

COMMISSION REPORT, KAZZINC JSC, MAY 2002

KATO F 399 DE truck crane: quieter, smoother diesel no teardown, no downtime

Kazzinc JSC, LRMZ industrial complex, transport section · commission chairman: A. G. Baranovich, deputy director for new technology, LRMZ industrial complex · approved by: N. V. Prokhorenko, deputy chief mechanic, Kazzinc JSC

Leninogorsk, Republic of Kazakhstan · treatment 5–7 December 2001 · commission inspection 7 May 2002 · report dated 12.05.2002

PRODUCT

XADO revitalizant,
gel for diesel engines
in the report — "XADO MPD",
"XADO-MPT"; three treatment
stages without teardown and
without taking the machine out
of service

TEST OBJECT

KATO F 399 DE truck crane
six-cylinder diesel · 47 151
engine hours · more than 10
years in service

DOCUMENT TYPE

Commission report of
Kazzinc JSC
with signatures and stamps

EQUIPMENT

KATO F 399 DE truck crane,
six-cylinder diesel

**HOURS AT START OF
TESTS**

47 151 engine hours, in
service since 1991

WHAT WAS MEASURED

Cylinder head temperature 1–6, oil pressure,
ultrasonic noise and knocking, vibration

Baseline and follow-up measurements were taken under identical conditions — warmed-up engine, oil temperature 50 °C.

Key results

↑ **6.1%**

oil pressure on a warmed-up engine, 3.3 → 3.5 bar

↓ **1.5–2 °C**

cylinder head temperature, 55–60 → 53–58 °C

Measurements before and after treatment — KATO F 399 DE crane diesel

PARAMETER	BEFORE TREATMENT	AFTER TREATMENT
Cylinder 1 head temperature	55 °C	53 °C
Cylinder 2 head temperature	57 °C	55 °C
Cylinder 3 head temperature	58.5 °C	57 °C
Cylinder 4 head temperature	60 °C	58 °C
Cylinder 5 head temperature	60 °C	58 °C
Cylinder 6 head temperature	57 °C	55 °C
Oil pressure, idle 700 rpm	3.3 bar	3.5 bar

The temperature drop was recorded on all six cylinders; measurements were taken cylinder by cylinder on a warmed-up engine at an oil temperature of 50 °C.

Engine condition as recorded by the commission

INDICATION	BEFORE TREATMENT	AFTER TREATMENT
Elevated ultrasonic noise	In cylinder 4	Absent
Isolated knocking	In cylinder 4	Not observed
Vibration	Present	Absent
Oil burn-off consumption	Elevated	Decreased

The defect in cylinder 4 — ultrasonic noise and knocking — was recorded by the commission BEFORE treatment; the engine was not disassembled.

Commission conclusion

The Kazzinc JSC commission recorded in the report: "increased compression in the cylinder-piston group (CPG), an increase in oil pressure of **0.2 bar** on a warmed-up engine, reduced oil burn-off consumption". The commission attributes the lower noise and vibration and the higher, more even compression across the cylinders to reduced clearances in the crank mechanism and to longer intervals between overhauls. The verdict of the report, verbatim: "the effectiveness of XADO technology for repair and restoration of internal combustion engines without their disassembly, under normal operating conditions, has been experimentally proven". This concerns a diesel with **47 151 engine hours** that had been in service for more than ten years: before treatment the commission recorded ultrasonic noise and knocking in cylinder 4, vibration and elevated oil burn-off consumption. The treatment was carried out on a running machine, the crane was not taken out of service; the commission recommended repeating it after **2000 engine hours**.



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The results relate to the six-cylinder diesel of a KATO F 399 DE truck crane with 47 151 engine hours; on other equipment and under other operating conditions the figures may differ. The treatment was performed by W.F.G. Corporation, whose representatives were members of the commission. The original report is published in full and available for download.