

COMMISSION REPORT OF KHARKIV METRO STATE ENTERPRISE

EK-4B metro car compressor: faster air system charging no teardown, in service

Kharkiv Metro State Enterprise, Saltovskoye electric depot · commission chaired by the chief engineer — first deputy head of the metro O. F. Demchenko, six signatories

Kharkiv, Ukraine · report of 15.09.1999 · measurements 15.04–09.09.1999

PRODUCT

XADO RVS
repair-and-restoration
compound; the report's
conclusions say "XADO
technology"

TREATED UNIT

EK-4B compressor
cars No. 9300, 9730, 9726 ·
Saltovskoye electric depot

DOCUMENT TYPE

Company commission
report
signed and stamped

CAR	MILEAGE OVER THE OBSERVATION PERIOD	PERIOD AND FREQUENCY OF MEASUREMENTS
No. 9300	43 739 km	15.04 – 03.09.1999, four measurement series
No. 9730	38 747 km	15.04 – 03.09.1999, four measurement series
No. 9726	27 789 km	25.05 – 09.09.1999, three measurement series

Line cars in normal service; the compressors were neither removed nor disassembled.

Key result

↑ **5-34 %**

output when charging to 6 kgf/cm², 3:33-4:16 →
3:11-3:38 min:s

↑ **3-5 %**

output when charging to 8 kgf/cm², 5:12-5:37 →
5:03-5:21 min:s

Air system charging time — first and last measurement of the period

CAR	PRESSURE	FIRST MEASUREMENT	LAST MEASUREMENT	FASTER BY
No. 9300	6 kgf/cm ²	3:57	3:38	19 s
No. 9300	8 kgf/cm ²	5:37	5:21	16 s
No. 9730	6 kgf/cm ²	4:16	3:11	1 min 05 s
No. 9726	6 kgf/cm ²	3:33	3:23	10 s
No. 9726	8 kgf/cm ²	5:12	5:03	9 s

Output was checked in accordance with instruction TsMetro/4135; in every subsequent series the charging time was shorter than in the previous one.

Commission conclusions

The commission of Kharkiv Metro State Enterprise recorded: "The measurement results show a trend toward a shorter time to reach pressure from 0 to 8 kgf/cm² by **16-55 s**, which indicates improved compressor output owing to reduced clearances in the piston group." For the other treated assemblies — door suspension, wheelset gearboxes, traction motor bearings — the commission stated that assessing the nature of change in the parts without teardown and part-by-part measurement is practically impossible, and noted: "there has been no negative result to date." The commission decided to "continue the work on monitoring the friction assemblies treated with XADO technology." The compressors were not removed from the cars: the improvement was obtained on line machines that ran from **27 789 to 43 739 km** over the observation period.

XADO

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The results relate to EK-4B compressors of metro cars under the service conditions of the Saltovskoye electric depot; on other equipment the figures may differ. RVS is an obsolete XADO designation, the zero-generation compounds; the current product generation is revitalizants. The original report of 15.09.1999 with signatures and stamp is published in full and available for download.