REPORTS OF JSC “JV ROSAVA” · TREATMENT 8–11.12.2003, MEASUREMENTS FEBRUARY 2004

DV 1792 forklift truck: engine, gearbox and hydraulics restored without disassembly

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Bila Tserkva, Kyiv region, Ukraine · treatment 8–11.12.2003 · three reports, February 2004

PRODUCT

XADO revitalizants

treatment by XADO technology, without disassembly of the units

TREATED OBJECT

DV 1792 forklift truck, reg. No. T0480KKh

diesel engine · hydromechanical transmission · boom lift hydraulics

DOCUMENT TYPE

Three commission reports of JSC “JV Rosava”

one for each treated unit

MACHINE AND UNIT	CONDITION AT START	RUN TIME BEFORE MEASUREMENT	WHAT WAS MEASURED
DV 1792, T0480KKh — diesel engine	**360** engine hours after overhaul, compression **16–19.5** kgf/cm²	**163** h (compression) **40** h (fuel)	Compression by cylinder, fuel consumption at idle
DV 1792, T0480KKh — hydromechanical transmission	Oil pressure **0.5** kgf/cm² in all modes	**40** h	Oil pressure in “Forward”, “Neutral”, “Reverse” modes
DV 1792, T0480KKh — boom lift hydraulics	Boom settling under load **30** mm in 5 min	**32** h	Boom lifting time, unintended lowering under load

Three units of one machine, treated in a single cycle on 8–11.12.2003. The measurements were made by one commission, each unit covered by a separate report.

Key results for the three units

↑ 7.7-37.5 %

engine compression by cylinder, 16-19.5 → 21-22 kgf/cm²

↓ 9.5 %

fuel consumption at idle, 95 → 105 s per measuring vessel

↓ 10 mm

boom settling under the test load in 5 min, 30 → 20 mm

↑ 0.2 kgf/cm²

transmission oil pressure in all modes, 0.5 → 0.7 kgf/cm²

Diesel engine — compression by cylinder and fuel consumption

MACHINE AND PARAMETER	BEFORE TREATMENT	AFTER	CHANGE
T0480KKh · compression, cylinder 1	19.5 kgf/cm²	21 kgf/cm²	+1.5 kgf/cm² · +7.7 %
T0480KKh · compression, cylinder 2	16 kgf/cm²	22 kgf/cm²	+6 kgf/cm² · +37.5 %
T0480KKh · compression, cylinder 3	18 kgf/cm²	22 kgf/cm²	+4 kgf/cm² · +22.2 %
T0480KKh · compression spread between cylinders	3.5 kgf/cm²	1 kgf/cm²	levelling out
T0480KKh · fuel consumption, idle (time to empty the measuring vessel)	95 s	105 s	−9.5 % consumption

ZECA 363 compression tester, chart cards attached to the report. The cylinder that was weakest before treatment gained the most — the cylinders came out to a common level of 21–22 kgf/cm². According to the conclusion of the report, compression rose by an average of 17 %, and fuel consumption at idle fell by 10.5 %.

Hydromechanical transmission — oil pressure in all modes

MACHINE AND MODE	BEFORE TREATMENT	AFTER 40 H	CHANGE
T0480KKh · “Forward” mode	0.5 kgf/cm²	0.7 kgf/cm²	+0.2 kgf/cm²
T0480KKh · “Neutral” mode	0.5 kgf/cm²	0.7 kgf/cm²	+0.2 kgf/cm²

MACHINE AND MODE	BEFORE TREATMENT	AFTER 40 H	CHANGE
T0480KKh · “Reverse” mode	**0.5 kgf/cm²**	**0.7 kgf/cm²**	**+0.2 kgf/cm²**

Measured with a pressure gauge in the transmission hydraulic system. The gain is identical in all three operating modes — clearances in the pump and spool valves have been restored, and the system holds pressure again.

Boom lift hydraulics — settling under load and lifting speed

MACHINE AND PARAMETER	BEFORE TREATMENT	AFTER 32 H	CHANGE
T0480KKh · unintended lowering of the boom with the test load in 5 min	**30 mm**	**20 mm**	**−10 mm**
T0480KKh · boom lifting time without load, minimum engine speed	**36 s**	**34 s**	**−2 s**

Settling of a locked boom under load is a direct measure of internal leakage in the hydraulic cylinder and the control valve: over 5 minutes the boom now holds the load a third more accurately.

Conclusions of the commissions in the three reports

The commission of JSC “JV Rosava” recorded the following for each of the three treated units of the DV 1792 forklift truck:

1. For the engine — “over 163 hours of operation of the forklift engine after the treatment, the compression value increased by an average of **17 %**. Fuel consumption at idle decreased by **10.5 %**”. The engine treated was not a worn one but one recently overhauled — 360 engine hours since the major overhaul.
2. For the hydromechanical transmission — “over 40 hours of transmission operation, the oil pressure in all operating modes increased by **40 %**”.
3. For the boom hydraulics — “the boom lifting time without load decreased by 2 s and the lowering distance of the boom with the test load decreased by 10 mm”. Three units of one machine, different in design, responded to treatment in a single cycle, without disassembly and without taking the forklift out of service.

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The results refer to the DV 1792 forklift truck, reg. No. T0480KKh, of JSC “JV Rosava” with a diesel engine after major overhaul, a hydromechanical transmission and boom lift hydraulics; on other equipment and under other operating conditions the figures may differ. The originals of the three reports bearing signatures and a stamp are published in full and available for download.