

SE UkrSTC "ENERGOSTAL" · TEST REPORT, JANUARY-MARCH 2013

Renault 19, C3J engine: compression of a worn cylinder rose and holds

SE UkrSTC "Energostal", pilot plant · chief mechanic Yu. A. Guzenko · head of the garage facility A. I. Kapusta · XADO LLC engineers Yu. I. Karatsyuba, O. Yu. Serov
Kharkiv, Ukraine · tests 23.01–19.03.2013

PRODUCT

XADO revitalizant
compounds

XADO "VitaFlush" oil system
cleaner · VERYLUBE "Antikoks"
cylinder-piston group
decarbonizer

TEST OBJECT

C3J engine, 4 cylinders

Renault 19, reg. no. AX 0615 BE
· mileage over 408 000 km ·
treated without disassembly

DOCUMENT TYPE

Report of the pilot plant,
SE UkrSTC "Energostal"

EQUIPMENT

Renault 19, C3J engine, reg. no.
AX 0615 BE

**MILEAGE AT TEST
START**

408 560 km

WHAT WAS MEASURED

Compression by cylinder, pressure build-up
rate, condition of the spark plugs and
cylinder-piston group parts

Compression — MOTORMETER compression tester. The full treatment cycle was completed at {{411 500 km}}: over the observation period the car covered {{2940 km}}.

Key result

↑ **35.4 %**

compression in cylinder 4, 6.5 → 8.8 kgf/cm²

Compression in cylinder 4 — stage by stage of the treatment

STAGE	COMPRESSION	RESULT OF THE STAGE
Before treatment, 408 560 km	6.5 kgf/cm²	Lowest compression in the engine; pressure built up slowly — about 10 revolutions of the crankshaft
After decarbonizing the cylinder-piston group	8.9 kgf/cm²	Stuck compression rings were freed
After the full treatment cycle and 2940 km	8.8 kgf/cm²	The level achieved was retained under the load of normal service

Measurements with a MOTORMETER compression tester, 4-17 bar scale. The report attributes the increase to the freeing of stuck rings, and credits revitalization with holding the parameters achieved.

Engine condition before and after treatment

FEATURE	BEFORE TREATMENT	AFTER TREATMENT
Spark plugs of cylinders 1 and 4	Threaded part and centre electrode oiled — excessive amount of oil in the cylinders	Oil deposit on the threaded part only
Pressure build-up rate in cylinder 4	About 10 revolutions of the crankshaft before a steady reading was reached	Pressure build-up rate improved

Assessment based on inspection of the spark plugs and cylinder-piston group parts carried out by the commission before and after treatment.

Commission conclusions

The commission of the pilot plant of SE UkrSTC "Energostal" recorded:

1. Based on the inspection of the spark plugs, it can be concluded that the entry of excess oil into cylinders 1 and 4 has decreased.
2. The increase in compression and the improved pressure build-up rate in cylinder 4 as a result of decarbonizing, as well as the retention of these parameters after the full treatment cycle, indicate that the compression rings are heavily worn, and this wear can be eliminated over a longer period of operation (vehicle mileage) or by additional treatment of these cylinders with XADO compounds.
3. The use of XADO revitalizant compounds did not fully compensate for the previously accumulated wear of the cylinder-piston group parts. It is recommended to replace the valve stem seals and the piston rings, and then to treat the engine oil system with XADO revitalizant compounds in order to restore the operating parameters and increase the engine service life by at least 1.5×, without a major overhaul.



© XADO. All rights reserved.

The results relate to the C3J petrol engine of a Renault 19 with a mileage of over 400 000 km and an unsatisfactory initial condition of the cylinder-piston group; on other equipment and with a different condition of the assembly the figures may differ. The original report with signatures and seal is published in full and available for download.