TEST REPORT No. MFB/IM 08-03-01/2003

YUGO Skala and LADA Niva: compression and power up, fuel consumption down

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PRODUCT

XADO revitalizant

metal-ceramic based additive, applied following the manufacturer's procedure

TEST OBJECT

Two passenger cars in everyday service

YUGO Skala, 1300 cm³ engine · LADA Niva, 1600 cm³ engine — carburettor petrol units

DOCUMENT TYPE

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VEHICLE	MILEAGE AT TEST START	DISTANCE RUN AFTER TREATMENT	WHAT WAS MEASURED
YUGO Skala, petrol DMB 1300 cm³	**110 791 km**	**3 000 km**	Compression, power, fuel consumption, crankcase pressure, emissions
LADA Niva, petrol 1600 cm³	**12 336 km** after overhaul	**2 528 km**	Compression, fuel consumption, crankcase pressure

Between the measurement sessions the engine bay was sealed and the distance was covered in everyday service; before the repeat measurements all settings were returned to their initial values.

Key results

↑ 2-16.4 %
compression in all eight cylinders, 9-12.5 → 9.6-13.5 bar

↓ 9.3 %
fuel consumption in the urban cycle, 12.95 → 11.75 l/100 km

↑ 9.5 %
engine power at 4800 rpm, 31.5 → 34.5 kW

↓ 3×
crankcase pressure, 15 → 5 mm H_2O

Compression by cylinder — both cars

CYLINDER	YUGO SKALA, BAR	CHANGE	LADA NIVA, BAR	CHANGE
1	10.2 → 10.5	+3 %	12.2 → 13.5	+10.6 %
2	10 → 10.2	+0.2 bar	11.5 → 12.8	+11.3 %
3	9 → 9.6	+7 %	12.5 → 13.5	+8 %
4	10 → 10.5	+5 %	11.6 → 13.5	+16.3 %

The largest gain came in the cylinders with the lowest initial compression: cylinder three on the YUGO Skala and cylinder four on the LADA Niva.

Fuel consumption

VEHICLE AND MODE	BEFORE	AFTER	CHANGE
YUGO Skala, ECE 84 urban cycle	12.95	11.75 l/100 km	−9.3 %
LADA Niva, steady 60 km/h	7.79	7.09 l/100 km	−9.0 %
LADA Niva, steady 120 km/h	14.19	12.88 l/100 km	−9.2 %

Gravimetric method, Super 98 petrol. At idle the YUGO Skala consumption fell by roughly 24 % — about 0.3 l/h.

YUGO Skala engine power

MODE	BEFORE	AFTER	CHANGE
≈3200 rpm — 60 km/h in third gear	**26.2 kW**	**27.9 kW**	**+6.5 %**
≈4800 rpm — 90 km/h in third gear	**31.5 kW**	**34.5 kW**	**+9.5 %**

Schenk chassis dynamometer with inertia masses set to the vehicle reference mass, full throttle.

Crankcase pressure

VEHICLE	BEFORE	AFTER
YUGO Skala	**15 mm H_2O**	**5 mm H_2O**
LADA Niva	**2 mm H_2O**	**−2 mm H_2O** — vacuum

The report reads the drop in crankcase overpressure — and, on the LADA Niva, the shift to vacuum — as better sealing of the cylinder-piston group.

Conclusion of the Engine Centre

The YUGO Skala came to the test with **110 791 km** on the odometer, at the wear limit, with particularly low compression in the third cylinder — and it was that cylinder which gained the most. Following comparative measurements before and after **2 500-3 000 km** run with the XADO additive, the Engine Centre of the Faculty of Mechanical Engineering, University of Belgrade recorded:

1. Engine compression, that is the compression pressure, rises in all cylinders.
2. Crankcase pressure falls, which together with the previous point indicates possible better sealing of the working space.
3. Oil pressure in the main gallery remains unchanged.
4. Engine power shows a tendency to rise, which may follow from conclusions 1 and 2.
5. Fuel consumption shows a tendency to fall, particularly at idle.
6. The level of exhaust emissions does not change significantly.

XADO

The results apply to the tested carburettor petrol engines of the YUGO Skala and LADA Niva in everyday service; the report itself notes that the observed changes depend substantially on the condition of the engine. The test was commissioned by the supplier of the additive, the measurements were carried out by the Engine Centre of the Faculty of Mechanical Engineering, University of Belgrade. The original report is published in full and available for download.