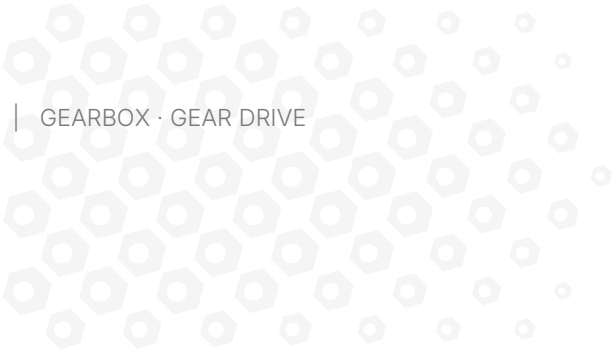




TRKP GEARBOX No. 0935 TEST REPORT

TRKP wagon gearbox: teeth back to nominal, bearing play reduced

Dneprovagonrembud JSC, bogie-and-wheel shop, gearbox and cardan section · plant commission: bogie-and-wheel shop (TKTs), quality control (OTK), chief technologist's office (OGT), with the treatment contractor — Novye Tekhnologii LLC
Ukraine · report dated 05.03.2001, approved by chief engineer V. V. Marko · gearbox serial No. 0935

PRODUCT	TEST OBJECT	DOCUMENT TYPE
Treatment by XADO technology restoration of friction surfaces — gear drive and bearings	TRKP gearbox, serial No. 0935 gear wheel dwg. 81.26.153 · pinion shaft dwg. 81.26.159 · ball bearings	Test report of the plant commission eight signatures, seal of Dneprovagonrembud JSC

GEARBOX COMPONENT	CONDITION BEFORE TREATMENT	WHAT WAS MEASURED
Gear wheel dwg. 81.26.153	Tooth thickness 3.5-4.0 mm — worn below the drawing tolerance field	Tooth thickness at constant chord, five points
Pinion shaft dwg. 81.26.159	Ran in mesh with the worn gear wheel	Tooth thickness at constant chord, seven points
Gearbox ball bearings	Play recorded	Radial clearance, commission inspection

The gearbox was removed from a wagon in service; the drawing nominal tooth thickness is {{4.16 mm}}, acceptance criterion — Repair Manual R 4684 RV, 1986.

Key result

↑ **6.7-15.4 %**

gear wheel tooth thickness at constant chord on the worn points, 3.5-3.9 → 4.04-4.16 mm

Gear wheel dwg. 81.26.153 — tooth thickness at constant chord

MEASUREMENT POINT	BEFORE TREATMENT, mm	AFTER TREATMENT, mm	GAIN
Point 1	3.8	4.16	+0.36 mm · +9.5 %
Point 2	4.0	4.06	+0.06 mm · +1.5 %
Point 3	3.5	4.04	+0.54 mm · +15.4 %
Point 4	3.86	4.14	+0.28 mm · +7.3 %
Point 5	3.9	4.16	+0.26 mm · +6.7 %

Drawing nominal — **4.16 mm**. Tooth thickness of the pinion shaft dwg. 81.26.159 after treatment — **3.98-4.16 mm** at the same nominal.

Gearbox ball bearings — commission assessment

COMPONENT	BEFORE TREATMENT	AFTER TREATMENT
Ball bearings of TRKP gearbox No. 0935	Play recorded	Play reduced considerably against the initial measurements

Wording of the commission following its inspection; the conclusion of the report records a reduction of the radial clearances in the ball bearings of this gearbox.

Commission conclusion

The commission of Dneprovagonrembud JSC recorded: "The results obtained on the restoration of TRKP gearbox No. 0935 by XADO technology show that this technology makes it possible to restore the tooth thickness of the gears to the parameters required by Repair Manual R 4684 RV, 1986, and also that the radial clearances in the ball bearings of this gearbox have been reduced". The gearbox came in for testing with teeth worn below the tolerance field: the most worn point — **3.5 mm** against the drawing value of **4.16 mm**. That same point gave the largest gain, and the point that had kept its size gave the smallest: the coating builds up where the metal is worn away and stops at the drawing nominal.



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The results relate to the TRKP wagon gearbox (gear wheel dwg. 81.26.153, pinion shaft dwg. 81.26.159) and to the test conditions at Dneprovagonrembud JSC; on other units and duty modes the figures may differ. The original report with signatures and seal is published in full and available for download.