



Vertical Turning Centre
POWERTURN 3000 C-M

9.

**MACHINE
MAINTENANCE
CATALOGUE**



Manufacturer: TOSHULIN

Table of contents

1. Machine maintenance	3
2. Instructions for machine maintenance and maintenance schedule	3
3. Machine dismantling and its liquidation.....	9
4. Machine service life	9
5. Standard machine accessories supplied with the machine	9
6. Service and repairing places.....	11
7. Manufacturer's contact address	11

1. Machine maintenance



NOTICE:

MAINTENANCE AND REPAIRS AT THE MACHINE MECHANICAL PART AS WELL AS AT THE ELECTRICAL OUTFIT SHALL BE PERFORMED ONLY BY QUALIFIED TECHNICIANS WITH NECESSARY SKILLS OR BY MANUFACTURER'S SERVICE TECHNICIANS.

MAKE APPROPRIATE RECORDS ABOUT PERFORMED CHECKS, INSPECTIONS AND REVISIONS AT THE ELECTRICAL MACHINE OUTFIT, IN COMPLIANCE WITH THE CORRESPONDING NATIONAL REGULATIONS.

2. Instructions for machine maintenance and maintenance schedule

The schedule for particular machine maintenance operations is based on the one-shift machine operation. If you keep the check schedule as well as the subsequent machine maintenance schedule, you will provide the reliable and safe machine operation.

The control system invites the operator by a message to perform the periodical check of machine run. The message will be displayed in the display screen, who shall perform the periodical check of machine run, the short check description and the reference to this catalogue. The numbers of appropriate sections in the accompanying technical documentation, to which the reference is done, are mentioned for the particular inspection operations in the periodical check table included in this catalogue. The periodical check of machine run has been set in the control system in dependence on the machine run time periods.

– 700500 periodical check after 8 hours of machine run

After the check is performed, it is necessary to confirm the message by selecting the setting mode and by pushing the buttons PROGRAM STOP + RESET + CANCELLATION OF ALARMS at the same time.

– 700501 periodical check after 40 hours of machine run

After the check is performed, it is necessary to confirm the message by selecting the setting mode and by pushing the buttons PROGRAM STOP + RESET + CANCELLATION OF ALARMS at the same time.

– 700502 periodical check after 160 hours of machine run

After the check is performed, it is necessary to confirm the message by entering the password **50369** in the user screen EASYMASK – INFO.

– 700503 periodical check after 1000 hours of machine run

After the check is performed, it is necessary to confirm the message by entering the password **52291** in the user screen EASYMASK – INFO.

– 700504 periodical check after 2000 hours of machine run

After the check is performed, it is necessary to confirm the message by entering the password **54545** in the user screen EASYMASK – INFO.

– **700505 periodical check after 3000 hours of machine run**

After the check is performed, it is necessary to confirm the message by entering the password **56763** in the user screen EASYMASK – INFO.

– **700506 periodical check after 6000 hours of machine run**

After the check is performed, it is necessary to confirm the message by entering the password **63200** in the user screen EASYMASK – INFO.

– **700507 periodical check after 7500 hours of machine run**

After the check is performed, it is necessary to confirm the message by entering the password **66297** in the user screen EASYMASK – INFO.

– **700508 periodical check after 10000 hours of machine run**

– After the check is performed, it is necessary to confirm the message by entering the password **71277** in the user screen EASYMASK – INFO.

Customer				Machine	Vertical Turning Centre		
Machine type	POWERTURN 3000 C-M	Serial No.		Year of manufacture		Catalogue No.	1

Check intervals								
No.	Checked place name	Service / mechanic	Section in Operating instructions	8 hours	40 hours	160 hours	1000 hours	2000 hours
SAFETY FUNCTIONS								
B 01	Checking the machine emergency stop	Call the functions by buttons	3.1, 3.4, 3.5, 3.6	X				
B 02	Checking the end positions of machine movable groups	Running to the end positions						
B 03	Checking the function of locking the single-wing door for the access to the area at the right tool magazine and at the left tool magazine	Check	3.8		X			
MACHINE								
S 01	Machine – completeness, cleanness, leakage of liquids	Visual check / clean	--	X				
S 02	Checking the function of the cooling set specified for cooling the oil lubricating the table bearing	Check	3.3, 4.1					
S 03	Checking the clamping surface on the table	Check / clean / remove chips	3.13, 4.2					
S 04	Checking the slideways on the chucking units on the table equipped with hand-operated workpiece chucking							
S 05	Checking the right area and the left area for the automatic tool exchange	Clean / remove chips	3.7, 4.12, 4.14					
S 06	Checking the chain at the right tool magazine							
S 07	Checking the storage disk at the left tool magazine							
S 08	Checking the coolant condition – coolant quality, its quantity	In dependence on the situation - refill or replace	3.9, 4.17					
S 09	Checking the cleanness of both coolant tanks	In dependence on the situation – clean						
S 10	Checking the tool holders	Clean	8.2 ÷ 8.5		X			
S 11	Checking the air pressure adjustment on the pressure gauge of the air unit	Check pressure / adjust	3.10, 4.18					
S 12	Hydraulic accumulator of the machine hydraulic set	Check pressure / refill nitrogen	4.16 Operating instructions for the hydraulic set HYTOS VRCHLABÍ			X		

Check intervals								
No.	Checked place name	Service / mechanician	Section in Operating instructions	8 hours	40 hours	160 hours	1000 hours	2000 hours
S 13	Tension and condition of the V-belts driving the table	Check / stretch when necessary	4.3			X		
S 14	Checking the guide rollers and the chain specified for motion of the protective door, which is operated motorically and enables the access to the machine working area	Clean / lubricate when necessary	4.14					
S 15	Tension and condition of the indented belts driving the rotary tools on the right ram	Check / stretch when necessary	4.11			X		
S 16	Filter insertion piece for cleaning the hydraulic oil in the machine hydraulic set	If there is "ALARM" in the control panel display screen Check / replace	4.16 Operating instructions for the hydraulic set HYTOS VRCHLABÍ					
S 17	Fan and filter on the electrical switch box	Check / clean	Manual No.5 Electrical operating instructions					
S 18	Bearings at the tool holder for rotary tools (straight head)	Refill grease charge	8.4					5000 hours
S 19	Bearings at the tool holder for rotary tools (fixed angle head)		8.5					
S 20	Bearings in the bearings bushes at the rotary tool drive on the right ram		4.11					7500 hours
S 21	Harmonic gearbox driving the chain rotation at the right tool magazine	Clean / replace grease charge	4.12					10000 hours
S 22	Bearings of the chain wheels at the right tool magazine	Refill grease charge						
S 23	Guiding with bearing packs specified for guiding of the fixation pin at the fixation equipment of the chain at the right tool magazine	Clean / replace grease charge						
S 24	Harmonic gearbox driving the storage disk rotation at the left tool magazine	Clean / replace grease charge	4.13					
S 25	Bearings of the storage disk at the left tool magazine	Refill grease charge						

Check intervals								
No.	Checked place name	Service / mechanician	Section in Operating instructions	8 hours	40 hours	160 hours	1000 hours	2000 hours
OIL CHARGES – LUBRICATION POINTS – DRAWING T17 AND CORRESPONDING LEGEND								
M 01	Tank of the central lubrication set (non-circulating lubrication system)	Check / refill oil (filter it)	3.3, 4.1	X				
M 02	Motion screws of the chucking units on the table equipped with hand-operated workpiece	Lubricate manually through lubricators	3.13, 4.2		X			
M 03	Rolling journals of the chain at the right tool magazine	Lubricate manually	3.7, 4.12					
M 04	Tank of the set lubricating the table bearing (circulating lubrication system)	Check / refill oil charge	3.3, 4.1			X		
M 05	Gearbox driving the rotary tools on the right ram							
M 06	Hydraulic set tank at the machine	If there is "ALARM" in the control panel display screen Check / refill	3.11, 4.16 Operating instructions for the hydraulic set HYTOS VRCHLABÍ					
M 07	Two worm gearboxes for cross-rail positioning	Check / refill	3.3, 4.1				X	
M 08	Hydraulic set tank at the machine	Replace oil charge	4.16 Operating instructions for the hydraulic set HYTOS VRCHLABÍ					X
M 09	Worm gearing driving the motion of the main machine control panel	Check / refill	3.3, 4.15					
M 10	Tank of the set lubricating the table bearing (circulating lubrication system)	Replace oil charge	3.3, 4.1					3000 - 3600 hours
M 11	Main drive belt pulley – bearing (under the main electric motor)	Lubricate manually through the forced-feed lubricator	4.3					6000 hours
M 12	Gearbox driving the rotary tools on the right ram	Replace oil charge	3.3, 4.1					7500 hours

Check intervals								
No.	Checked place name	Service / mechanic	Section in Operating instructions	8 hours	40 hours	160 hours	1000 hours	2000 hours
MACHINE REVISION								
R 01	<u>Electrical revision</u> – (protective circuits, insulation resistance, operation of switches, of circuit breakers, blocking, condition of drives, condition of machine wiring)	REVISION TECHNICIAN	Make the record about the machine condition					X
R 02	<u>Machine revision</u> – (machine geometry, condition of the automatic tool exchange equipment at the right tool magazine and at the left tool magazine, condition of movable groups, prestressing of the table bearing, sliding surfaces, scrapers at sliding surfaces, tool holders, hydraulic, lubrication and air distribution system, coolant distribution, total machine condition)	MACHINE MANUFACTURER'S SERVICE						X

3. Machine dismantling and its liquidation



NOTICE:

IF THE MACHINE IS ENTIRELY PUT OUT OF OPERATION, DISCONNECT THE MACHINE FROM THE ELECTRIC POWER SUPPLY, OR RELEASE MACHINE ANCHORAGE, IF THE MACHINE IS ANCHORED. LIQUIDATION MUST BE PROVIDED BY A SPECIALIZED COMPANY DEALING WITH COLLECTION OF WASTE MATERIAL AND ITS LIQUIDATION. AT LIQUIDATION OF WASTE MATERIAL IT IS NECESSARY TO KEEP CORRESPONDING NATIONAL REGULATIONS.

ALL DISMANTLING WORK CONNECTED WITH MACHINE LIQUIDATION IS ALLOWED TO BE PERFORMED ONLY BY QUALIFIED PERSONS OF AUTHORIZED COMPANIES.

4. Machine service life

Although the vertical turning centre has been manufactured in the highest possible quality, the machine service life depends on its correct operation, maintenance on the number of operating hours and machine loading intensity.

The expected machine service life is determined to be approx. 10 years. In order to obtain this service life, it is recommended to perform the complete check, inspection and adjustment of mechanical machine parts once a year. This check and inspection shall be provided by specialized companies or by the manufacturer's service technicians.

5. Standard machine accessories supplied with the machine

The vertical turning centre is supplied assembled in the complete state according to the specification given in Manual No. 4 Machine service. This Manual in one copy is supplied together with each machine. On the customer's wish, its is possible to supply other copies or it is possible to send this Manual recorded on the CD data medium

The machine accessories are supplied together with the machine and they serve for machine operation and its maintenance.

pcs	Name
9	Hexagon box spanner ČSN 230710, size 4,5,6,8,10,12,14,17,19 one piece each
1	Oil can, type 08 231 ČSN 231420
5	Open-end double-ended wrench ČSN 230610.4, size 11x12, 13x17, 19x22, 24x27, 30x32 one piece each
1	Extended wrench, Drwg. No. 1030/90016 C1 (size 17x19)
1	Bar, Drwg. No. 1030/90017 E1
1	Wrench, Drwg. No. 1030/90018 D1 (for mounting the cross rail on the columns)
1	Wrench, Drwg. No. 1050/90019 D1 (size 32)
1	Socket wrench, Drwg. No. 221806/793 E3 (to the tool holders for turning tools)
3	Screwdriver – type TORX, size 10x160, 6x120, 8x160, one piece each
1	Plastic funnel
4	Sealing ring made by DIMER 24/14x13,5 Drwg. No. 1050/ 45048 E1
2	Sealing ring made by DIMER 24/14x13,5 PUR Drwg. No. 1059/ 10006 E1

2	Screw M8x30 ČSN 021143.55
5	Clutch G08LA3C PARKER
5	Clutch G12LA3C PARKER
5	Connection piece GE08LMEDA3C PARKER
5	Connection piece GE12LMEDA3C PARKER
1	Lever grease gun, type 03645 ČSN 231462
1	Lubrication hose, type 107731 L = 250 ČSN 231492.2
0,3 kg	Grease MOBILUX EP2 in a can
1	Pistol for silicone mastic forcing-out
1	Brush C8
2	Assembly cube, Drwg. No. 1000/90071 D1 - Drwg. T5
2	Screw M20x90 DIN 912 to the assembly cube
2	Screw M20x75 DIN 912 to the assembly cube
4	Screw M20x50 DIN 912 to the assembly cube
2	Ball thrust bearing 51104 ČSN 024730 to the assembly cube
50	Oil-resistant silicone mastic, size 310ML in a tube (for sealing the machine protective guards and metal troughs for electrical cables at the machine assembly at the customer's site)

Accessories to the hydraulic set

pcs	Name
1	Filter insertion piece (made by ARGO-HYTOS) V3.0620-56
1	Filling equipment (made by OLAER) VGU-100-TS3 for the accumulator on the hydraulic set
1	Hose to the filling equipment 2500 2040N 92 06 0404 03 (made by OLAER)

Accessories for anchoring, mounting and operating the machine

pcs	Name
1 set	Complete adjustable levelling pads and anchor bolts for fixing the machine on the concrete foundation
1	Ratchet wrench 1000/064 03 (0,9x0.9 inch) (24x24 mm) for chucking on the table and for the hand-operated feed of the right rail head, of the left rail head, of the right ram and of the left ram
8	Chuck jaw for workpiece chucking – Drwg. 1080/7930 B1
16	Screw M30 x 80 DIN 912 (ČSN 021143.55) (for locking the chuck jaw on the table)
16	T-nut – size 36 ČSN 021529.12 (for locking the chuck jaw on the table)
2	Locking plate including two screws, Drwg. No. 1050/51879 E11 (for locking against spontaneous rotation of the feed screw at the right ram or at the left ram, if dismantling the servo drive for driving the ram)
1	Special suspension for loading the tool holders to the chain tool magazine (Drwg No. 57/1-3, Manual No. 8 – Tooling)
1	Special suspension for loading the tool holders to the disk tool magazine (Drwg No. 57/1-4, Manual No. 8 – Tooling)
1	Assembly jig P MON 2 for hanging the cross rail with the right rail head, with the left rail head and with both rams (Drwg. No. 1059/ 323 B15 + 1059/321 C10) - Record No. 11/2006 about the jig test of approval
1	Assembly jig P MON 3 for hanging the cross rail with the right rail-head slide part and with the left rail-head slide part (Drwg. No. 1059/ 323 B15 + 1059/321 C10) - Record No. 11/2006 about the jig test of approval
1	Assembly jig P MON 4 for hanging the right rail-head ram part and the left rail-head ram part with the rams (Drwg. No. 1059/ 319 B15) - Record No. 17/2006 about the jig test of approval
2	P MON 5 – front hinged pin (Drwg. No. 1039/16001 C1) for hanging the bed with the table bearing

- 2 P MON 6 – back hinged pin (Drwg. No. 1039/16002 C1) for hanging the bed with the table bearing
- 4 Carrying eye P MON 7 for transport of the table (LBG (20) – 15,0 M42 RUD)
- 3 Suspension eye M16 for transport of the table bearing cover

Accompanying technical documentation

- 2 sets Accompanying technical documentation in English (printed copy)
- 2 Accompanying technical documentation in English recorded on the CD data medium – Manual No. 7
– Software (extract of PLC) is not included in the accompanying technical documentation recorded on the CD data medium

6. Service and repairing places

Czech Republic

The first machine putting into operation, machine warranty service and after-warranty service are provided by the manufacturer within the territory of the Czech Republic. The contact place and address are mentioned at the end of this Manual

Other countries

The authorized seller provides all services for the machines exported to other countries – if nothing else has been agreed with the customer at the machine purchase.

