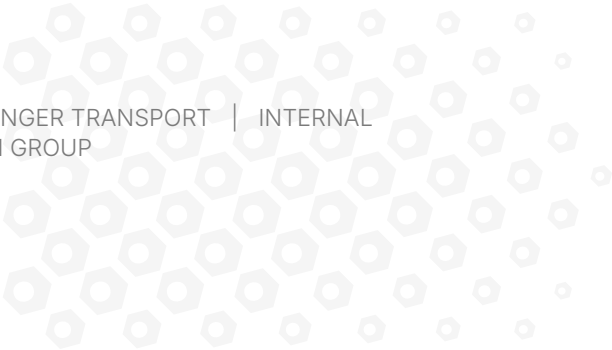




TWO TECHNICAL REPORTS · DECEMBER 2001 — JULY 2002

GAZ 31029 and IKARUS-263: piston-group compression rose, cylinder spread narrowed

MUPP “Ekspress”, Stavropol · reports approved by the director of the enterprise; treatment and measurements — XADO technology distributor A. V. Golubovsky and M. V. Chernovalov, lead specialist of the Revitalization Centre

Stavropol, Russia · technical reports of 14.02.2002 and 24.07.2002 · observation from December 2001

PRODUCT	TREATED OBJECT	DOCUMENT TYPE
XADO RVS applied to the cylinder walls through the injector openings, with initial running-in as per the instructions	GAZ 31029 and IKARUS-263 engines cylinder-piston group · without removing or dismantling the engine, in regular service	Two technical reports of MUPP “Ekspress” signed by the commission, approved by the director of the enterprise, with stamps

VEHICLE	MILEAGE AT START	OBSERVATION PERIOD	WHAT WAS MEASURED
GAZ 31029 · reg. no. S656MKh	65,494 km	20.12.2001 — 14.02.2002 · 6,506 km	compression in 4 cylinders, fuel consumption at idle
IKARUS-263 · reg. no. S 712 OS 26	444,938 km	28.02.2002 — 23.07.2002	compression in 6 cylinders

Both vehicles were treated without removing or dismantling the engine and without replacing worn parts, in the course of regular service.

What repeated on both vehicles

compression evened out across the cylinders

↑ **2.9-66.7 %**

compression across the cylinders, GAZ 31029 6.6 → 7.2
· IKARUS-263 17.0 → 24.5 kgf/cm²

Compression across the cylinders — both vehicles

VEHICLE	CYLINDER	BEFORE	AFTER	CHANGE
GAZ 31029 · S656MKh	1	6.5	7.5	+15.4 %
GAZ 31029 · S656MKh	2	6.0	7.0	+16.7 %
GAZ 31029 · S656MKh	3	7.0	7.2	+2.9 %
GAZ 31029 · S656MKh	4	7.0	7.2	+2.9 %
GAZ 31029 · S656MKh	average	6.6	7.2	+9.1 %
IKARUS-263 · S 712 OS 26	1	20.0	24.0	+20.0 %
IKARUS-263 · S 712 OS 26	2	15.0	25.0	+66.7 %
IKARUS-263 · S 712 OS 26	3	16.0	25.0	+56.3 %
IKARUS-263 · S 712 OS 26	4	17.5	26.0	+48.6 %
IKARUS-263 · S 712 OS 26	5	15.0	23.0	+53.3 %
IKARUS-263 · S 712 OS 26	6	18.5	24.0	+29.7 %
IKARUS-263 · S 712 OS 26	average	17.0	24.5	+44.1 %

IKARUS-263 compression is given in kgf/cm²; the GAZ 31029 report does not state the unit, so the two vehicles are compared by relative gain.

Evenness of engine operation

VEHICLE	SPREAD BEFORE	SPREAD AFTER	CHANGE
GAZ 31029 · S656MKh	1.0	0.5	−50 %
IKARUS-263 · S 712 OS 26	5.0	3.0	−40 %

The spread is the difference between the best and the worst cylinder on the same date. The largest gain came from the cylinders that stood below the rest: the coating builds up where the wear is.

Fuel consumption at idle — GAZ 31029

VEHICLE	PARAMETER	BEFORE	AFTER
GAZ 31029 · S656MKh	Engine running time on 100 ml of petrol	3 min 15 s	4 min 16 s

Measured with a 100 ml graduated cup: the longer the engine runs on the same volume, the lower the fuel consumption at idle.

Findings of the commission

The IKARUS-263 bus came in for treatment with cylinder wear beyond the permissible values — with hard starting and a noticeable loss of power. The repair was carried out without removing or dismantling the engine, without replacing worn parts, in the course of regular service on the route. The commission of MUPP "Ekspress" recorded: "The treatment of the engine cylinders carried out by the -XADO technology produced the effect of restoring the wear of the working friction surfaces". The commission estimated the direct saving on the purchase of spare parts and on the work of replacing the cylinder-piston group at approximately **60 % (23,000 roubles)**, did not account for the indirect effect and recommended "including the treatment of mechanisms and machines of motor transport enterprises in the system of scheduled preventive maintenance". On the GAZ 31029 passenger car the same technology gave a compression increase in all four cylinders over **6,506 km** of running.



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The results relate to the engines of a GAZ 31029 passenger car and an IKARUS-263 bus operated by an urban passenger transport enterprise; on other machines and duty cycles the figures may differ. The originals of both technical reports, with signatures and stamps, are published in full and available for download. RVS is an obsolete XADO designation, the zero-generation compounds; the current generation of products are revitalizants.