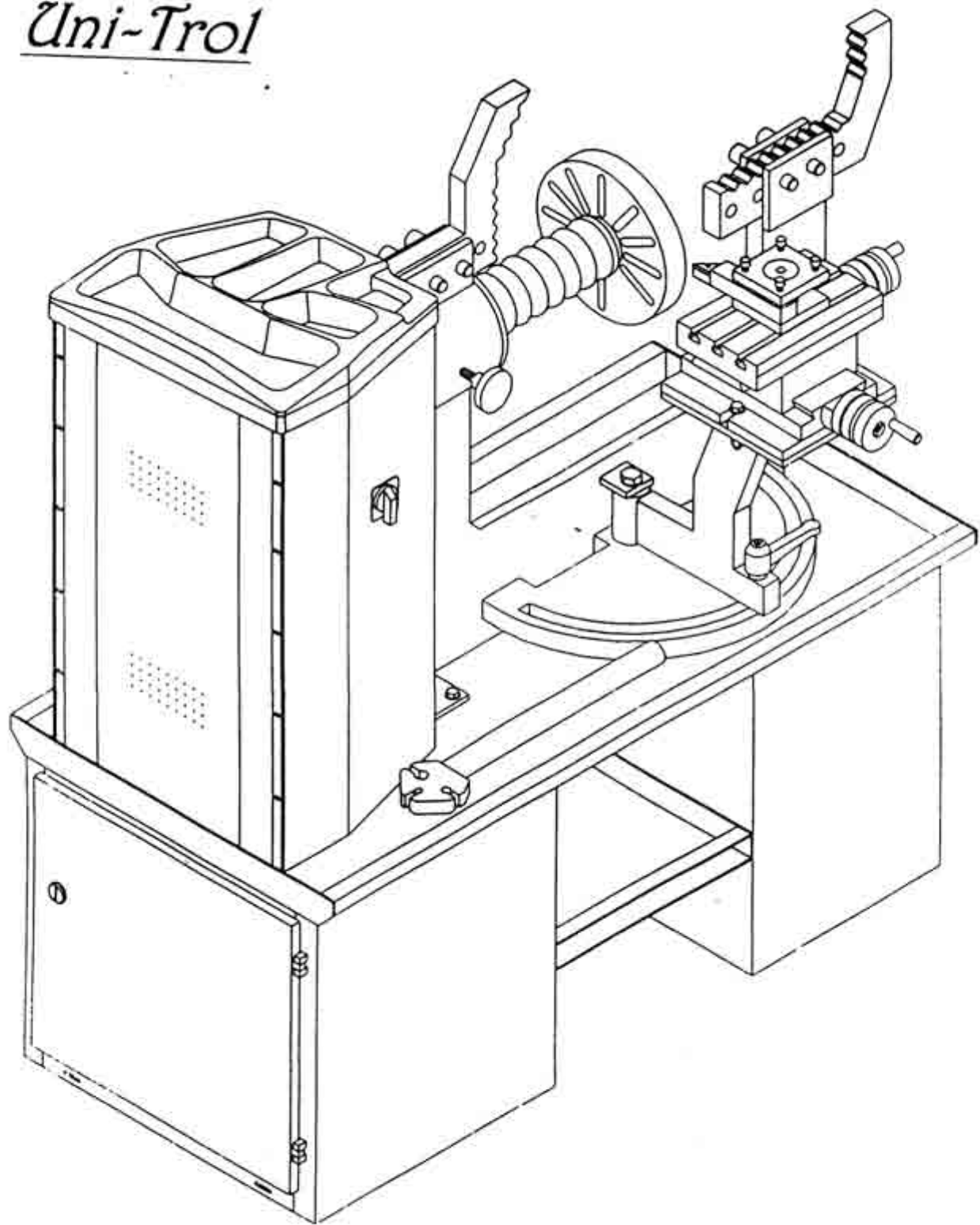


# WHEEL RIM STRAIGHTENING MACHINE PO 18

*Uni-Trol*



**OPERATING INSTRUCTIONS**

## 1. REMARKS

This service manual is an integral part of the 10"-18" wheel rim straightening machine with lathe. Remarks and recommendations contained in this manual should be read very carefully since they concern the operation and maintenance of the machine. This operating manual should be kept in a safe and easily accessible place. Neither producer nor distributor bear any responsibility for any damage resulting from non-observation of the operating instructions. The machine should be used according to its purpose. Any other application should be considered incorrect and irregular. Neither producer nor distributor bear any responsibility for any losses resulting from incorrect, irregular or unreasonable operation.

## 2. TRAINING FOR MACHINE OPERATORS

The machine should be operated by trained personnel. Personnel training should be carried out according to the producer's instructions. Thus the high-level operation and safety of the machine will be assured.

## 3. TRANSPORTATION AND PACKING

Prior to the transportation of the packed machine, you should read the instructions indicated on the package. Transportation ought to be carried out by means of a forklift. Check if the forklift operator has the necessary license. After unpacking the machine you should verify if the operating manual is present inside and if the machine subassemblies are in one piece with no visible damage.

After unpacking you should place the package beyond the reach of children and animals. The machine is packed on a pallet and screened with foil.

## 4. ASSEMBLY REQUIREMENTS

- Straight, hard, preferably concrete surface.
- Sufficient illumination (illumination which is constant and not a strain on the eyes).
- Roofed area protected from external weather conditions.
- Workplace with low noise level.
- Workplace within clean environment.
- Workplace should be at some distance from other machines.
- Explosive, poisonous and corrosive materials should not be stored in the same place.
- Working operator must see the entire machine and its surroundings. No outsiders or unnecessary objects should be present at work-place.
- Mains connections to different energy sources should be carried out by authorized personnel.

## 5. SAFETY

The producer bears no responsibility for losses resulting from any modifications of the machine that were not previously approved. Removal of protective devices or their modification is incompatible with European standards.

### 5.1. RULES WHICH SHOULD BE OBSERVED BY OPERATORS

- Working operator must avoid dangerous situations.
- In case of improper operation you should stop the machine and consult customer service.
- Remove any objects from the machine surroundings which might be hazardous during machine operation. Remove from the floor any traces of oil that might be hazardous to the operator.
- Operator should wear a protective suit, glasses and gloves in order to protect him from dust and other agents.

By pressing the hydraulic engine button Start, you supply the current to the machine and thus activate the hydraulic part. The hydraulic engine should rotate counter-clockwise. If it rotates like this then it pumps oil. The opposite rotational direction would not create any pressure. The hydraulic system produces mechanical action. Thanks to the control lever (number 13 on the spare part list) movements forwards and backwards, the oil flow changes. The maximum force of the servo-motor piston is 7,500 kg.

## 13. USE OF HYDRAULIC WHEEL RIM STRAIGHTENING MACHINE

### 13.1. Fixing of the rim to the machine

- Position the suitable ring accommodated to the central hole of the rim.
- Fix the rim ring on the machine.
- Fix the rim on the flange.
- Put on the cover plate starting with channel number 1.
- Choose caving suitable for cover plates.

### 13.2. SENSOR

Flaws on the rim are determined by means of a sensor. Because the sensor base is equipped with a magnet, it is possible to use the sensor at every angle. The determination of flaws can be done by means of chalk.

### 13.3. CORRECTION

After having determined and indicated places for correction, you can proceed with the actual correction process. Because of the high maximum power of the servo-motor piston, all movements should be slow and soft. You should remember that rims have some specified temperature during bending. As a rule you can assume that a rim that did not break during bending will not break during correction.

The correction within the centre of a rim requires a high temperature. This harmfully affects the appearance of aluminium rims and therefore it is recommended not to correct them. In order to extend the service life of rims and to preserve safety you ought to use suitable rings and tools during the correction process.

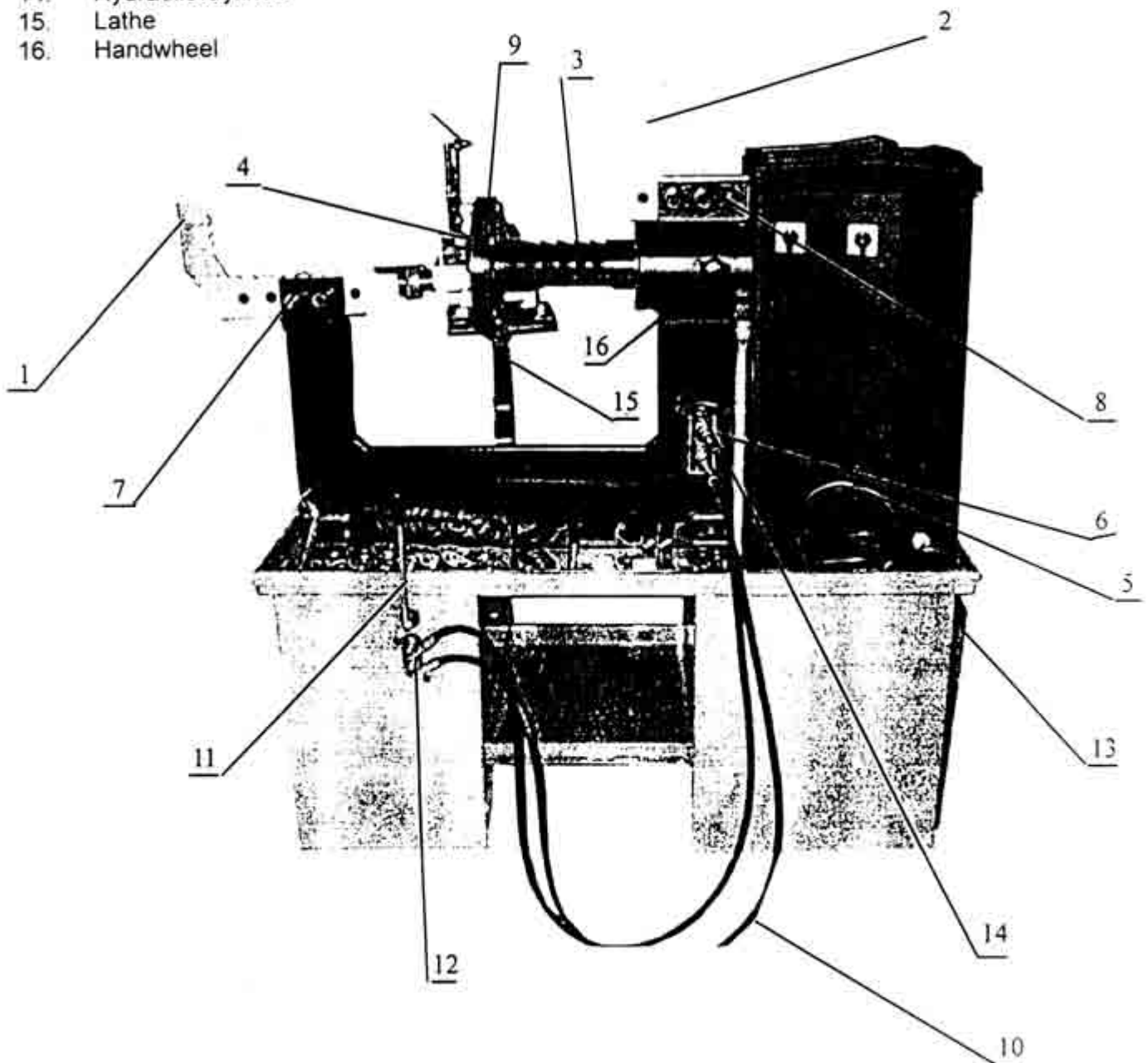
## 14. APPEARANCE OF WHEEL RIM STRAIGHTENING MACHINE PO – 18

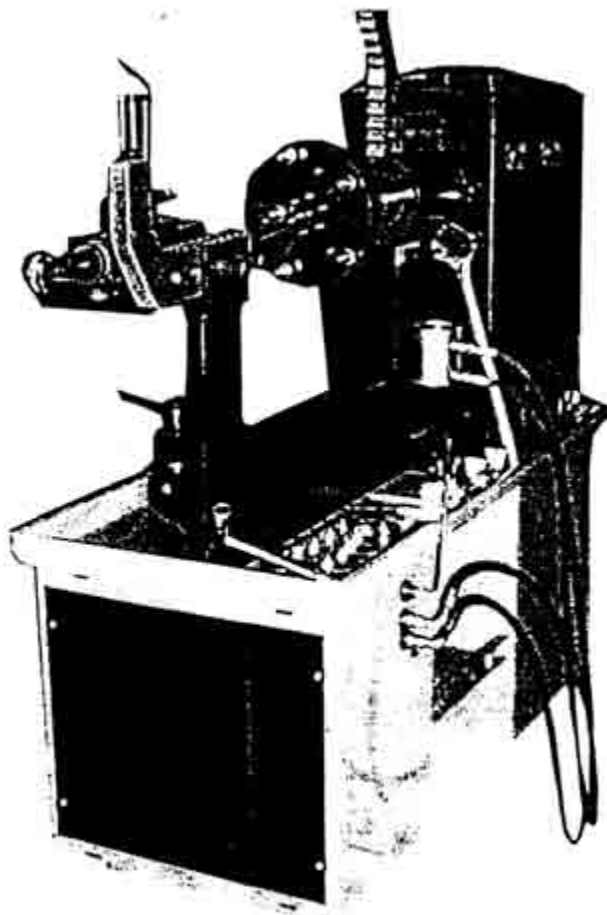
### A. SHAPE

Description of tool endowment (outfit) prostowarki

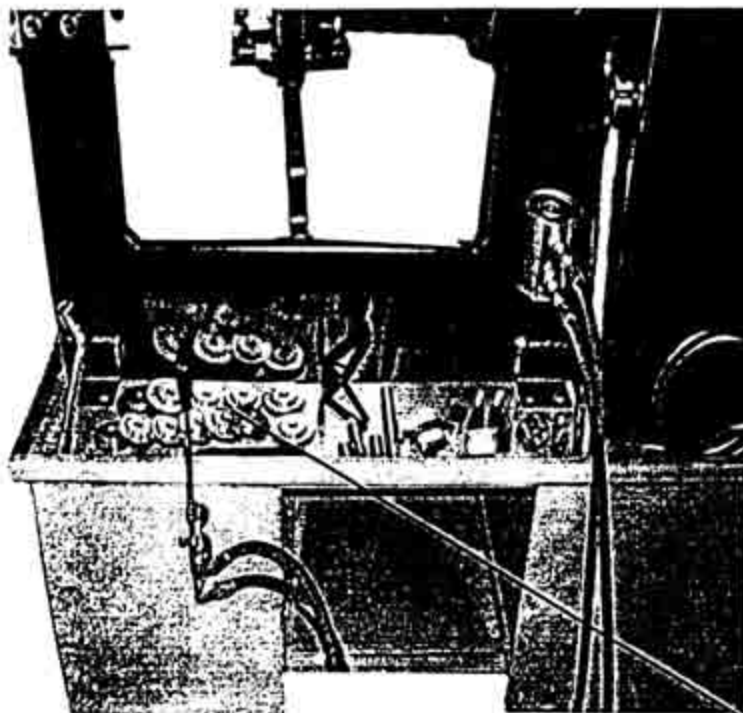
#### 14.1 SPARE PARTS OF HYDRAULIC WHEEL RIM STRAIGHTENING MACHINE

No	NAME
1.	Vertical bracket
2.	Horizontal bracket
3.	Shaft
4.	Set screw
5.	Wire of electric supplying
6.	Bearing piston
7.	Vertical bracket pin
8.	Horizontal bracket pin
9.	Rim connect flange
10.	Piston hose
11.	Operating lever
12.	Down hose gland
13.	Shelf
14.	Hydraulic Cylinder
15.	Lathe
16.	Handwheel



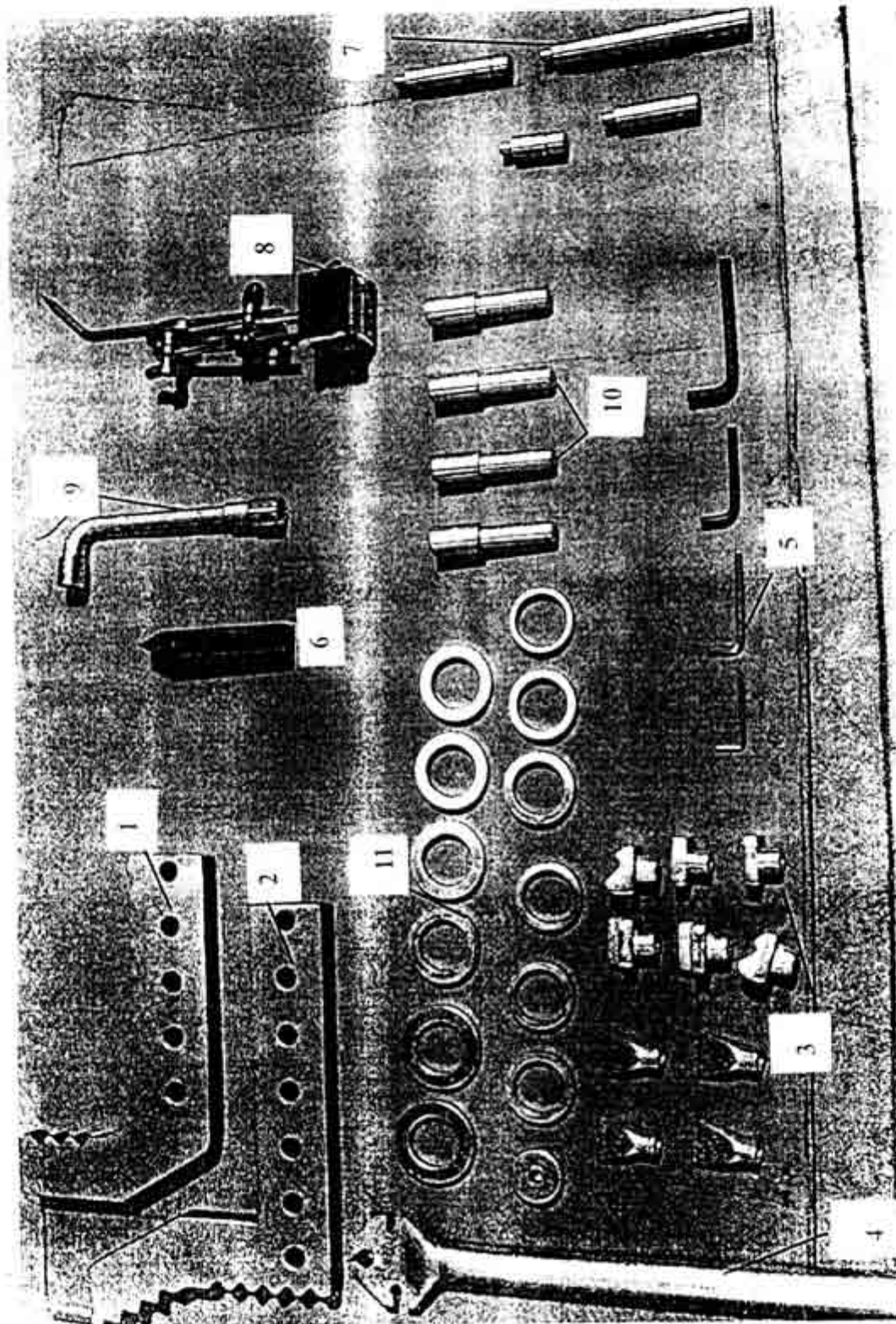


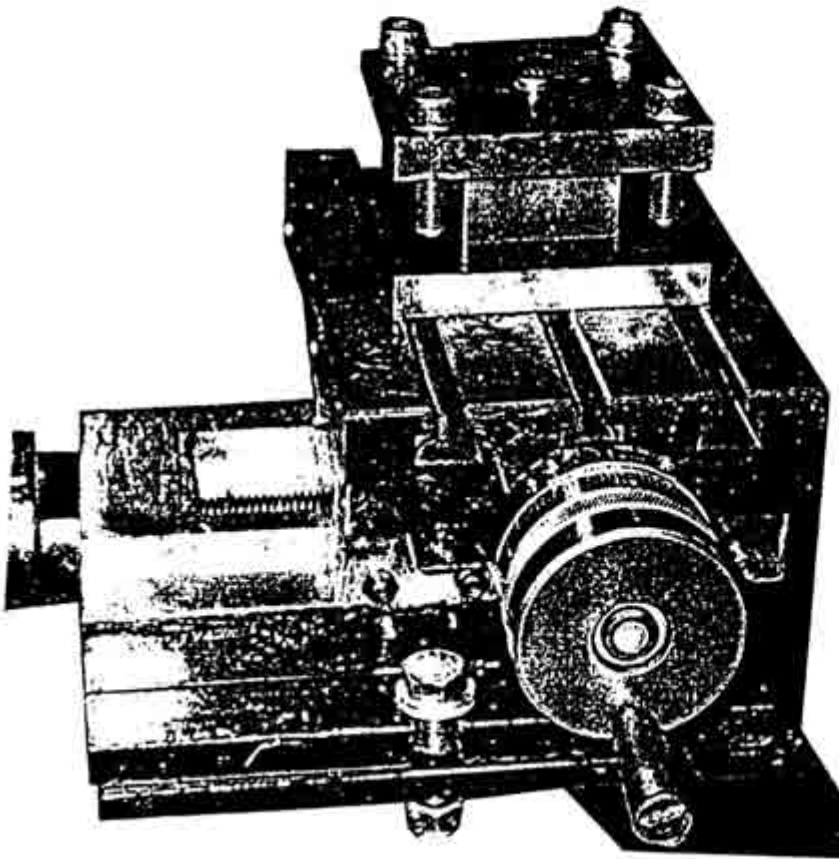
DESCRIPTION OF TOOL EQUIPMENT OF RIM STRAIGHTENING MACHINE



Equipment of  
Rim Straightening Machine

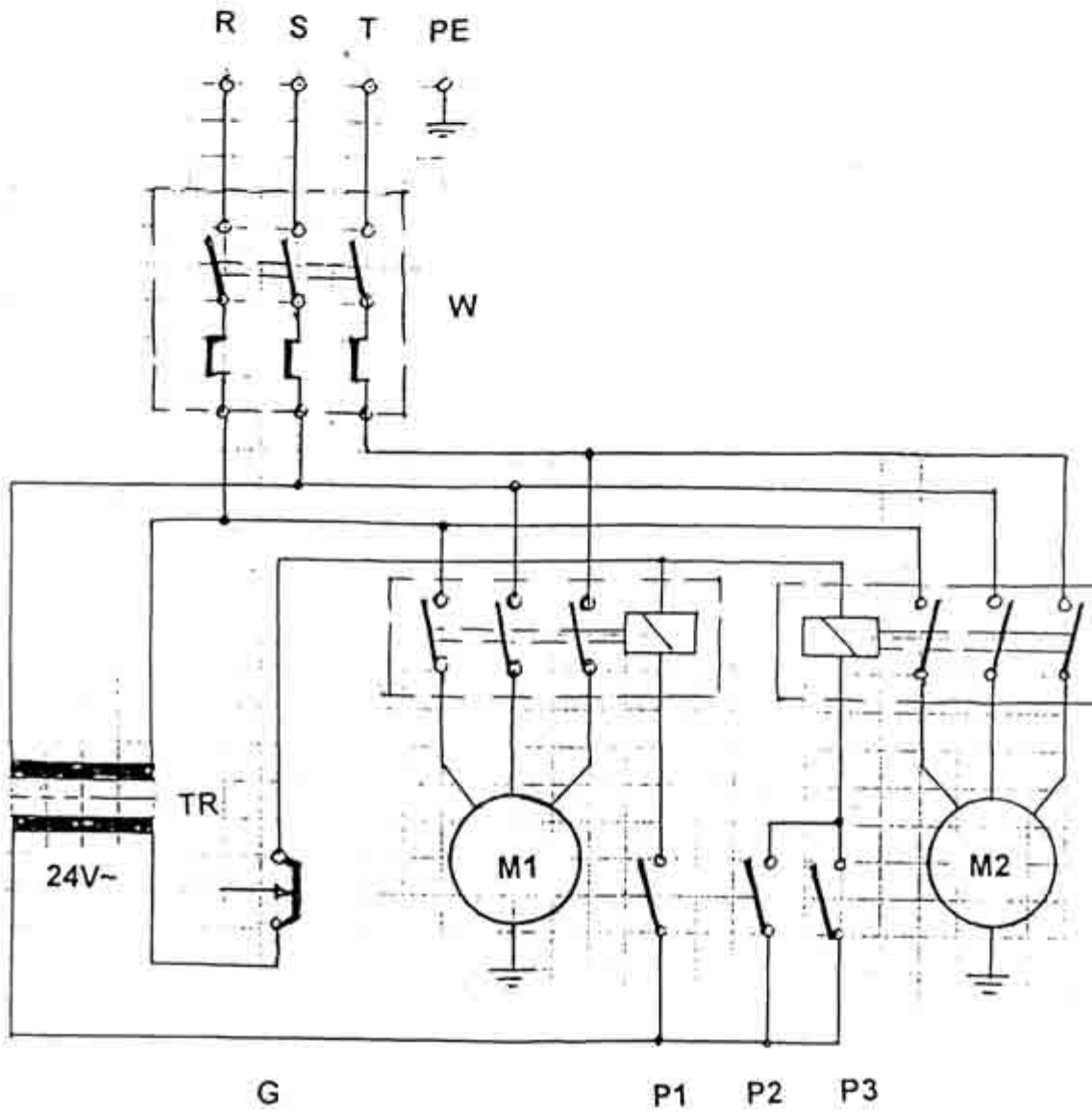
- 1 Horizontal bracket
- 2 Vertical bracket
- 3 Support set with miles
- 4 Lever
- 5 Ampoule spanners
- 6 Knife mounting
- 7 Hydraulic cylinder piston
- 8 Footing sensor
- 9 Spanner
- 10 Supports Set
- 11 Centring bushes





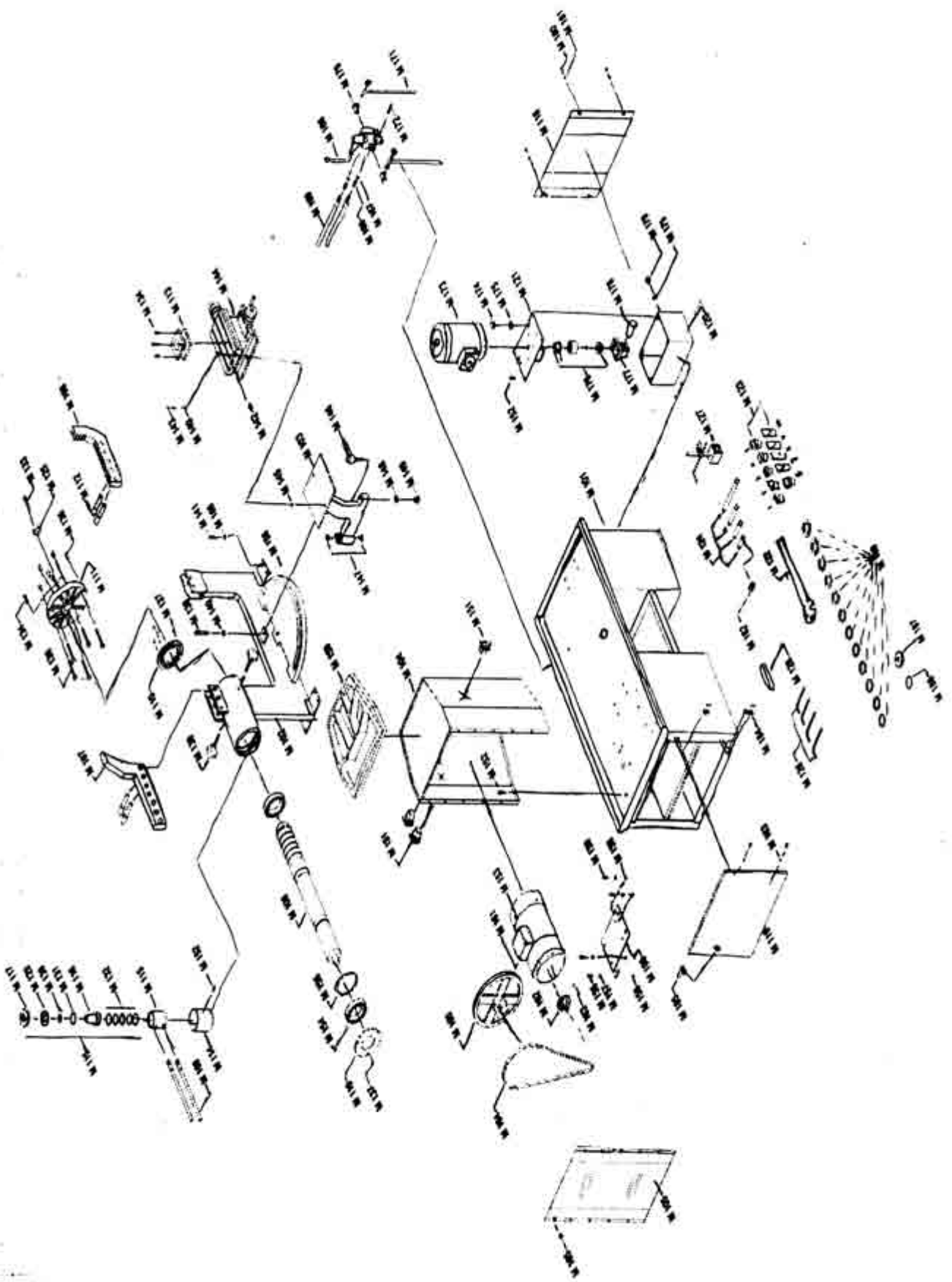
Lathe Adapter

# ELECTRIC SCHEMA



- W - master switch on
- TR - transformer 380/24 V
- G - emergency stop switch
- M1 - motor of hydraulic pump
- M2 - motor of spindle turn
- P1 - hydraulic switch on
- P2, P3 - switch on of spindle turn





## SPARE PART LIST

NO	COD NUMBER	DESCRIPTION
1	M 101	BOTTOM BODY GROUP
2	M 102	UP BODY GROUP
3	M 103	CONNECTING APPLIANCES OF SPORT
4	M 104	SAFETY METAL OF ENGINE
5	M 105	SAFETY DEVICE OF ENGINE
6	M 106	MAIN SHAFT
7	M 107	UP SUPPORT
8	M 108	DOWN SUPPORT
9	M 109	CONNECTING METAL OF ENGINE
10	M 110	OCCURANTE RING BACK COVER
11	M 111	RIM CONNECT FLANSH
12	M 112	SUPPORT PIN SET
13	M 113	LATHE CUTTER
14	M 114	PISTON PENDENT
15	M 115	HYDRAULIC CYLINDER KOMPLETE
16	M 116	HYDRAULIC CYLINDER PISTON
17	M 117	HYDRAULIC CYLINDER PISTON NUT
18	M 118	HYDRAULIC ENGINE PROTECTION COVER
19	M 119	SHELF COVER
20	M 120	OIL TANK
21	M 121	UP COVER OF OIL TANK
22	M 122	LEVER
23	M 123	SUPPORT SET WITH MILES COMPLETE
24	M 123 - 1	SQUARE SUPPORTS
25	M 123 - 2	SQUARE SUPPORTS
26	M 123 - 3	GRADUAL SUPPORS
27	M 123 - 4	GRADUAL SUPPORS
28	M 123 - 5	ANGULAR SUPPORTS
29	M 123 - 6	ANGULAR SUPPORTS
30	M 123 - 7	CUTTER TYPE SUPPORTS
31	M 123 - 8	CUTTER TYPE SUPPORTS
32	M 123 - 9	CUTTER TYPE SUPPORTS
33	M 123 - 10	CUTTER TYPE SUPPORTS
34	M 124	SUPPORTS SET
35	M187	CENTER FLANGE
36	M188	O-RING
37	M189 - 1	RIM TO CENTER WASHER - 54
38	M189 - 2	RIM TO CENTER WASHER - 56,5
39	M189 - 3	RIM TO CENTER WASHER - 57
40	M189 - 4	RIM TO CENTER WASHER - 58
41	M189 - 5	RIM TO CENTER WASHER - 59,5
42	M189 - 6	RIM TO CENTER WASHER - 60,1
43	M189 - 7	RIM TO CENTER WASHER - 63,3
44	M189 - 8	RIM TO CENTER WASHER - 64
45	M189 - 9	RIM TO CENTER WASHER - 65
46	M189 - 10	RIM TO CENTER WASHER - 66,6
47	M189 - 11	RIM TO CENTER WASHER - 72
48	M189 - 12	RIM TO CENTER WASHER - 72,5
49	M 126	ALLEN HEAD SET
50	M 127	MAGNETIC GAUGE
51	M 128	TOOL BIT ( LATHE CUTTER )
52	M 129	WIPPER BT 35
53	M 130	O-RING 35x3
54	M 131	O-RING 52x3
55	M 132	COMPACT SET
56	M 133	CYLINDER HEAD SCREW M12x30
57	M 134	CYLINDER HEAD SCREW M10x35
58	M 135	RIM CONNECT NUTS
59	M 136	SCREW M12x80
60	M 137	CYLINDER HEAD SCREW M6x16
61	M 138	MACE
62	M 139	SCREW M12x150
63	M 140	WASHER M12
64	M 141	SCREW M10x35
65	M 142	LATHE CUTTER CONNECTION SHOE
66	M 143	SCREW M12x50
67	M 144	BASE CROSS SLIDING TABLE 230x145
68	M 145	NUT
69	M 146	ARM M12
70	M 147	BEARING 51201
71	M 148	ARM CONNECTING WASHER
72	M 149	ARM CONNECTING BEEHIVE
73	M 150	PROTECTION UP COVER
74	M 151	POWER SWITCH CA10 A202
75	M 152	CYLINDER HEAD SCREW M6x16
76	M 153	ENGINE 0.75 KW 1 HP 1000 d/d

**SPARE PART LIST**

<b>NO</b>	<b>COD NUMBER</b>	<b>DESCRIPTION</b>
77	M 154	BEARING 6016
78	M 155	MILE SEGMENT Ø80
79	M 156	SCREW M10x25
80	M 157	WASHER M10
81	M 158	WASHER M10
82	M 159	SCREW M10x50
83	M 160	BIG HOOP
84	M 161	SET SCREW M10x25
85	M 162	ENGINE HOOP 13x75x1
86	M 163	SET SCREW M10x16
87	M 164	V - BELT 13x1325
88	M 165	METAL SCREW M3.5x5
89	M 166	HYDRAULIC CONTROL VALVE 3/8 BADESNOST
90	M 167	WASHER 1/4
91	M 168	RECORD 1/4
92	M 169	HYDRAULIC HOSE 1/4x1800
93	M 170	RECORD 3/8 5S 1/4
94	M 171	HYDRAULIC INSTALLATION TUBE 10x1.5
95	M 172	CYLINDER HEAD SCREW M8x50
96	M 173	ENGINE 0.55 KW 0.75 HP 1500 d/d
97	M 174	STOPPER ( PRINC ) 1/4
98	M 175	O-RING 17x2.5
99	M 176	DK24 PUMP CLUTCH
100	M 177	PUMP CAPRONI C027XT
101	M 178	OIL FILTER 3/8
102	M 179	LEVEL GAUGE 1/2
103	M 180	SCREW M6x16
104	M 181	WASHER M6
105	M 182	SUPPORT SEGMENT
106	M 183	NUT M6
107	M 184	HINGE ( M6 GUADRANGLE )
108	M 185	LOCK
109	M 186	WASHER M10

# **INDUSTRIAL SAFETY INSTRUCTIONS for the operation of the rim straightening machine**

## **General remarks**

1. You can start to operate the straightening machine independently only if you fulfil the following conditions:
  - completion of suitable professional training
  - training: preliminary general, fire-fighting and industrial safety in the work-place
  - good state of health confirmed by a medical certificate
  - be at least 18 years of age
  - permission of your direct superior (foreman) to operate the straightening machine
2. You should not start your work if you have any doubts concerning safety.
3. You should consult your direct superior if you have any difficulties or something seems to be unclear. He is supposed to give you exhaustive instructions that will help to solve your problems.
4. When starting your work you should be well rested, sober, suitably dressed (working clothes must be tight without loosely hanging elements).

## **Basic operations before starting your work**

A person working with the straightening machine should:

- get acquainted with the executory documentation (workshop), listen to the orders and professional instructions of your superior concerning safe and correct task execution;
- think over the safe course of work in order to execute the received task;
- prepare necessary workshop aids, working tools, personal protection (if necessary);
- prepare a suitable work-place for the execution of the task;
- report immediately all noticed faults and hazards to your superior in order to remove them quickly.

## **Operations before straightening machine start**

### **Basic actions of the operator during rim straightening:**

- fix the wheel rim
- in case of electrical power failure, switch off the straightening machine immediately
- during work concentrate your attention only on substantial (safe) operations;
- execute every task precisely according to the manufacturing process;
- execute only tasks ordered by your direct superior;
- every accident at work should be reported immediately to your direct superior;
- in case of an accident at work you should leave your work-place in a state prior to the accident until the emergency team arrives;
- in case of any doubts concerning safe task execution always follow the instructions of your superior and carry out his orders

### **Basic actions of the operator after work termination:**

- switch off the straightening machine and prevent it from unwanted start;
- precisely clean up your work-place;
- clean your personal protection and put it back;
- check if your work-place does not create any hazards after your departure

# UNI -TROL

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In accordance with directives : 98/37/CE and 89/336/CEE

We : **Uni-trol Sp. z o.o.**  
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**01-932 Warsaw**  
**Poland**

declare, under our exclusive responsibility, that the product

### WHEEL RIM STRAIGHTENING MACHINE PO 18" (10"- 18")

to which this declaration refers, is in conformity with the following provisions of law :

- directive 98/37/CE ( the safety of machinery);

For verification of conformity with the provisions of law were consulted the harmonized standards or other norms documents:


- PN - EN 292-1 / 2000 Basic concepts, general principles for design - Part 1;
- PN - EN 292-2 / 2000 Basic concepts, general principles for design - Part 2;
- PN - EN 294 / 1994 Safety distances to prevent danger zones being reached by the upper limbs;
- PN - EN 349 / 1999 Minimum gaps to avoid crushing of parts of the human body;
- PN - EN 418 / 1999 Machines. Safety. Equipment for emergency stopping; functional aspects. Principles of project designs;
- PN - EN 982 / 1998 Safety of machinery - Safety requirements for fluid power systems and their components - Pneumatics;
- PN - EN 1037 / 2001 Machines. Safety. Prevention unexpected start-up;
- PN - EN 1050 / 1999 Machines. Safety. Principles of estimates of risks.

This declaration is valid for all products which are produced in accordance with the technical documentation which is part of this declaration.

Wiesław Roguski

PREZES ZARZADU

Chairman of Board

  
inż. Wiesław Roguski

- Bracelets, rings, watches or any hanging ornaments should be taken off during work. Operators having long hair should tie it up in a way that does not make their work difficult; operators should wear suitable shoes.

## 5.2. TECHNICAL SERVICE, REPAIRS, EXCHANGE OF SPARE PARTS

- Service, maintenance work and spare part exchange should be carried out by authorized professionals.
- Before starting any service work you should disconnect the machine from energy sources etc.
- You should use only spare parts delivered by the producer.
- Machine spare parts and accessories should comply with safety standards.

## 6. STORAGE

If the machine is not going to be used for a long period you should disconnect it from power supplies, empty the oil tank and cover it in a way that protects it from any damage which may be caused by accumulated dust. You should lubricate parts that might dry out.

## 7. SCRAPPING

If the machine is not going to be used any longer you should disable its operation and protect parts that might be hazardous. The machine should be sent to the scrap purchasing centre as ferrous scrap. If detailed regulations exist, the machine should be split up into parts.

## 8. TECHNICAL DATA

Min. rim diameter:	10"
Max. rim diameter:	18"
Max. rim width:	10"
Hydraulic system engine:	0.55 kW
Shaft engine:	0.75 kW
Max hydraulic pressure:	200 bar
Supply:	3x400V/50Hz
Noise level:	70 dBA
Weight:	350 kg
Max. height:	1220 mm
Length:	1160 mm
Width:	540 mm

## 9. GENERAL PROTECTION

Before you start to work with the wheel rim straightening machine you should become acquainted with the operating instructions.

- In case of thick rims with holes, you might need caps. In order to ensure correct operation and safety, non-standard parts should be re-supplied by the producer (distributor) against a payable order.
- The purpose of the machine is to correct rims. If after the shape correction the rim needs balancing you should do it on another machine (balancing machine).
- The machine is not adapted to any activities involving washing. Operating the machine in a humid environment is not recommended.
- The machine cannot be operated by unauthorised personnel.
- The machine should only be operated according to its purpose.
- You should check if rims and parts used during correction work are compatible with the producer's instructions.
- Before starting your work you should check the oil level, which should not fall below the red point.
- You should check if the engine rotates in the correct direction.

- In case of improper operation of the machine you should stop it and call customer service.
- In case of sudden accidents and/or during machine inspection, you should press the stop button of the hydraulic engine.
- You should not modify protective devices.
- You should precisely screw down all parts in the machine in order to avoid any hazard. You should also wear protective glasses.
- When using a 7,500 kg servo-motor piston you should operate slowly otherwise some part of the rim may fall away. You should necessarily wear protective glasses.
- You should check if the rim is properly fastened to the flange.
- You should constantly monitor the pressure and ensure it does not exceed the normal level. If it does, you should stop the machine.
- You should check if the engine rotates in the correct direction. Rotation in the wrong direction may damage the engine and the machine.
- Do not overload the lever of the hydraulic control.

**IN ORDER TO AVOID ACCIDENTS YOU SHOULD ALWAYS OBSERVE SAFETY RULES, OPERATIONAL CONDITIONS AND REGULATIONS.**

## **10. GENERAL DESCRIPTION**

The hydraulic wheel rim straightening machine was designed to eliminate slight cambers and damage to the rim, which cause difficulties during balancing. The hydraulic wheel rim straightening machine was designed to correct 10" – 18" rims. Its work is based on the principle of a static balancing machine. It is a hydraulic and electrical machine. Damaged parts are determined by a sensor and corrected by a max. 7,500 kg servo-motor piston.

## **11. MACHINE ASSEMBLY**

- The machine transported on a wooden pallet by means of a forklift must be placed on a straight surface.
- The foundation has to be straight so that the operator's movements during work are not limited.
- The machine cannot be located in a place that hinders the operator's work. The machine must be located in such a way, that the operator can get access to it from the front and from the back, without restricting his hand movements. The machine should be situated far from the wall and other machines.

## **12. PRINCIPLE OF OPERATION**

The wheel rim straightening machine operation is based on the principle of static balancing machines. A movable servo-motor piston can easily correct aluminium and steel rims. A movable hydraulic piston can affect every cambered part of a rim. Thanks to this rim repairing machine, damaged rims can easily be corrected by qualified personnel. Repair time does not exceed 5 minutes.

### **12.1. ELECTRICAL SYSTEM**

The machine needs an electrical supply. The supply cable of the machine should not be connected to other equipment. Connecting any other equipment might influence the machine operation and result in additional hazards. The machine supply is 3x400V/50Hz. The green-yellow conductor is considered a neutral conductor.

In order to switch the hydraulic pump engine on, you have to use the switch "SERVO-MOTOR" ("SIŁOWNIK").

In order to switch the straightener spindle drive engine on, you have to use the switch "ROTATIONS" ("OBROT").

### **12.2. HYDRAULIC SYSTEM**

**ATTENTION!** In order to change the direction of the engine rotation you have to interchange two phase conductors of the plug.

# OPERATING INSTRUCTIONS FOR THE WHEEL RIM STRAIGHTENING MACHINE

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