TECHNICAL REPORT OF THE TBILISI LOCOMOTIVE DEPOT

KT-6 locomotive compressor: faster air build-up, higher oil pressure, crankshaft kept

Tbilisi Locomotive Depot · report approved by depot director D. Gelashvili; signed by the deputy director, the shop fitter and the XADO-TRIO representative

Tbilisi, Georgia · treatment under the contract of 07.06.2002 · report dated 27.05.2003 · 350 engine hours run after treatment

PRODUCT

XADO technology

compressor treated on the depot test bench, without disassembly or parts replacement

TEST OBJECT

KT-6 compressor

locomotive compressor, serial No. 976178

DOCUMENT TYPE

Depot technical report with signatures and seal

EQUIPMENT	CONDITION BEFORE TREATMENT	WHAT WAS MEASURED
KT-6 compressor, serial No. 976178	Crankshaft journal surface worn by more than 70 %; oil pressure 3.5-3.8 atm (g)	Air build-up time, oil pressure on the cold and on the warmed-up compressor, crankshaft journal condition at disassembly

The compressor was treated on the depot test bench under the contract of 7 June 2002; control disassembly and measurements followed 350 engine hours of operation.

Key results

↑ **40 %**

output, build-up to 7-8 atm (g), 14 → 10 s

↑ **17 %**

output, build-up to 1-6 atm (g), 55 → 47 s

↑ **37 %**

oil pressure on the warmed-up compressor, 3.5 → 4.8 atm (g)

Compressor output

BUILD-UP MODE	TIME BEFORE	TIME AFTER	OUTPUT
Build-up to 7-8 atm (g)	14 s	10 s	+40 %
Build-up to 1-6 atm (g)	55 s	47 s	+17 %

Both ranges are regular build-up modes of the locomotive air system; measured on the depot test bench.

Oil pressure in the lubrication system

MEASUREMENT MODE	BEFORE TREATMENT	AFTER 350 ENGINE HOURS	CHANGE
Warmed-up compressor	3.5 atm (g)	4.8 atm (g)	+1.3 atm (g)
Cold compressor	3.8 atm (g)	5.0 atm (g)	+1.2 atm (g)

The unit's working mode is the warmed-up compressor; that figure is carried into the case header.

What the control disassembly revealed

COMPONENT	BEFORE TREATMENT	AFTER 350 ENGINE HOURS
Crankshaft journal surface	Wear over 70 %	Wear 30 %, surface roughness smoothed out

Surface condition was assessed visually at disassembly of the compressor before treatment and after the operating period.

Conclusion of the depot report

The commission of the Tbilisi Locomotive Depot recorded in the report: "Treatment of the KT-6 compressor with XADO technology produced a positive result". Before treatment the crankshaft journal surface was worn by more than **70 %**, oil pressure on the warmed-up compressor stayed at **3.5 atm (g)**, and build-up to **7-8 atm (g)** took **14 s**. The compressor was treated on the depot test bench, no parts were replaced, and it was returned to service. Control disassembly after **350 engine hours** showed that the roughness on the journal had been smoothed out and surface wear stood at **30 %**. Oil pressure rose to **4.8 atm (g)** and build-up time to **7-8 atm (g)** fell to **10 s** — the unit pumps faster than before treatment and holds lubrication under pressure after 350 hours of operation.

XADO

The results relate to a KT-6 locomotive compressor treated on the depot test bench; on other units and operating modes the figures may differ. The original technical report of the Tbilisi Locomotive Depot dated 27.05.2003, with signatures and seal, is published in full and available for download.