



COMMISSION REPORT OF THE BULGARIAN STATE RAILWAYS

Locomotive 45-185 compressor: faster charging, lower current

BDZh EAD, Sofia — Locomotive Management Division, Plovdiv · commission appointed by BDZh Central Administration order No. 031 · chairman: Eng. Plamen Yordanov, chief repair specialist
Plovdiv, Bulgaria · report dated 01.11.2003 · repeat measurements after 20 800 km of locomotive service

PRODUCT	TEST OBJECT	DOCUMENT TYPE
XADO revitalizant treatment of locomotive air compressors during lifting overhaul	Air compressor, locomotive 45-185 operating parameters recorded on compressor No. 2	Commission report, BDZh EAD, Sofia

EQUIPMENT AND UNIT	MILEAGE AFTER TREATMENT	WHAT WAS MEASURED
Locomotive 45-185, air compressor No. 2	20 800 km	Time to charge the air system from 7 to 8 atm; motor current at start-up, after 5 s of running and before shutdown

The treatment was carried out during the lifting overhaul of the locomotive; the repeat measurements were taken in the same operating mode, after 20 800 km of service.

Key results

↓ 33 % time to charge the air system from 7 to 8 atm, 37 → 25 s	↓ 6.1-12.7 % compressor motor current, 80-118 → 74-103 A
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Air compressor No. 2 — before treatment and after 20 800 km of service

PARAMETER	BEFORE TREATMENT	AFTER SERVICE	CHANGE
Time to charge the air system from 7 to 8 atm	37 s	25 s	-12 s · 33 %
Motor start-up current	118 A	103 A	-15 A · 12.7 %
Current after 5 s of running	80 A	74 A	-6 A · 7.5 %
Current before shutdown	98 A	92 A	-6 A · 6.1 %

All measurements were taken by the commission of the enterprise on compressor No. 2 of locomotive 45-185, in one and the same operating mode before the treatment and after the service run.

Commission conclusion

The commission of the Locomotive Management Division of BDZh EAD recorded: «Based on the measurements it was established that the current dropped by **9 A** on average, and the air system charging time was reduced by **12 s** (or by **33 %**)». The repeat measurements were taken on the same compressor and in the same operating mode, but already after **20 800 km** of locomotive service — the effect holds under line duty, not merely right after the treatment. The shorter charging time means restored compressor output: the cylinder-piston group holds air again, and the same work is done in two-thirds of the former time. The current fell at all three points of the cycle — at start-up, under load and before shutdown — that is, the motor overcomes less friction resistance in the unit. Both quantities by which a depot judges the condition of a compressor have returned to working values.



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The results refer to the air compressor of locomotive 45-185 of BDZh EAD and to its operating conditions; on other equipment and in other modes the figures may differ. The original report dated 01.11.2003, with signatures and seal, is published in full and available for download.