



COMPRESSION TEST REPORT · FIVE FLEET FORKLIFTS

N 2.00XMS and GT-1.5 forklifts: compression rose without opening the engines

Erlan CJSC, transport department · report signed by: V. V. Savash, mechanic of the transport department,
and O. Yu. Denishenko, director of the regional office of XADO LLC

Ukraine · report dated 19.08.2005 · observed over 577-3282 engine hours of running time

PRODUCT	TEST OBJECT	DOCUMENT TYPE
XADO Atomic Oil engine oil used in routine service, without opening the engines	Engines of five forklifts cylinder-piston group · measured on all four cylinders of each machine	Compression test report Erlan CJSC, transport department

FORKLIFT	HOURS AT START, H	WHAT WAS MEASURED
N 2.00XMS No. d01v11869kh	6599	Compression in cylinders 1-4
N 2.00XMS No. e001v01600u	9151	Compression in cylinders 1-4
N 1.50KhM No. e001v01808u	8334	Compression in cylinders 1-4
GT-1.5 No. 15347	4279	Compression in cylinders 1-4
GT-1.5 No. 15344	6445	Compression in cylinders 1-4

Hours at the start of the trial ranged from 4279 to 9151 engine hours: no new machines took part.

Key results

compression evened out across the cylinders

↑ **1.7-71.4 %**

compression by cylinder, 7.0-12.0 → 10-13; gain in 30 of
32 readings; the rest unchanged

Compression by cylinder: before the oil and after running on it

FORKLIFT	HOURS, H	BEFORE, CYL. 1-4	AFTER, CYL. 1-4
N 2.00XMS No. d01v11869kh	6599 → 8506	9.0 · 7.0 · 7.0 · 10.0	12 · 12 · 11 · 12.3
N 2.00XMS No. e001v01600u	9151 → 9728	11.5 · 9.5 · 7.0 · 12.0	13 · 12 · 12 · 13
N 1.50KhM No. e001v01808u	8334 → 11616	8.0 · 9.0 · 10.0 · 11.0	10 · 11.5 · 12 · 12
GT-1.5 No. 15347	4279 → 7453	9.0 · 9.5 · 8.5 · 12	12 · 12 · 12 · 12
GT-1.5 No. 15344	6445 → 7372	11.5 · 11.5 · 12.0 · 12.0	12 · 12 · 12 · 12.5

The largest gain came where compression before treatment was lowest: 7.0 → 12. The report gives no unit for compression; values are reproduced exactly as in the document.

How the effect held: two follow-up checks on three machines

FORKLIFT	FIRST CHECK	SECOND CHECK
N 2.00XMS No. d01v11869kh	7234 h: 12 · 9.0 · 9.5 · 11.5	8506 h: 12 · 12 · 11 · 12.3
N 1.50KhM No. e001v01808u	9125 h: 10 · 12 · 11.5 · 11.7	11616 h: 10 · 11.5 · 12 · 12
GT-1.5 No. 15347	5017 h: 11.9 · 12.0 · 12.0 · 12.2	7453 h: 12 · 12 · 12 · 12

Between the first and the second check the machines ran from 1272 to 2491 engine hours.

Conclusion

Five forklifts with running time from **4279 to 9151 engine hours** had their compression measured before switching to XADO Atomic Oil engine oil and after running on it. The engines came in worn and uneven: in some cylinders compression dropped to **7.0** while a neighbouring cylinder of the same engine held **12.0**. After the running period compression rose on all five machines, and the weakest cylinders came up to the level of the sound ones — the spread within an engine narrowed from **3.0-5.0** to **0-2.0**. Compression cannot rise above the factory rating, so all cylinders reaching the same value is the limit of what can be achieved: the machine that entered the trial even and close to rating gained the least. On three forklifts a repeat check after **1272-2491 engine hours** showed that the level reached had held, and some cylinders had gained further. All of this was obtained without opening the engines, on equipment in the plant's normal service.



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The results apply to the engines of N 2.00XMS, N 1.50KhM and GT-1.5 forklifts with 4279-9151 engine hours at the start of the trial; with equipment in another condition or under another duty cycle the figures may differ. The report was signed by the mechanic of the transport department of Erlan CJSC and the director of the regional office of XADO LLC. The original report dated 19.08.2005, with signatures and stamp, is published in full and available for download.