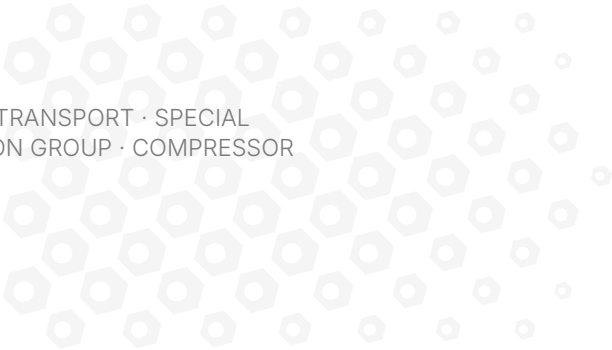




TECHNICAL REPORT OF 21.08.2002

TO-30 loader: compression restored without downtime

SPS JSC · company commission: chief engineer V.A. Davydov, chief mechanic A.S. Chemerkin, lead mechanic V.D. Shagimardanov, garage manager A.T. Smagin, driver M.I. Kulikov

Russia · treatment 20.07.2002 · control measurement 17.08.2002 · report 21.08.2002

PRODUCT	TREATED OBJECT	DOCUMENT TYPE
XADO RVS gel onto the cylinder walls · into the lubrication system · into the engine fuel system	TO-30 loader engine No. 21839, fuel equipment (injection pump), loader compressor	Technical report by the SPS JSC commission

MACHINE	CONDITION AT THE START OF THE TRIAL	WHAT WAS MEASURED
TO-30 loader, engine No. 21839	Cylinder wear beyond the permissible limits; compression 17-22 kgf/cm²	Compression in the four cylinders, fuel consumption at idle
Loader compressor	Pressure 0.2 MPa	Pressure delivered by the compressor

The treatment and the control measurements were carried out without removing or disassembling the engine and without replacing any parts, while the loader stayed in regular service.

Key results

compression evened out across the cylinders

↑ **1-6 kgf/cm²**

compression in the cylinders, 17-22 → 21-23 kgf/cm²

Compression by cylinder, engine No. 21839

CYLINDER	BEFORE TREATMENT	AFTER 75 ENGINE-HOURS	CHANGE
No. 1	22 kgf/cm ²	23 kgf/cm ²	+1 kgf/cm ²
No. 2	17 kgf/cm ²	23 kgf/cm ²	+6 kgf/cm ²
No. 3	18 kgf/cm ²	21 kgf/cm ²	+3 kgf/cm ²
No. 4	22 kgf/cm ²	23 kgf/cm ²	+1 kgf/cm ²
Spread between cylinders	5 kgf/cm ²	2 kgf/cm ²	−3 kgf/cm ²

Measurements taken on 20.07.2002 and 17.08.2002 at an estimated running time of **75 engine-hours**. Compression does not rise above the factory rating — the cylinders have come to a single level.

Engine fuel consumption and loader compressor pressure

PARAMETER	BEFORE TREATMENT	AFTER 75 ENGINE-HOURS
Time to consume a test batch of 160 ml of fuel at idle	4 min 40 s	5 min 10 s
Pressure delivered by the loader compressor	0.2 MPa	0.3 MPa

More time for the same volume of fuel means lower consumption at idle. Oil pressure was measured at an engine temperature of **75 °C**.

Commission conclusions

Before the treatment the cylinder wear was beyond the permissible limits; the repair was carried out without removing or disassembling the engine. The commission of SPS JSC recorded the following:

1. The treatment of the engine cylinders using the RVS-XADO technology produced a restoration effect on the worn friction surfaces in the cylinder-piston group, the injection pump, the crank mechanism and the compressor.
2. The direct saving from the use of the RVS-XADO technology, in the form of reduced spending on spare parts and on repair work for the engine and the injection pump, amounted to approximately **12518 rubles**, which is **67%**.
3. The commission recommends the use of the XADO – RVS technology for treating the assemblies of machines and mechanisms in order to restore worn assemblies, protect against wear, extend service life and save energy resources, as well as to reduce spending on spare parts, and considers it advisable to include such treatment in the scheduled preventive maintenance system.



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The results refer to the TO-30 loader with engine No. 21839 at an estimated running time of 75 engine-hours after treatment; on other machinery and under different operating conditions the figures may differ. RVS is an obsolete XADO designation for zero-generation compounds; the current product generation is revitalizants. The treatment was performed by a representative of the technology supplier, who countersigned the report. The original technical report with signatures and stamps is published in full and available for download.