



TEST REPORT OF 21 DECEMBER 2000

Ts2-750 gearbox: gear teeth gained metal in service, without disassembly

OJSC “Ilyich Mariupol Metallurgical Combine”, chief mechanic department and cold rolling shop · approved by P. N. Kirilchenko, chief mechanic of the works

Mariupol, Ukraine · treatment 20–22.11.2000 · measurements 16.11.2000 and 21.12.2000

PRODUCT	TEST OBJECT	DOCUMENT TYPE
XADO RVS XADO repair and restoration compound · added to the oil in three stages	Ts2-750 gearbox drive of the second pulling rolls of the AGNTs-2u line, cold rolling shop · oil volume 50 l	Test report Ilyich MMK, signatures and seal

GEARBOX UNIT	CONDITION AT THE START OF THE TESTS	WHAT WAS MEASURED
1st stage — pinion shafts, module 6	Groove wear 0.5 mm deep in the right mesh; 1 mm groove and deep scoring in the left one	Tooth thickness, three teeth of each pinion
2nd stage — module 6 gear wheels and module 9 pinion shaft	Service wear, the gearbox was not disassembled	Tooth thickness, three teeth of each wheel
3rd stage — module 9 gear wheel	Service wear, the gearbox was not disassembled	Tooth thickness, three teeth

The XADO RVS compound was added to the gearbox oil in three stages on 20–22 November 2000, without disassembly and without removing the gearbox from the drive.

Key result

↑ 0.12-0.72 mm

tooth thickness across all three gearbox stages over a month of operation

1st stage — pinion shafts, module 6

GEAR	BEFORE TREATMENT, mm	AFTER ONE MONTH, mm	GAIN, mm
Left pinion shaft	8.24	8.6	+0.36
Left pinion shaft	8.08	8.5	+0.42
Left pinion shaft	8.5	8.62	+0.12
Right pinion shaft	9.04	9.07	+0.03
Right pinion shaft	8.42	8.9	+0.48

Measured with gear tooth vernier caliper No. 41813 of the RMTs-2 repair shop; the second tooth of each gear was marked, so a month later the same teeth were measured with the same instrument.

2nd stage — module 6 gear wheels and module 9 pinion shaft

GEAR	BEFORE TREATMENT, mm	AFTER ONE MONTH, mm	GAIN, mm
Left gear wheel (m6)	7.78	8.36	+0.58
Left gear wheel (m6)	8.1	8.46	+0.36
Left gear wheel (m6)	8.08	8.26	+0.18
Right gear wheel (m6)	8.64	9.28	+0.64
Right gear wheel (m6)	8.64	9.00	+0.36
Right gear wheel (m6)	8.68	9.24	+0.56
Pinion shaft (m9)	13.24	13.96	+0.72
Pinion shaft (m9)	13.5	13.72	+0.22
Pinion shaft (m9)	13.88	14.1	+0.22

The largest gain over the month — **0.72 mm** on the module 9 pinion shaft: this is the upper limit of the range stated in the conclusion of the report.

3rd stage — module 9 gear wheel

GEAR	BEFORE TREATMENT, mm	AFTER ONE MONTH, mm	GAIN, mm
Gear wheel (m9)	13.42	13.58	+0.16
Gear wheel (m9)	13.32	13.56	+0.24
Gear wheel (m9)	13.48	13.61	+0.13

A gain in tooth thickness was recorded on all three gearbox stages — both on module 6 and on module 9.

Conclusion of the works commission

Specialists of the chief mechanic department and the cold rolling shop of Ilyich MMK stated in the report of 21 December 2000: «Over the past month the tooth thickness increased within **0.03 – 0.72 mm**. The scoring on the surface was partly smoothed out, the depth of the grooves decreased». Before the treatment the gearbox was worn: the right mesh of the first stage had groove wear **0.5 mm** deep, the left one a **1 mm** groove and deep scoring. The compound was added to the oil in three stages, the gearbox was neither disassembled nor removed from the drive. After **31 days** of operation the same teeth were measured with the same instrument — metal had been added on all three stages, and the mesh geometry was being restored right under load.

XADO

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The results relate to the Ts2-750 gearbox of the second pulling rolls drive of the AGNTs-2u line under the conditions of the cold rolling shop of Ilyich MMK; on other units and duties the figures may differ. RVS is an obsolete XADO designation, zero-generation compounds; the current generation of products is revitalizants. The original report with signatures and seal is published in full and available for download.