Draft
August 14, 1961

THE SOVIET CHALLENGE IN MASS PRODUCTION OF MACHINE TOOLS

The Soviet Union is rapidly developing a mass production machine tool and machinery industry with a productive efficiency far greater than that of the United States and West European industries. The United States cannot afford to remain passive in the face of this Soviet challenge.

High efficiency and consequent lower costs have already enabled the Soviets to make inroads into the West European market for machine tools, but the most serious threat is their growing competitive advantage in sales to under-developed countries. Development of the Soviet machine tool industry has included careful planning for low-cost mass production of machines suitable for such countries.

Such a program will carry forward the Soviet plan for victory through peaceful competition. Professor Seymour Melman has said, "With their side of

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Note: The material in this memorandum is based in large part on an EPA report and articles and interviews by Seymour Melman, Associate Professor of Industrial Management and Engineering at Columbia University, who spent the summer of 1959 studying the machine tool industry of Western Europe as an adviser of EPA, followed by a visit to Russia and a tour of the leading Soviet machine tool and machinery plants.

economic competition being carried out from a base of mass-producing machinery industries, the Soviets could very well be in a position to win on a world scale."

He predicts that "in the foreseeable future" Soviet mass production techniques will enable them to offer machinery and machine tools to the underdeveloped countries at half the price of similar goods produced by Western firms.

Soviet sales of machine tools and machinery to underdeveloped countries will be accompanied by technicians and specialists to assist in designing plants, installing the equipment and instructing management and workers in its use. Technical assistance will undoubtedly be offered also for whole programs of industrial development. Technicians, instructors and advisers will also function as effective propaganda agents for the Communists. A whole network of contacts will be established between the Soviet Union and these countries, with the ultimate purpose of swinging them into the Soviet camp.

The superior efficiency of the Soviet machinery industry does not yet apply to all its plants, but a continuing advance in efficiency throughout the

industry is a major policy. It is based primarily upon:

(a) Use of mass production techniques;

(b) Specialization of production among plants, so that each can concentrate on mass production of a specified type of equipment;

(c) A large scale program of research with a view to steadily broadening the application of mass production methods throughout the industry. This includes study of possible further advances in efficiency through standardization of parts and use of modular (building block) techniques in machinery design.

As a result, the Soviets are already underselling West European and U.S. machine tool producers in the West European markets and are competing in underdeveloped countries.

West European machine tool manufacture is hampered by an essentially handicraft approach, producing highly specialized, virtually custom-built machines in small batches. There is no evidence of "productivity mindedness" either in the

designing of the product, the layout of the plants or the production methods followed. Research is limited, and Professor Melman says there is no "evidence" of any major moves within the industry substantially to raise the level of technological efficiency in production." The typical firm is preoccupied with its financial and market position rather than its technology.

The U.S. industry has substantially higher efficiency than the West European, but according to Mr. Melman mainly due to "tighter systems of production organization -- systems which are nevertheless of the small-batch type." We lag far behind the Soviet Union in development of high-efficiency mass production techniques. For example, in contrast with the Soviet emphasis on the efficiencies of standardization, U.S. firms prefer the monopolistic technique of deliberately designing machinery so that only their own attachments will fit it.

Unless the mass production methods which the U.S. has pioneered in other industries are applied to the machine tool and machinery industry, the Soviet Union will gain world-wide superiority in a vital economic sphere.

Productivity in the whole economy suffers from low productivity and high costs in the machine tool industry. Productivity advance depends on the availability of advanced machinery at a cost which makes it cheaper than the labor it replaces. High machinery costs slow down this progress. In the U.S., some 60 percent of machine tools in use are 10 years old or more because, Professor Melman says, "in the absence of an abundant supply of economically produced machines, the tool using industries have preferred to retain older equipment."

Mr. Melman's report produced a sharp reaction in the West European machine tool industry which indicated an awareness that his criticisms had a basis in fact. While the industry's immediate response was an attempt to justify its policies and methods, there was wide agreement that Russian competition posed a growing threat, and the industry published papers and held seminar discussions which indicated that they were giving serious consideration to the problem. In Britain a study was made under the auspices of the Board of Trade. Industry representatives on the committee which made the study stated as part of their views:

"The Soviet threat to United Kingdom exports of certain types of machine tool is a very real one now and can be expected to intensify in the future. The political angle can only serve to increase this threat and it will apply particularly to the less highly industrialised countries."

Melman was able to point out in support of his warnings that his recommendations parallelled those made to the British machine tool industry by a team of technicians in a report published in 1953 by the Anglo-American Council on Productivity, but never implemented.

In order to meet the Soviet challenge, there must be some drastic changes in the policies and methods of the machine tool and machinery industry in the United States as well as Western Europe. In this crucial area of competition between the Soviets and the free world, there is no room for continuance of "business as usual" attitudes. Steps must be taken by the U.S. government to assure that the machine tool industry gets itself into shape to serve as an effective arm of our national policy in the competition with the Soviets for the loyalty of the developing countries.

There must be a vast expansion of research efforts, in particular

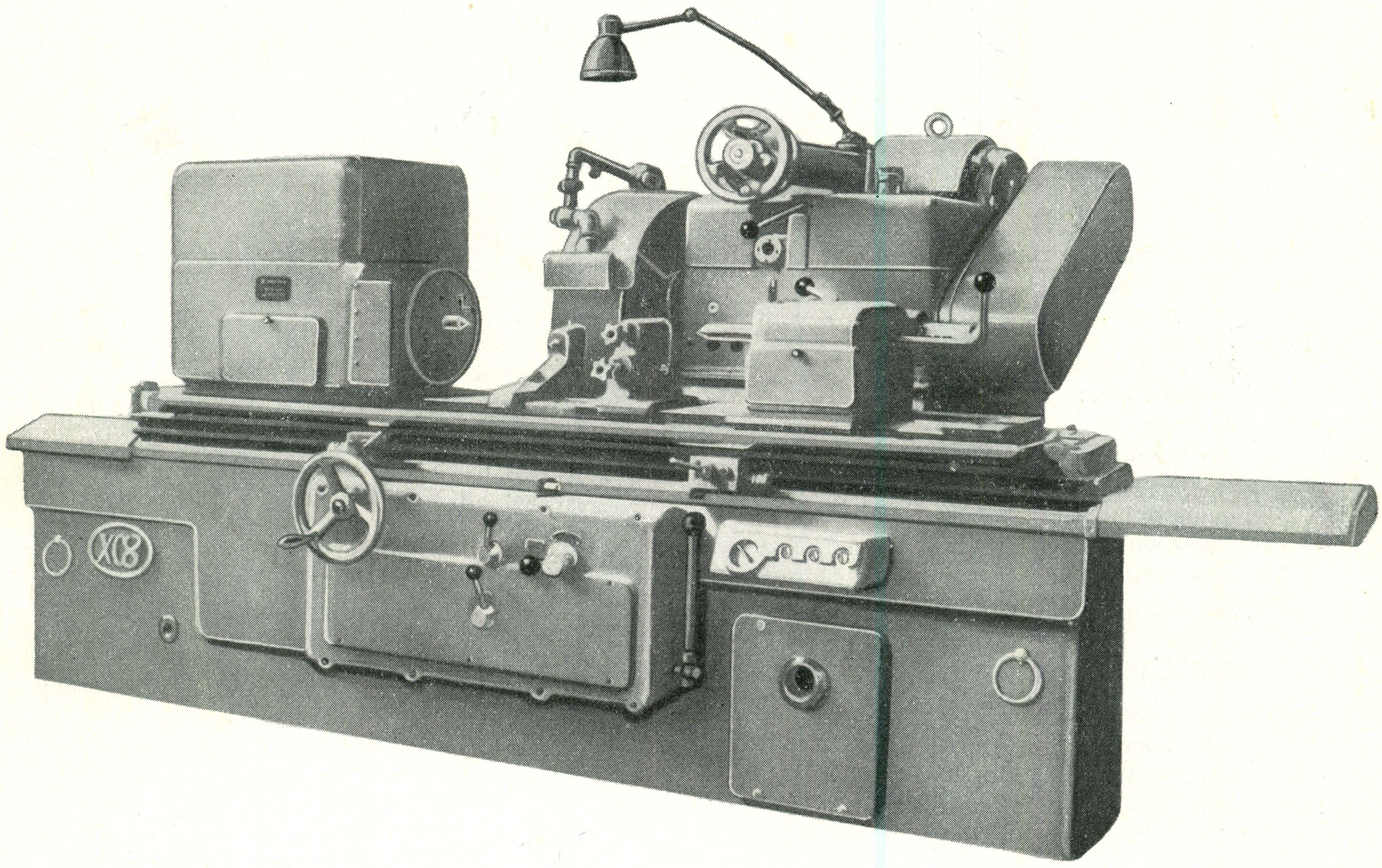
research into methods of developing mass production techniques in the industry.

If necessary, government financial support should be provided for a central research organization for the industry. The Russians have such a research organization, and are making effective use of it.

Research must include programs for standardization of parts, and study of the possibilities of building-block construction of machines, so that as many components as possible can be produced by mass production methods in specialized plants serving the whole industry. Measures must be taken, either through incentives or penalties or both, to assure that full use is made of the results of such research throughout the industry, and that they are neither monopolized by a few companies nor suppressed by those who have a stake in the status quo.

The fact that Professor Melman's report, after almost two years, has made little or no impact on the U.S. machine tool industry clearly indicates the need for government leadership. Without such leadership, we shall simply be handing the Soviet Union a major victory in the economic war that may well determine the final outcome of the world-wide struggle between tyranny and freedom.

CYLINDRICAL PLUNGE-CUT GRINDING MACHINE



Model

3162

V/O „Stankoimport"

MOSCOW - USSR

Model 3162

The 3162 Cylindrical Plunge-Cut Grinder is designed for center-type grinding operations. The machine meets all the requirements of external cylindrical and taper grinding in large or small lots of work, with assured accuracy and fine finish.

The work is set on dead centers and is driven by a driving dog fixed in the headstock face plate. The headstock spindle is driven by a constant speed motor mounted on the headstock. Three work speeds are available.

The rapid advance of wheel to the work, the slow cross feed of wheel (plunge-cut grinding) and the rapid back movement of the wheel to its starting position are operated hydraulically. Manual cross feed of wheel is also provided.

The machine enables grinding with automatic retraction of wheel after the final size of work (according to 3rd class of accuracy) is reached. The machine also enables manual grinding up to a positive stop and provides means for compensating for wheel wear.

The table can be swiveled for taper grinding.

The traverse of the table is operated hydraulically. The machine can be used for both plunge-cut and traverse grinding.

SPECIFICATIONS

CAPACITY

Maximum swing over table, mm ...	300
Distance between centers, mm ...	1000
Height of centers, mm	160
Distance between wheel and work centers (without hydraulic back movement of wheel), mm:	
Minimum	250
Maximum	500
Diameter that can be ground, mm:	
Minimum with wheel 490 mm. diameter	10
Maximum with work rest ...	60
Maximum without work rest with wheel 750 mm. diameter	250

TABLE, HEADSTOCK AND FOOTSTOCK

Maximum traverse of table (hydraulic and by hand) mm	1050
Maximum swivel of table, deg ...	7
Taper hole in headstock and footstock spindles Morse No.	5

WHEEL HEAD

Maximum cross travel of wheel head, mm:	
Manual	250
Hydraulic (advance) ...	50
Graduation of cross feed dial, mm ...	0.005
Maximum diameter reduction of work (plunge-cut grinding), mm ...	1.6
Grinding wheel dimensions, mm:	
Minimum diameter	500
Maximum diameter	750
Face	75
Hole diameter	305

SPEEDS AND FEEDS

Work speeds, r.p.m.	60; 120; 240
Table traverse speeds (hydraulic), m/min:	
Minimum	0.1
Maximum	10
Range of wheel cross feeds (plunge-cut grinding), mm/min	0.1–1.5

DRIVE

250/380 volts, 3-phase, 50 cycle, A.C. motors:

Wheel head:	
Power, kw	14
Speed, r.p.m.	1000
Headstock:	
Power, kw	0.7
Speed, r.p.m.	1000
Hydraulic pump:	
Power, kw	2.8
Speed, r.p.m.	1500
Coolant pump:	
Power, kw	0.125
Speed, r.p.m.	3000

SPACE OCCUPIED

Floor space, mm	4320 × 2300
Height of machine, mm	1500

WEIGHT

Net weight, kg	approx. 6000

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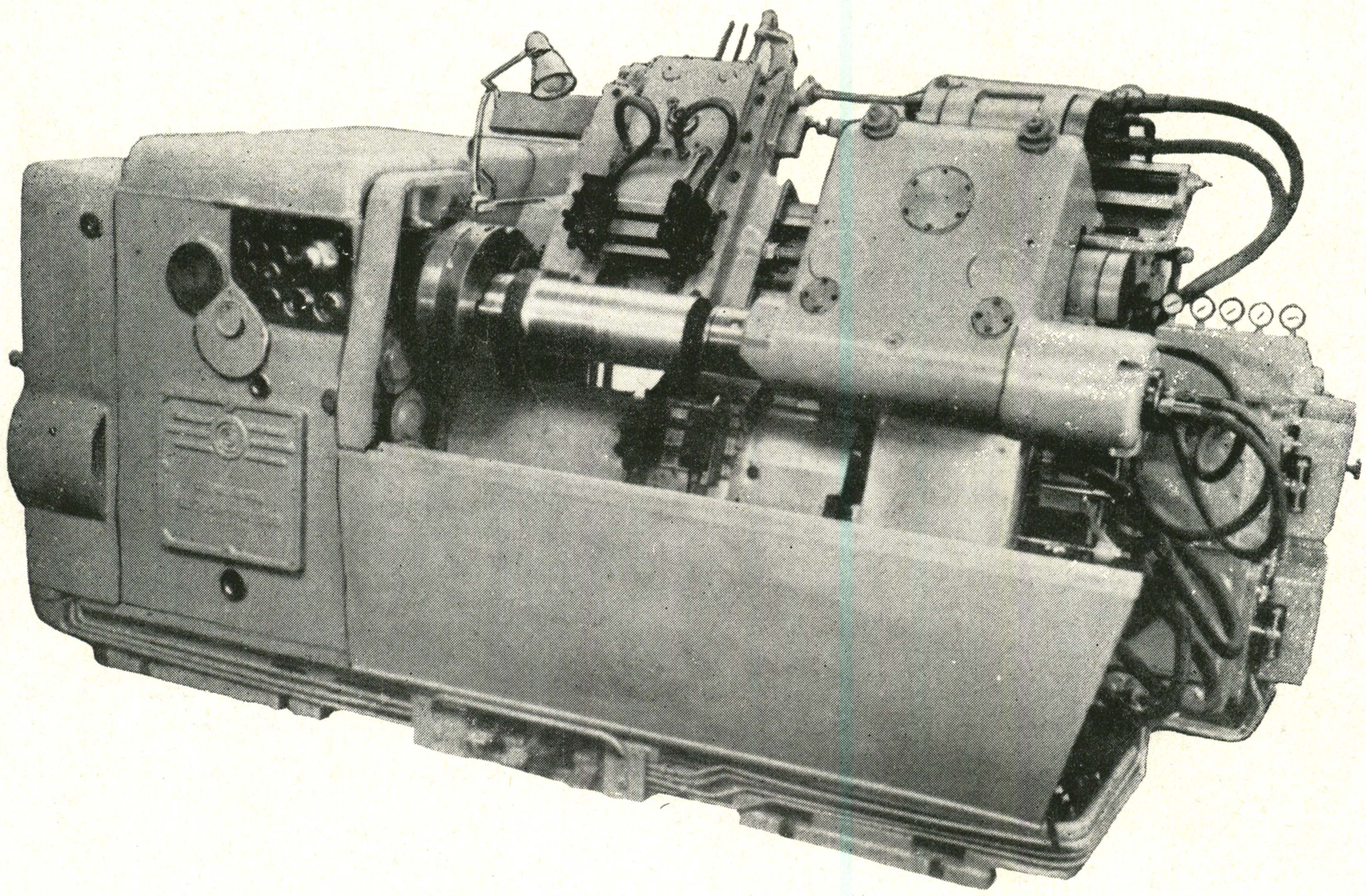
HYDRAULIC MULTITOOL SEMI-AUTOMATIC LATHE



Model

1731

V/O „Stankoimport"

MOSCOW - USSR

Model 1731

The 1731 Semi-Automatic Lathe is designed for machining forgings, castings, or bars held between centers. Rigid construction, ample power, high spindle speeds, accuracy and ease of operation, are the outstanding features of the machine.

The work is driven from an independent electric motor through a change speed gear box. Spindle speeds are provided by shifting and change-gears.

The feeds of the cross slides, as well as tailstock spindle travel, and clamping are operated hydraulically. Feed range of cross slides are infinitely variable, changes being obtained by a throttle valve.

The longitudinal (lower) slide is fitted with a device for receding the tools at the end of the working cycle. The machine operates on a semi-automatic cycle, comprising: simultaneous rapid approach of all slides, working stroke and separate rapid retraction of slides at the end of the working stroke. Any one of the slides can be excluded from the working cycle.

During the setting-up the travel of both slides is effected alternately by turning one handle, besides the slides can travel either at working or at rapid travel rates.

The machine is provided with an interlocking arrangement, preventing the retraction of the tailstock spindle during rotation of the work.

The machine is equipped with a safety overloading device for withdrawing the cross tool slides from the work.

SPECIFICATIONS

CAPACITY

Maximum swing, mm:	
Over bed	580
Over carriage of upper slide	435
Maxim diameter that can be machined, mm. ..	320
Distance between centers, mm:	
Minimum ..	180
Maximum ..	870

CROSS SLIDES

Number of slides ..	2
Working travel of lower slide, mm.	350
Cross travel of lower slide, ..	85 mm. plus 130 mm. (by adjustment)
Working travel of upper slide, mm. ..	100

SPEEDS AND FEEDS

Number of spindle speeds ..	26
Range of spindle speeds, r.p.m.	56–1000
Range of slide feeds, mm/min:	
Lower	13–900
Upper ..	4–340

DRIVE

Power of main drive motor, kw.	20–40

SPACE OCCUPIED

Floor space, mm. ..	3500 x 1650
Height of machine, mm.	1825

WEIGHT

Net weight, kg.	approx.–7650

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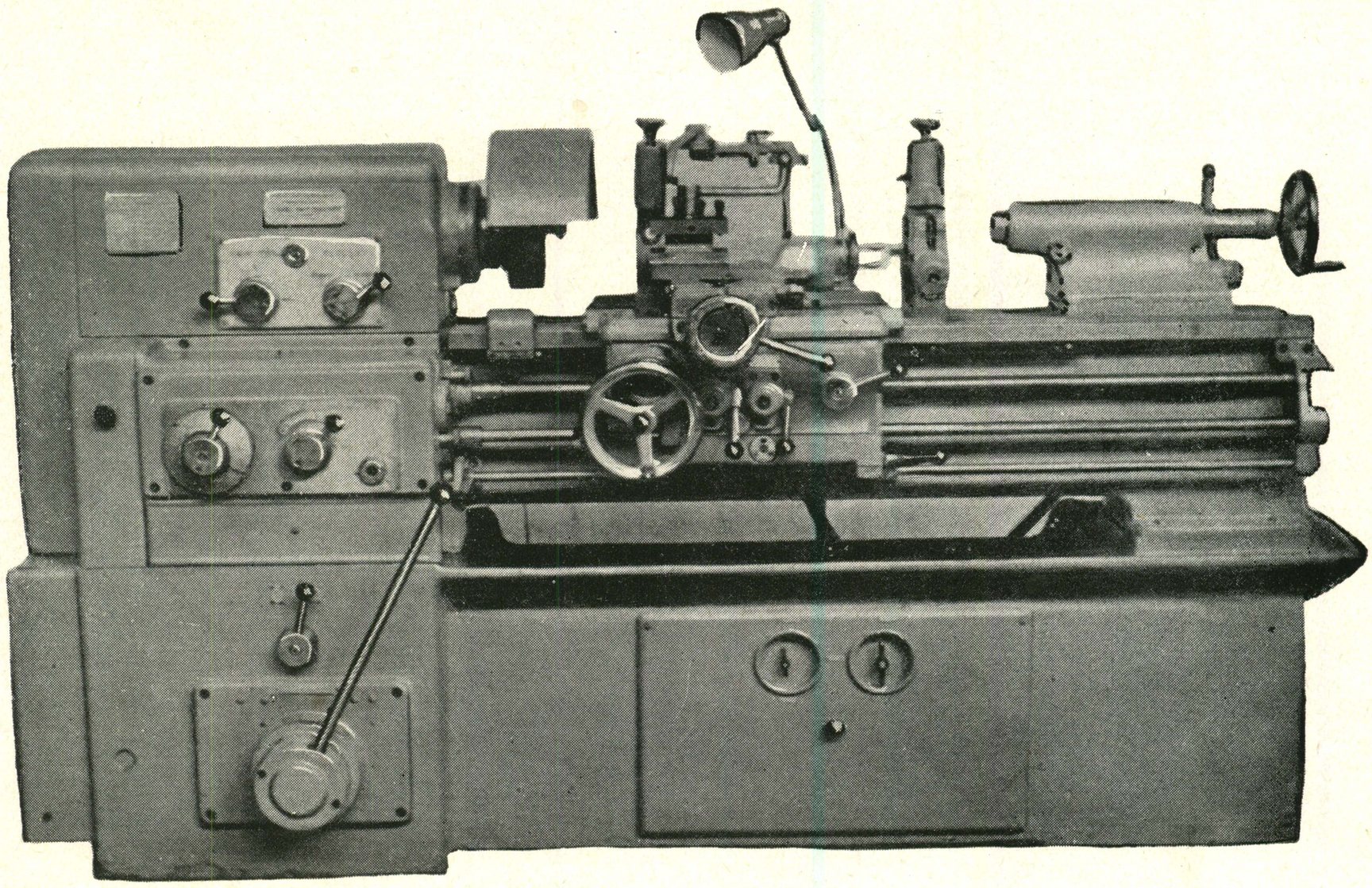
HIGH ACCURACY TOOL ROOM LATHE



Model

1616П

V/O „Stankoimport"

MOSCOW - USSR

Model

1616П

The Tool Room Lathe is designed for all general lathe work, as well as for cutting Metric, English and Module threads. Simplicity of design, rigid construction, accuracy and ease of operation are the outstanding features.

Change of spindle speeds are obtained through a change speed gear box, mounted in the bed, and countershaft spur wheels in the headstock. Feeds and threads are obtained from the feed gear box and change gears.

For cutting accurate threads provision is made in feed gear box for direct engagement of the lead screw to the spindle through change gears only, by-passing the feed box.

The cross slide is equipped with a device for quickly withdrawing the tool from the threads when cutting.

The apron of the machine has an interlocking arrangement which prevents simultaneous engagement of feed from the lead screw and feed shaft.

SPECIFICATIONS

CAPACITY

Height of centers, mm. ..	160
Maximum distance between centers, mm. ..	750
Bar capacity, mm. ..	29
Swing over carriage, mm. ..	175
Swing over bed ways, mm. ..	320
Threads that can be cut:	
Metric, pitch in mm. ..	0.5–9
English, threads per inch	38–2
Module	0.5–9

CARRIAGE

Maximum travel (mechanically or by hand), mm:	
Longitudinal (carriage) ..	850
Cross (cross slide) ..	210
Height from tool bottom to center line, mm. ..	20
Maximum distance from center line to edge of tool block, mm.	185
Maximum size of tool, mm. ..	20 x 20

SPINDLE

Spindle hole diameter, mm. ..	30
Taper hole in spindle ..	Morse No. 5

TAILSTOCK

Taper hole in spindle ..	Morse No. 4
Maximum travel of spindle, mm.	95
Setover on side, mm. ..	plus minus 10

SPEEDS AND FEEDS

Number of spindle speeds (forward and reverse) ..	24
Range of spindle speeds, r.p.m.	19–1415
Range of feeds, mm. per revolution of spindle:	
Longitudinal (carriage) ..	0.3–1.67
Cross (cross slide) ..	0.02–1.24

DRIVE

220|380 volt, 3 phase, 50 cycle A. C. motors:

Main drive:	
Power, kw. ..	2.3
Speed, r.p.m. ..	1500
Coolant pump:	
Power, kw. ..	0.1
Speed, r.p.m. ..	3000
Lubricating pump:	
Power, kw. ..	0.1
speed, r.p.m. ..	3000

SPACE OCCUPIED

Floor space, mm. ..	2355 x 850
Height of machine, mm. ..	1275

WEIGHT

Net weight, kg. ..	approx.–1850

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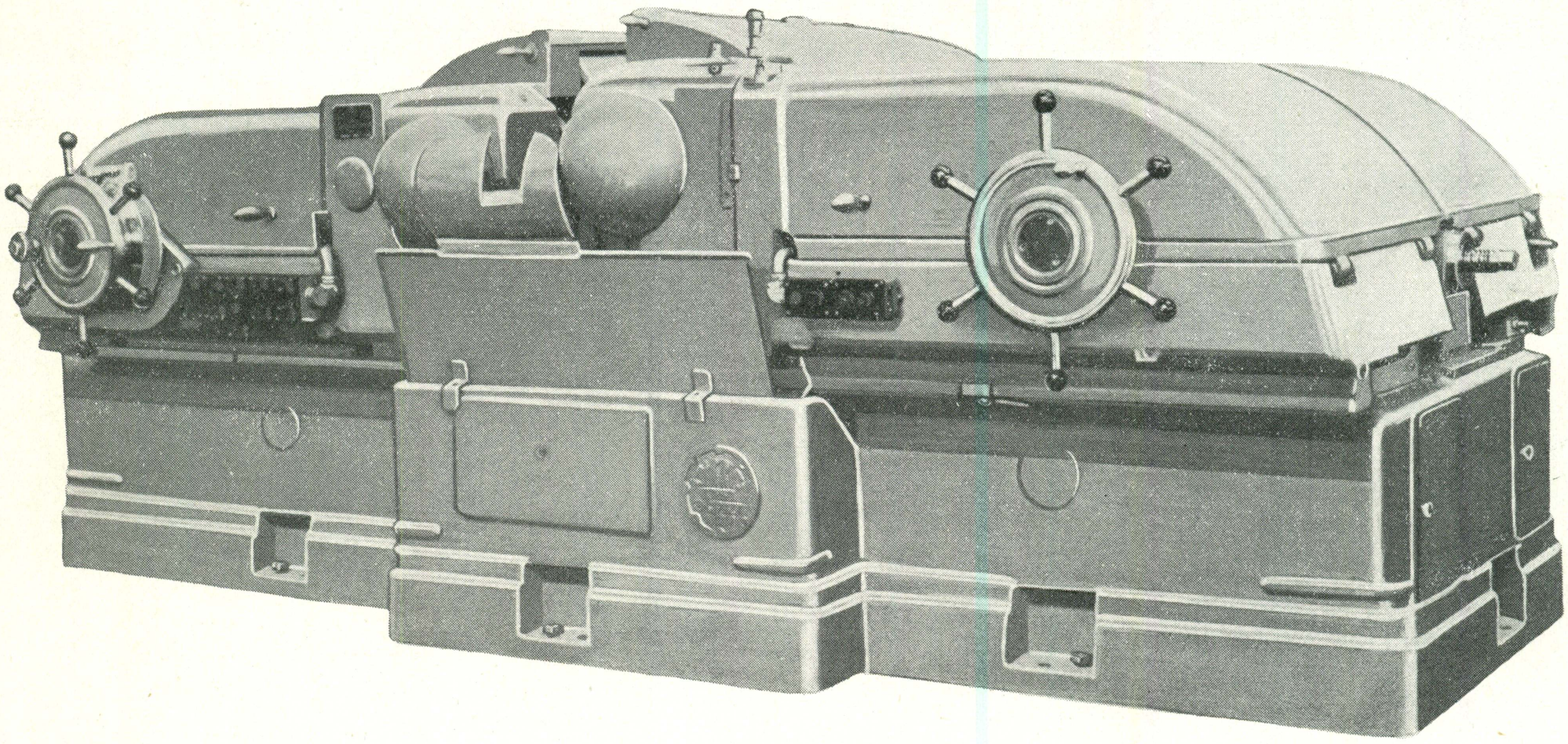
CENTERLESS GRINDING MACHINE



Model 3A182

V/O „Stankoimport"

MOSCOW - USSR

Model 3A182

The 3A182 Centerless Grinding Machine is designed for centerless grinding a very wide range of work including plain cylindrical, taper, shouldered, formed and multidiameter.

The machine has two wheels: a high speed grinding wheel and an opposed slowly rotating regulating wheel, forming a grinding throat between them. A work rest in the throat supports the work during grinding. The grinding wheel serves solely for grinding purposes, while the regulating wheel controls sizing, speed of work rotation and the longitudinal feeding movement of the work.

There are three principal methods of grinding the work: through-feed, infeed, and combination infeed and through-feed. Plain cylindrical parts are ground by the through-feed method. The workpieces are fed in at one side and pass between the grinding and regulating wheels leaving the machine at the other side.

Workpieces having a form or shoulder are ground by the infeed method. The workpiece is placed on the work rest with the wheel withdrawn, the wheel receives then a cross feed up to a stop; on completion of operation the work is automatically ejected.

The work speed depends on the number of revolutions in minute of the regulating wheel.

The regulating wheel speed and the grinding wheel cross feed are changed by pick-off gears.

The angle at which the regulating wheel is set and its speed determine the longitudinal feed of work through the machine for throughfeed method.

Truing of the grinding and regulating wheels is performed with special truing devices.

SPECIFICATIONS

CAPACITY

Maximum grinding diameter, mm	150
Range of recommended grinding diameters, mm	10–75

GRINDING WHEEL

Grinding wheel dimensions, mm:	
Maximum diameter	500
Minimum diameter	380
Maximum width (sectional wheel)	800
Maximum travel of grinding wheel head, mm	200

REGULATING WHEEL

Regulating wheel diamensions, mm:	
Maximum diameter	350
Minimum diameter	290
Maximum width (sectional wheel)	800
Maximum swivel of spindle	5°
Maximum travel of regulating wheel head, mm	150

SPEEDS

Grinding wheel speed, r.p.m.	1370
Number of regulating wheel speeds	7
Range of regulating wheel speeds, r.p.m.	11–300

DRIVE

220/380 volt, 3 phase, 50 cycle A.C. motors:

Grinding wheel:	
Power, kw	40
Speed, r.p.m.	1500
Regulating wheel:	
Power, kw	4.5
Speed, r.p.m.	1500
Grinding wheel feed:	
Power, kw	1
Speed, r.p.m.	1000
Wheel truing devices (2 pcs.):	
Power, kw	0.15
Speed, r.p.m.	3000
Machine lubricating:	
Power, kw	0.65
Speed, r.p.m.	3000
Coolant pump:	
Power, kw	0.65
Speed, r.p.m.	3000

SPACE OCCUPIED

Floor space, mm	3600 × 2310
Height of machine, mm	1310

WEIGHT

Net weight, kg	approx. 11000

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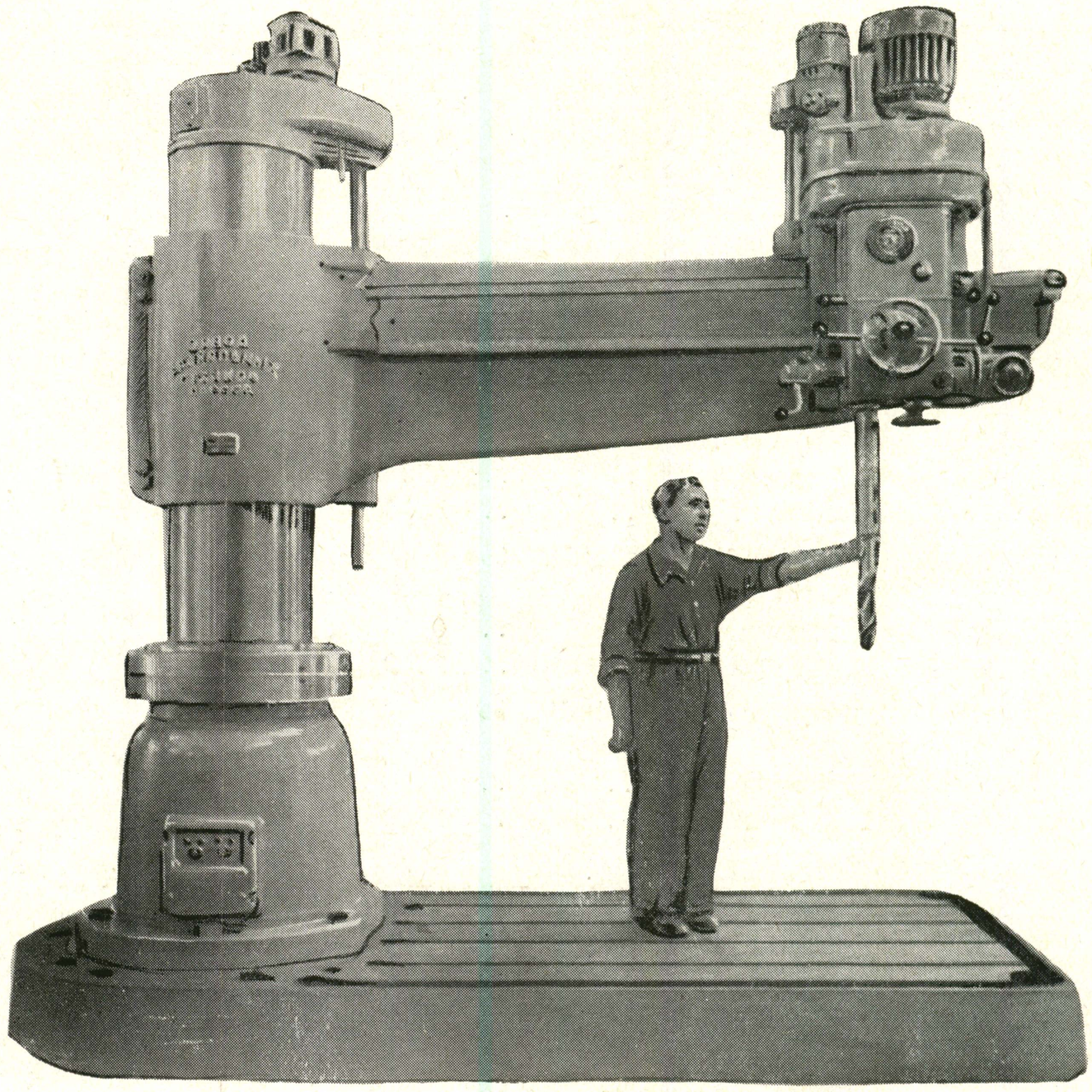
RADIAL DRILLING MACHINE



Model

2Б55

V/O „Stankoimport"

MOSCOW - USSR

Model

2Б55

The Radial Drilling Machine is designed for drilling, boring, counterboring, reaming, facing and tapping operations.

19 different spindle speeds and 18 spindle feeds are obtained through speed and feed gear boxes.

The spindle has both forward and reverse motions, the reverse of the spindle being effected through either a driving clutch or reversing motor.

The spindle feed is operated both by power and manually.

The elevating and lowering motion of the arm is operated by a separate electric motor.

The locking and unlocking of the arm on the column and of the spindle head on the arm are obtained by hydraulic means. When starting raising or lowering movements of the arm on the column the arm clamp is released automatically and when stopping these movements the arm is clamped automatically.

The traverse of the spindle head along the arm and the swing of the arm around the column axis are accomplished manually.

All controls and levers are grouped on the spindle head within easy reach of the operator. The machine is equipped with four motors.

SPECIFICATIONS

CAPACITY

Maximum drill diameter in mild steel, mm.	50
Distance, center of spindle to column, mm:	
Minimum	400
Maximum	2000
Distance, end of spindle to table, mm:	
Minimum	0
Maximum	1150
Distance, end of spindle to base, mm:	
Minimum	600
Maximum	1750

SPINDLE AND SPINDLE HEAD

Taper in spindle	Morse No. 5
Maximum vertical spindle travel, mm.	350
Maximum traverse of spindle head on arm, mm. ..	1600

ARM

Maximum traverse of arm on column, mm.	700
Maximum swing of arm ..	360°

SPEEDS AND FEEDS

Number of spindle speeds ..	19
Range of spindle speeds, r.p.m.	30-1700
Number of spindle feeds ..	18
Range of spindle feeds, mm per revolution ..	0.03-1.2

DRIVE

220|380 volt, 3 phase, 50 cycle A. C. motors:

Spindle drive:	
Power, kw.	4.5
Speed, r.p.m. ..	1500
Elevating and lowering arm motions:	
Power, kw.	2.8
Speed, r.p.m. ..	1500
Arm and spindle head clamping:	
Power, kw.	0.6
Speed, r.p.m. ..	1500
Coolant pump:	
Power, kw.	0.1
Speed, r.p.m. ..	3000

SPACE OCCUPIED

Floor space, mm	3600 x 1550
Height of machine, mm. ..	3875

WEIGHT

Net weight, kg.	approx.–9600

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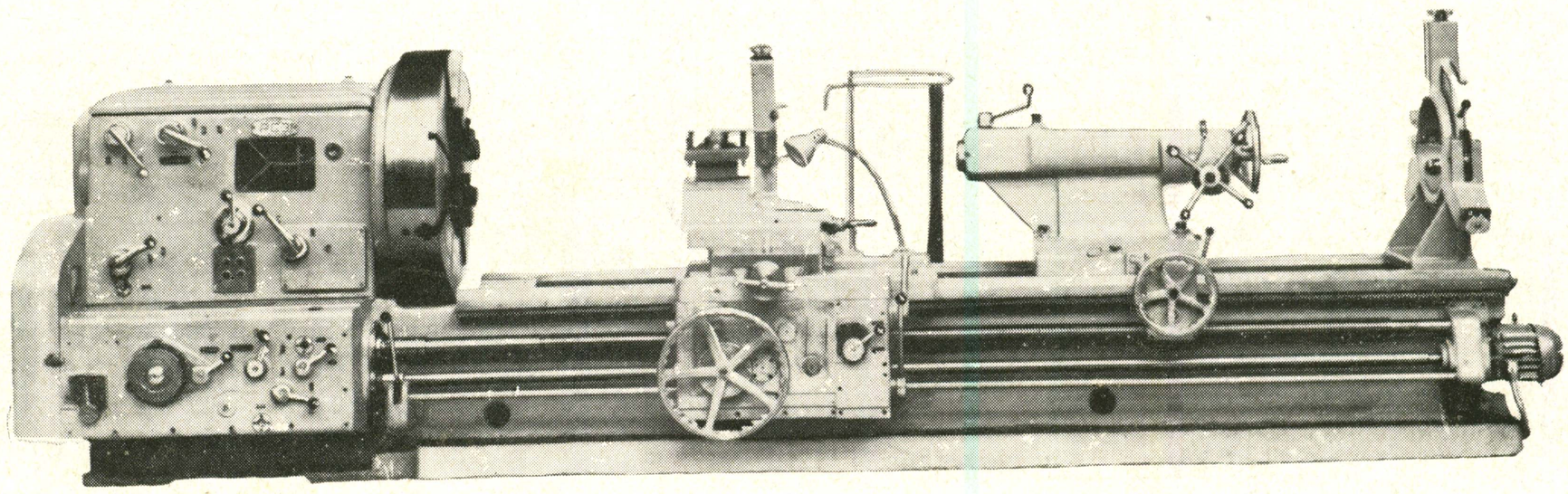
ENGINE LATHE



Model 165

V/O "Stankoimport"

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Model

165

The 165 Engine Lathe is designed for all general lathe work and for cutting Metric, English and Module threads.

The spindle is driven from an individual electric motor through Vee-belts and the change speed gear box.

Change of spindle speeds are obtained through a head stock.

The feed gear box is enclosed, and provides for cutting all standard thread, without change gears.

For cutting accurate threads provision is made for engaging the leadscrew to the change gear train by passing the speed gear box.

The machine is equipped with rapid power traverse to both the cross slide and carriage.

SPECIFICATIONS

CAPACITY

Maximum swing over bed ways, mm.	1000
Maximum distance between centers, mm.	3000
Maximum diameter that can be turned over carriage, mm.	650
Threads that can be cut:	
Metric, pitch in mm. ..	1–120
English, threads per inch	30–0.25
Module	0.5–60

SPEEDS AND FEEDS

Number of spindle speeds ..	24
Range of spindle speeds, r.p.m.	5–500
Range of feeds, mm. per revolution of spindle:	
Longitudinal ..	0.204–3.05
Cross	0.069–1.038
Rapid Traverse, m/min:	
Carriage	2.3
Cross slide ..	0.8

DRIVE

Power of electric motor, kw. ..	28

SPACE OCCUPIED

Floor space	6255 x 2280
Height of machine, mm. ..	1760

WEIGHT

Net weight, kg.	approx.–12500

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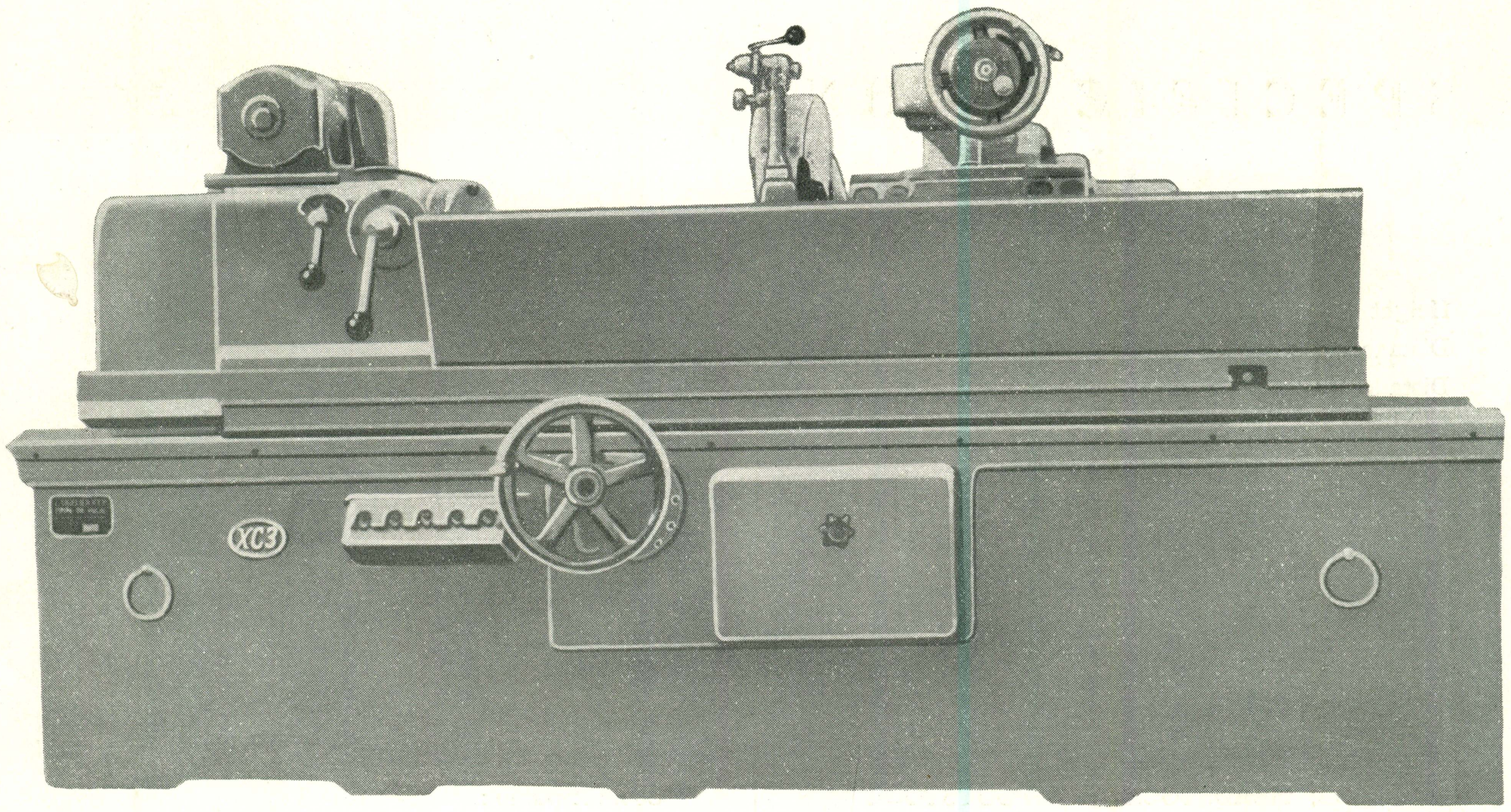
CAMSHAFT REGRINDING MACHINE



Model

3433

V/O „Stankoimport"

MOSCOW - USSR

Model 3433

The 3433 Camshaft Regrinding Machine is designed for regrinding the cam contours of automotive camshafts. The cam grinding is performed by the copying method. The contour is produced by swinging the work as it revolves, toward and away from the grinding wheel, by means of a master cam in contact with a roller.

Various types and kinds of cam shapes can be ground in this machine using a set of interchangeable master cam blocks furnished with the machine and mounted on the headstock spindle. A master block consists of a master exhaust cam, a master inlet cam and an eccentric (in case the camshaft has such an eccentric). The longitudinal movement of the table and cross movement of the wheel head are performed manually.

Power from the motor to the work spindle is transmitted by means of a belt drive with two-step pulleys.

SPECIFICATIONS

CAPACITY

Height of centers over cradle, mm	95
Distance between centers, mm	1260
Distance between wheel and work centers, mm:	
Minimum	260
Maximum	500
Maximum radius of rotation, mm	90
Maximum lift of cam, mm	15
Diameter that can be ground (in steadyrest), mm:	
Minimum	30
Maximum	75
Maximum weight of work, kg	30

TABLE, HEADSTOCK AND FOOTSTOCK

Maximum traverse of table (by hand), mm	1260
Taper hole in headstock and footstock spindles, Morse No.	4

WHEEL HEAD

Maximum cross travel of wheel head (by hand) mm	240
Grinding wheel dimensions, mm:	
Minimum diameter	500
Maximum diameter	600
Minimum face	25
Maximum face	40
Hole diameter	305

SPEEDS

Work speeds, r.p.m.	16; 32.

DRIVE

220/380 volts, 3-phase, 50 cycle, A.C. motors:

Wheel head:	
Power, kw	4.5
Speed, r.p.m.	1500
Headstock:	
Power, kw	0.7
Speed, r.p.m.	1000
Coolant pump:	
Power, kw	0.125
Speed, r.p.m.	3000

SPACE OCCUPIED

Floor space, mm	3420x1700
Height of Machine, mm	1500

WEIGHT

Net weight, kg	Approx. 4200

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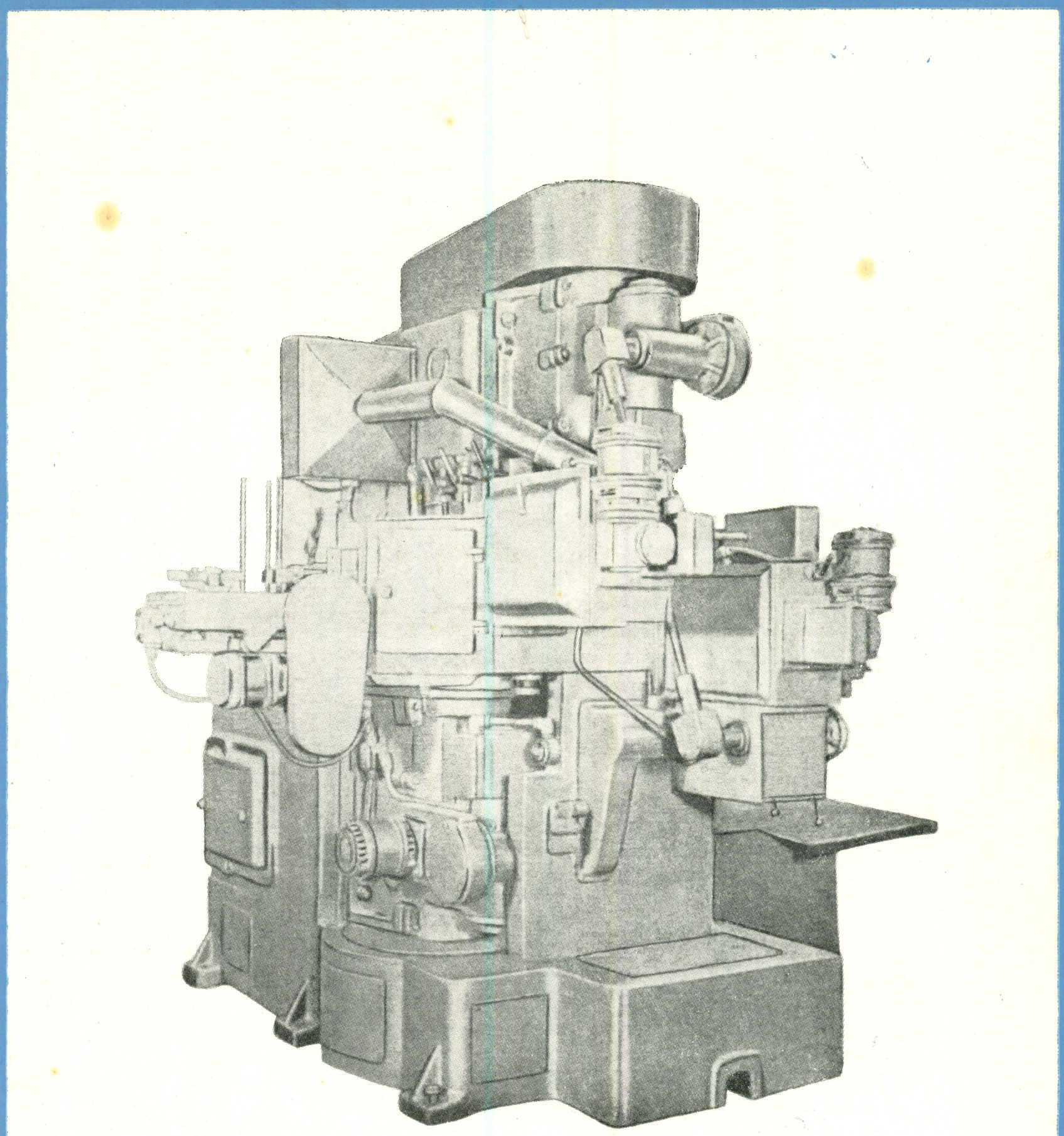
Vertical Double Spindle Piston Ring Grinding Machine



Model

3317

V/O „Stankoimport"

MOSCOW - USSR

Model 3317

The 3317 Piston Ring Grinding Machine is designed for the precision finish grinding of piston ring sides in mass manufacture at a very high rate of production.

Two grinding wheels with offset spindles running in the vertical position and revolving in the same direction at the same speed grind both piston ring sides simultaneously. The rings are fed to the grinding wheels by a work feed mechanism of the semi-automatic magazine type equipped with endless feed chains. The feeds are changed by suitable interchangeable chain sprockets. Entering the grinding zone the ring receives a rotation in the clock-wise direction; then, in the middle of the grinding zone the ring is rotated counter clockwise and when leaving the grinding zone the work is again rotated clockwise. This produces very accurately ground rings, flat, parallel and of a high degree of finish.

The machine has both manually operated and power driven wheel spindel feeds.

The machine is equipped with a wheel truing device and with an exhausting system for the vapour of kerosine which is part of the coolant fluid.

SPECIFICATIONS

CAPACITY

Diameter of piston rings ground, mm:

Minimum ...	... 75
Maximum ...	... 180

WHEEL HEADS

Maximum vertical travel of grinding spindle, mm ...	... 50

Distance from grinding wheel face to grinding surface, mm:

Minimum ...	... 0
Maximum ...	... 50

Grinding wheel dimensions, mm:

External diameter ...	... 750
Hole diameter ...	... 350
Minimum height ...	... 15
Maximum height ...	... 40

SPEEDS AND FEEDS

Grinding wheel speed, r.p.m.	... 460
Wheel spindle feed, mm/min	... 0.6
Rapid movement of wheel spindle, mm/min ...	... 40
Piston ring feeds, mm/min ...	15.8; 22.4; 31.6

DRIVE

220/380 volt, 3-phase, 50 cycle, A.C. Motors:

Grinding wheels:

Power, kw ...	... 7
Speed, r.p.m. ...	... 1500

Wheel spindle rapid movement:

Power, kw ...	... 0.41
Speed, r.p.m. ...	... 1500

Work feed mechanism:

Power, kw ...	... 0.25
Speed, r.p.m. ...	... 1500

Belt conveyor:

Power, kw ...	... 0.25
Speed, r.p.m. ...	... 1500

Exhausting system:

Power, kw ...	... 0.25
Speed, r.p.m. ...	... 1500

Wheel truing device:

Power, kw ...	... 0.25
Speed, r.p.m. ...	... 1500

Coolant pump:

Power, kw ...	... 0.65
Speed, r.p.m. ...	... 3000

SPACE OCCUPIED

Floor space, mm ...	... 2980 × 2865
Height of machine, mm ...	... 2865

WEIGHT

Net weight, kg	approx. 9500

V/O "Stankoimport"

MOSCOW-USSR

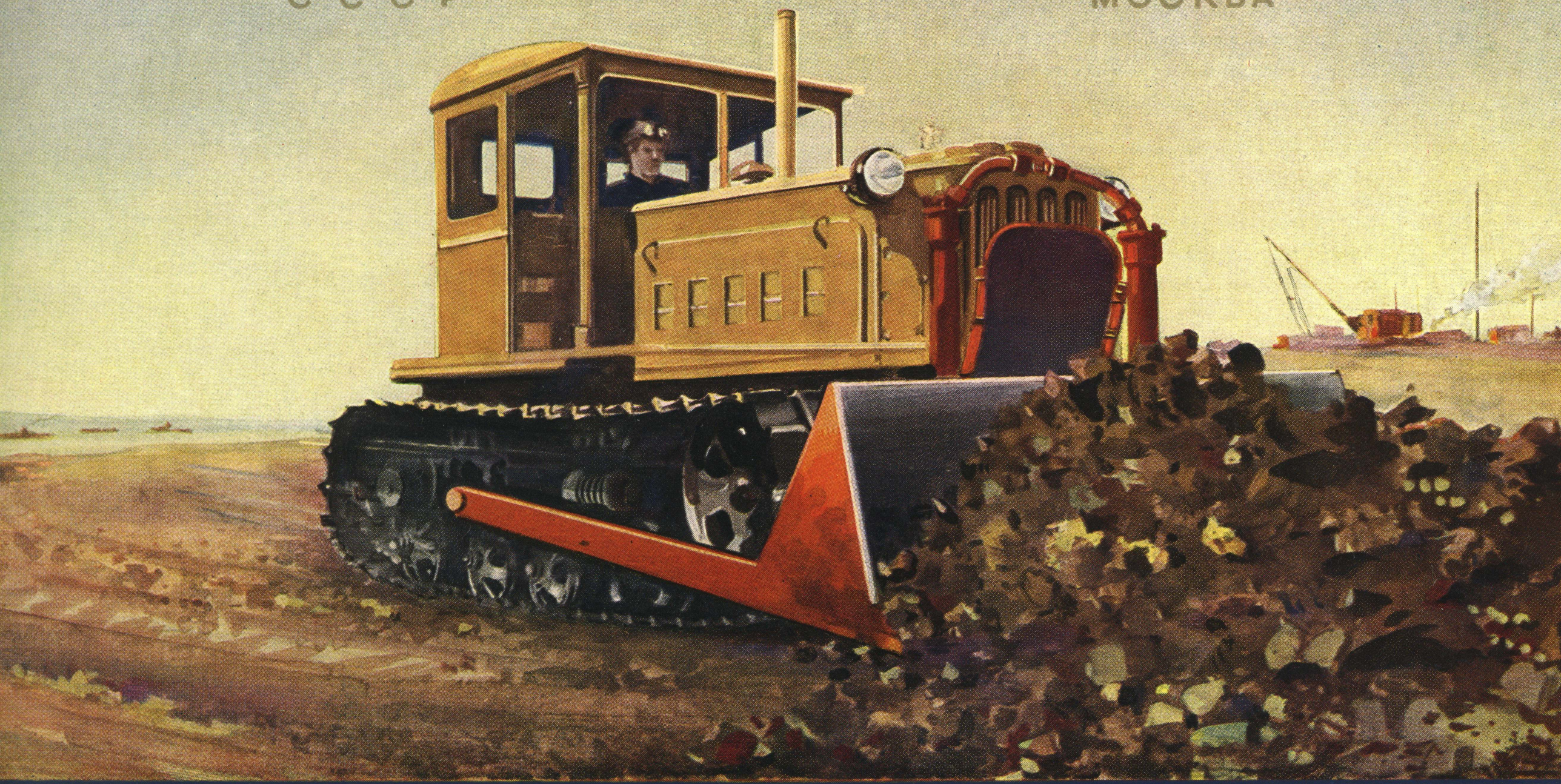
Cable address: STANKOIMPORT. MOSCOW.

ВСЕСОЮЗНОЕ ОБЪЕДИНЕНИЕ

ТЕХНОПРОМИМПОРТ

СССР

МОСКВА



BULLDOZER Д-159Б

BULLDOZERS Д-159 Б and Д-271

The Д–159 Б and Д-271 Bulldozers are used to move earth, gravel, road–metal and other bulk materials short distances when site grading with slight soil cutting, spreading earth supplied by other machines, filling trenches, pits, ditches, when removing debris from building sites, road building, etc.

The Д–159 Б Bulldozer is mounted on a ДТ–54 caterpillar tractor.

Raising and lowering the blade on the Д–159 Б Bulldozer is accomplished by means of a universal hydraulic gear operated by the tractor driver. The hydraulic pump is mounted on the tractor rear axle and is driven from the power take–off shaft.

The Д–271 Bulldozer is of the hanging type and is mounted on a С–80 caterpillar tractor.

The blade of the Д–271 Bulldozer is raised by means of a steel rope from a winch operating from the power take–off shaft.

No structural modifications are required on the tractors for mounting the Д–159 Б or Д–271 Bulldozers on them, and after removal of the Bulldozers the tractors are immediately available for haulage. The Д-159 Б and Д–271 Bulldozers are simple to operate, they are sturdy and convenient for heavy earth work. Due to the large range of speeds and tractive efforts of the ДТ–54 and С–80 tractors, the Д–159 Б and Д–271 Bulldozers possess excellent manoeuvrability and are highly efficient.

Specifications of the Д-159 Б Bulldozer

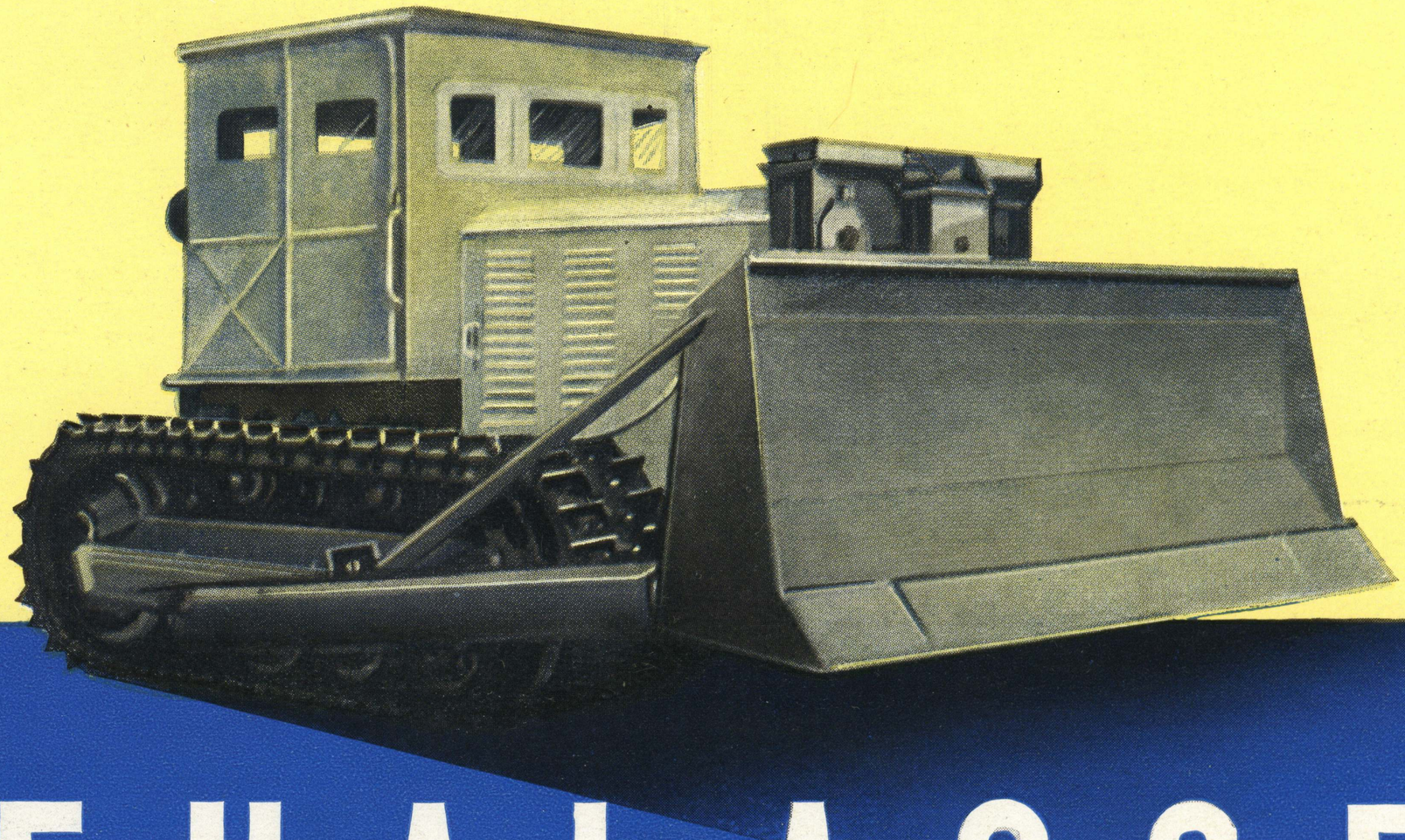
Length of blade (width of working)..... 2280 mm
Height of blade..... 800 mm
Cutting angle..... 60 °
Maximum penetration depth of blade..... 150 mm
Maximum lift of blade..... 600 mm
Velocity of raising or lowering the blade..0.2 m/sec.
Pump speed..... 925 RPM
Pump delivery..... 200 litres/min.
Oil pressure in system.....30 atm.
Distributor ..... slide valve type
Hydraulic lifting gears (cylinders)..... 2
Bore of hydraulic cylinders..... 101 mm
Stroke ..... 470 mm
Filling capacity of oil system ..... 40 litres
Oil for hydraulic gears... Transformer or spindle oil
Overall dimensions with tractor:
length 4300 mm; width 2280 mm; height 2300 mm
Weight of Bulldozer without tractor and hydraulic gear ..... 650 kg
Weight of Bulldozer with hydraulic gear... 850 kg
Average capacity per shift when moving earth to a distance of 50 m ..... up to 225 m³

Specifications of the Д-271 Bulldozer

Length of blade with side cutting blade... 3030 mm
Height of blade..... 1100 mm
Cutting angle..... 52–62°
Maximum penetration depth of blade..... 180 mm
Maximum lift of blade ..... 900 mm
Winch, single drum..... Д–269
Diameter of drum ..... 216 mm
Length of drum ..... 96 mm
Tractive effort on first layer of steel rope. 2800 kg
Velocity of steel rope on first layer....1.66 m/sec.
Diameter of steel rope..... 13 mm
Overall dimensions with tractor and winch:
length 5000 mm; width 3030 mm; height 2660 mm
Weight:
Bulldozer without tractor and winch... 1580 kg
Winch ..... 320 kg
Tractor with Bulldozer and winch.... 13300 kg
Speed of tractor:
forward ..... 2.25 to 9.60 km/hour
reverse ..... 2.66 to 8.75 km/hour
Output on average site grading 3—6 hectares per shift

ТЕХНОПРОМИМПОРТ

TECHNOPROMIMPORT



БУЛЬДОЗЕР

Д-271

ТЕХНОПРОМИМПОРТ

Vneshtorgizdat. Order No 2107

VSESOJUZNOJE OBJEDINENIJE

МАШИНОЭКСПОРТ

«MACHINOEXPORT»

INCREASED-FREQUENCY MOTOR-GENERATOR

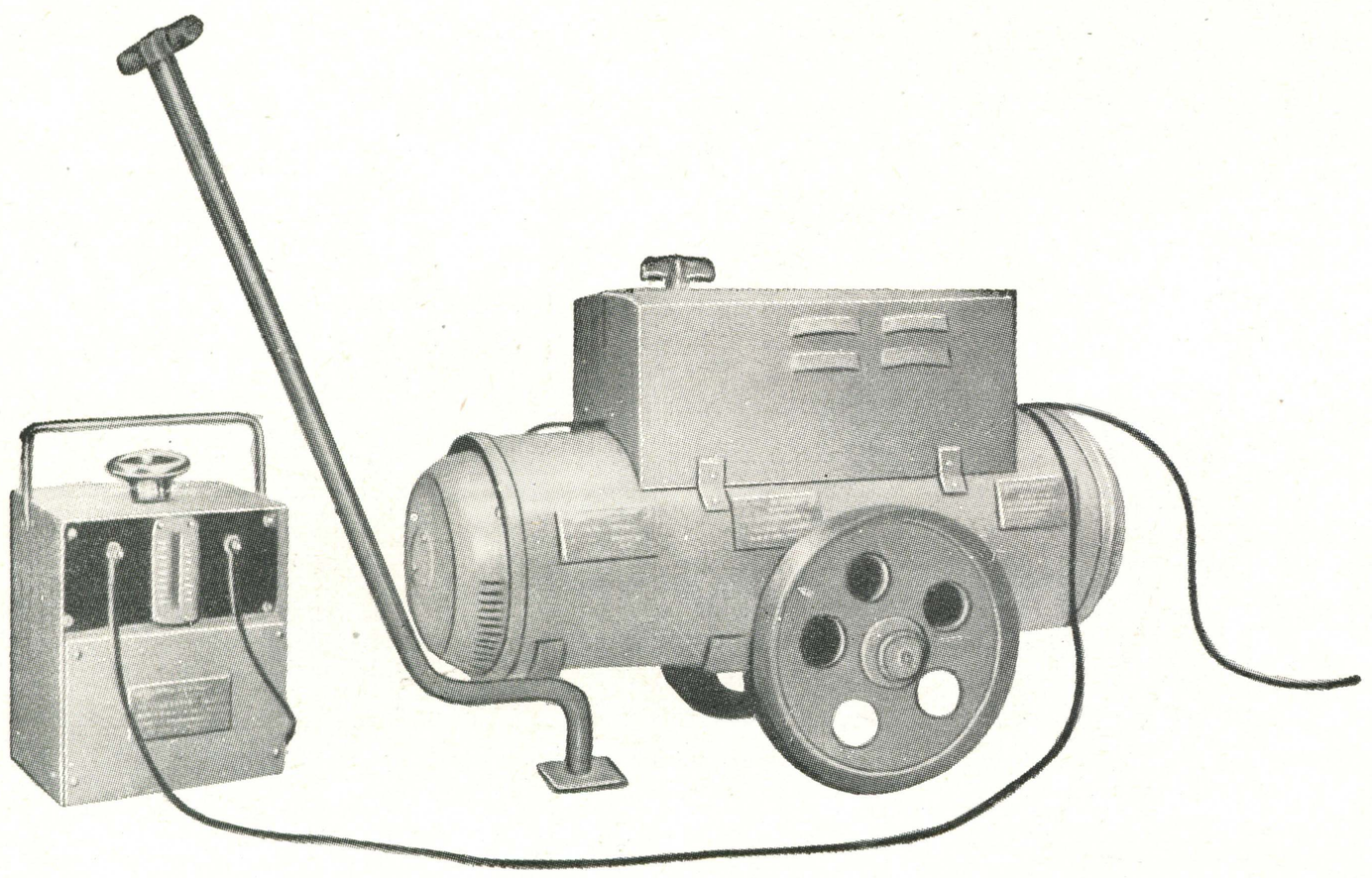
ARC WELDING SET, TYPE IIC-100

6616

INCREASED-FREQUENCY MOTOR-GENERATOR ARC-WELDING SET, TYPE ПС–100

SCOPE

Type ПС-100 increased-frequency motor-generator sets are designed for the arc-welding of low-carbon steels with a single-phase increased-frequency alternating current ranging from 20 to 115A.



DESCRIPTION

The type ПС-100 motor-generator consists of a single-phase increased frequency generator and a driving 220 or 380 Volt induction motor mounted in a common frame.

Both the generator and motor rotors have a common shaft fitted with ball-bearings.

To facilitate portability the motor-generator is equipped with wheels.

The excitation of the generator is accomplished through a selenium rectifier which is powered from the A.C. supply that feeds the motor.

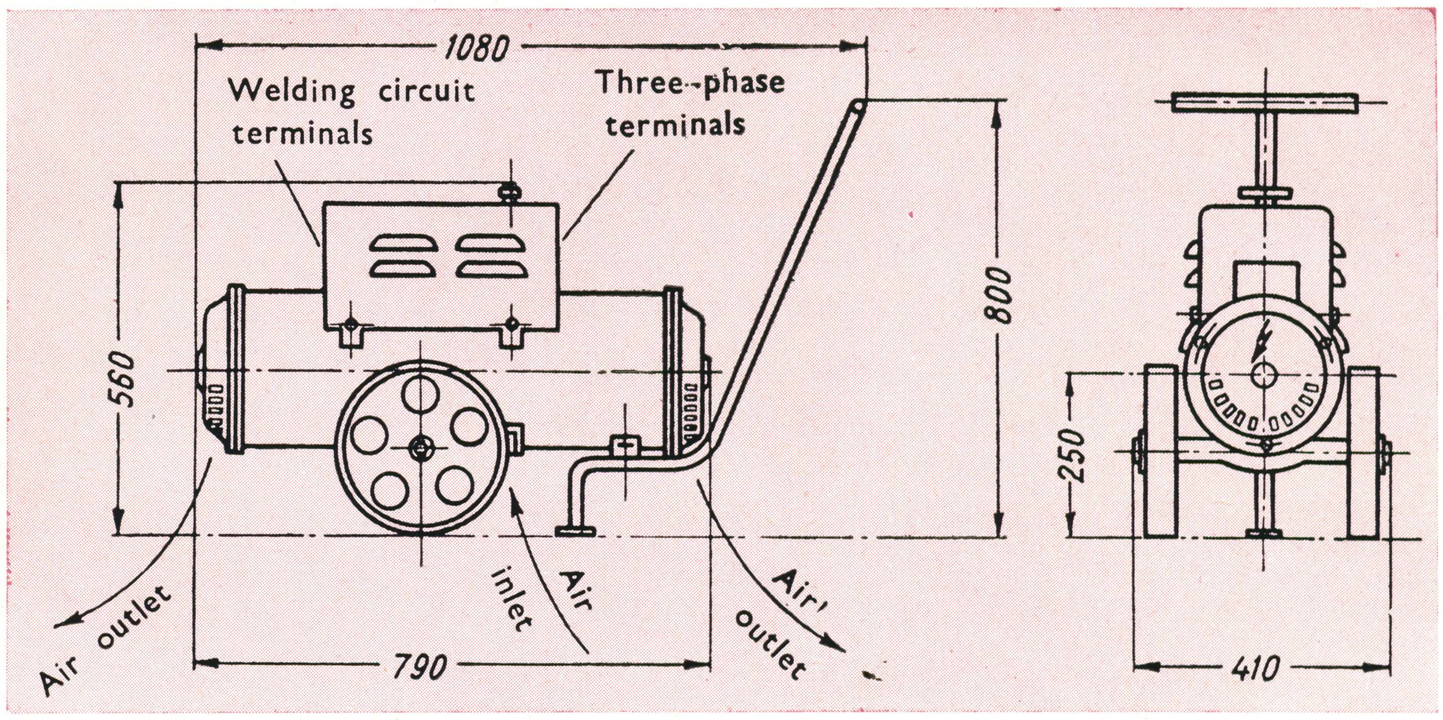
Starting and disconnection from the power circuit is controlled by means of a rotary double-break switch.

A special regulator is provided for smooth regulation of the welding current in the range from 20 to 100A, and for rough regulation up to 115A.

Both the rectifier and the double-break switch are mounted on the motor-generator frame, while the current regulator is self-contained and portable, and can be placed near the welder.

THE TYPE ГСВ-100 SINGLE-PHASE INCREASED-FREQUENCY ALTERNATING-CURRENT GENERATOR

This is a unipolar inductor type machine. It has two stators furnished with windings which are connected in series. The excitation winding is placed between the stators.



Overall dimensions of the Motor–Generator set

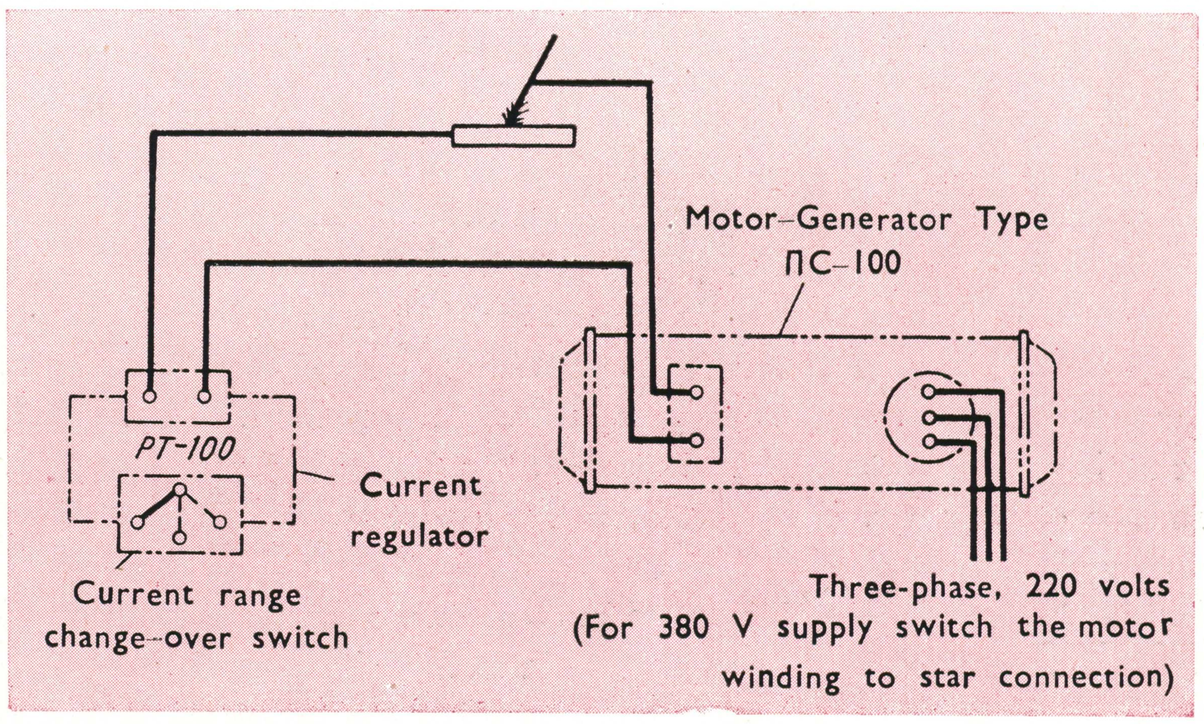
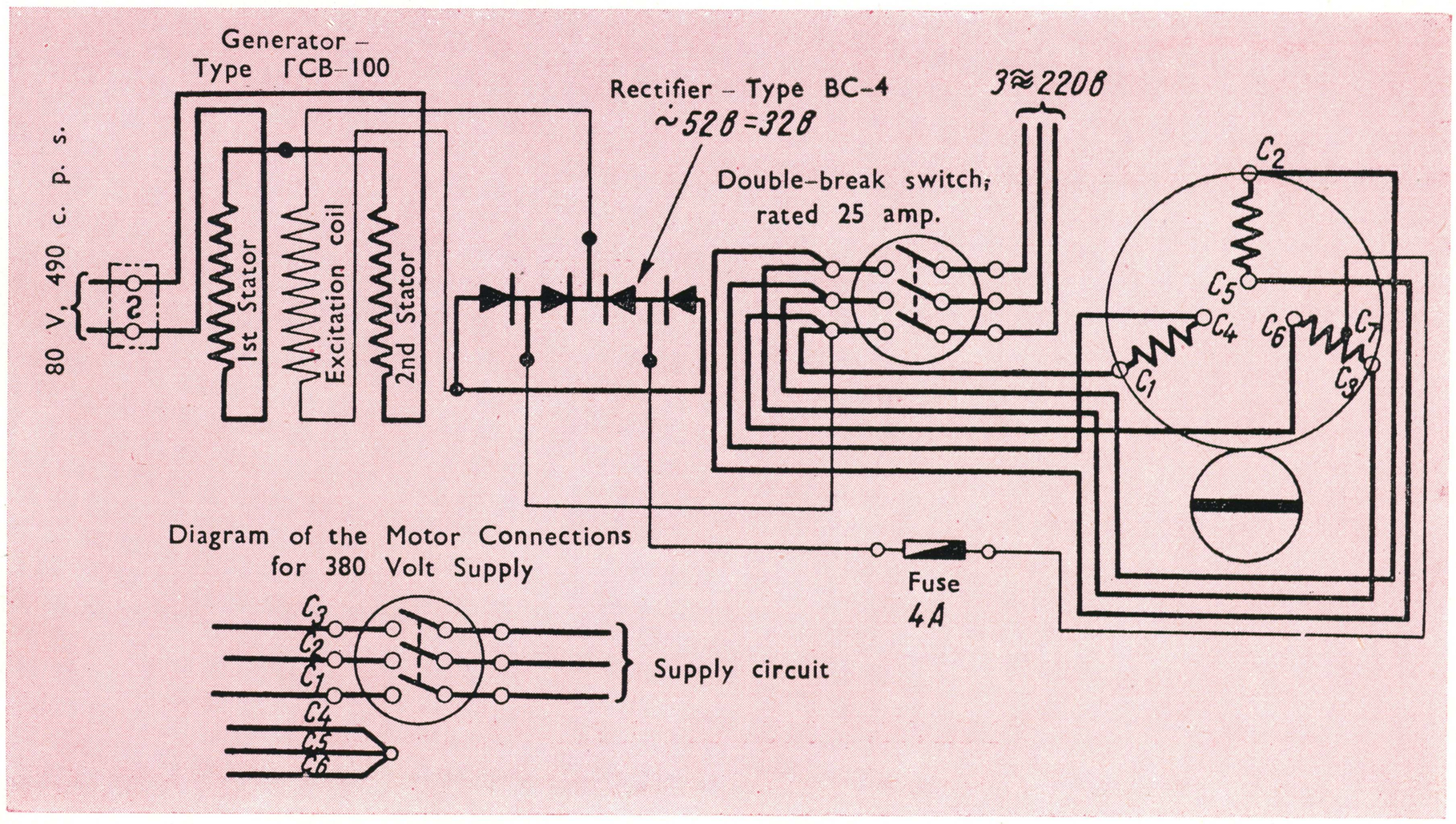


Diagram of Connections of Motor–Generator Set



Internal Connections of the Motor–Generator Set.

GENERATOR RATING

No-load voltage	80 V
Welding current at ПР 100%	80 A
,, ,, at ПР 75%	92 A
,, ,, at ПР 50%	115 A

Where ПР is relative percent of welding time (duty factor).

Frequency	490 c.p.s.
Speed	2900 r.p.m.
Excitation voltage	32 V
Excitation current	3·6 A

The excitation current is not subject to regulation and remains constant irrespective of the generator load ; consequently the no-load voltage when welding with currents ranging from 20 to 115A is also constant and remains equal to 80-85 Volt.

The welding current is controlled by the adjustable-reactance current regulator connected in series with the load circuit.

THE CURRENT REGULATOR

A reactor with a steel magnetic circuit which consists of a fixed core and a moving armature controlled by means of the handwheel of the regulator. A shift in position of the moving core introduces and varies an air gap in the magnetic circuit which changes the reluctance of the magnetic circuit and, consequently, the reactance of the reactor coils connected in series with the load circuit.

For the purpose of expansion of the regulation range, the reactor winding is made of two coils. A change-over switch is also provided. This makes it possible :

(*a*) to connect both reactor coils in series and introduce them into the load circuit when a small welding current ranging from 20 to 55A is required ;

(*b*) to introduce only one reactor coil into the load circuit when a medium welding current of about 35-100A is required ;

(*c*) to cut out both coils when welding at a maximum welding current of about 115A.

Thus, the reactor has three stages of coarse regulation. The current ratings corresponding to each position of the change-over switch are marked: "small current, medium current, large current." On the positions of the change-over switch marked "small current and medium current more accurate regulation can be obtained by shifting the moving core with the aid of the handwheel.

An indicator hand is rigidly joined to the moving core to show its position. It moves over a scale fastened to the regulator casing. This scale is graduated directly to the values of welding current, obtained when metallic electrodes are used.

Net weight of the welding current regulator—20 kg. (44·1 lb.)

RECTIFIER—TYPE Б3

This is a normal single-phase selenium rectifier connected in a full-wave Gratz circuit.

THE RECTIFIER RATING

A.C. voltage	52 V
Rectified voltage	32 V
Nominal current	3·6 A

The 52 Volt A.C. supply is obtained by connecting the rectifier terminals to two points of one of the phases of the motor stator winding between which a potential difference equal to 52 Volt exists (provided that the phase voltage is equal to 220 volts).

DRIVING MOTOR—TYPE АДЭ-41-2

The Type АДЭ -41-2 motor is a normal type three phase squirrel-cage induction motor.

MOTOR RATING

Power output	4 kW
Voltage	220/380 V
Load current	13·5/7·8 A
Speed	2900 r.p.m.
Frequency	50 c.p.s.

All the six stator leads are brought out, providing possibility for delta or star connection of the motor.

OPERATION AND MAINTENANCE INSTRUCTIONS

The motor-generator set should be started with the welding circuit open. Therefore, before starting the motor-generator set, check to see that the ends of the welding cables are not in contact with each other, or that the electrode holder and the end of the other welding cable do not simultaneously come into contact with a metallic surface.

Starting is effected by switching the starter handle to the " Start " position marked on the starter case. The motor and the rectifier are energized simultaneously. Nominal no-load voltage at the generator terminals is reached as soon as the motor develops its nominal speed. Whenever the motor is in operation the generator is under excitation.

REGULATION OF THE WELDING CURRENT

Put the reactor change-over switch into the position at which the current range scale corresponds to the character of the part to be welded and to the thickness of the electrode to be used. Then, by means of the reactor handwheel, bring the current indicator hand into a position corresponding to the required current rating. Welding operations may now be started. The final setting of the welding current is to be adjusted by aid of the handwheel.

The increased frequency of the welding current (490 c.p.s.) and the relatively high no-load voltage of the generator (85 volts) ensure a stable arc and easy striking of the arc over the entire welding current range, even in cases when electrodes with a light chalk coating are used. However, such electrodes do not ensure welded joints of high mechanical strength. Seams of high quality on thin low-carbon steel can be obtained, if grade OMM-2 electrodes are used. Approximate welding conditions applicable for this grade of electrode are shown in the table below.

Thickness of steel sheets, mm	*Diameter of electrode, mm*	*Current A*	*Notes*
1·0	2·0	25–30	1. The conditions given are applicable for the welding of low-carbon steels.
1·5		30–35	
2·0		30–40	
2·5		35–50	
2·5	3·0	50–60	2. When welding keep the arc as short as possible.
3·0		60–85	
3·5		80–100	
4·0		90–115	

LUBRICATION OF BEARINGS

In course of time the lubricant thickens and becomes dirty. For this reason repack the bearing once or twice a year. It is recommended to use grade 1-13 (the USSR Standard 1631-42) lubricant for this purpose.

INSULATION RESISTANCE

Insulation resistance decreases mainly because of penetration of moisture during the long stay of an idle machine in a moist atmosphere, or in damp premises not heated in winter. In such cases, in order to prevent breakdown of the insulation at the moment of starting because of low insulation resistance, check the insulation resistance before starting the machine after an extended idle period.

It should not be less than 0·3 to 0·5 Megohm.

If the insulation resistance has fallen to a value less than the above value, the motor-generator set should be thoroughly dried out.

PLEASE ADDRESS ALL ENQUIRIES
IN CONNECTION
WITH PURCHASING EQUIPMENT TO:

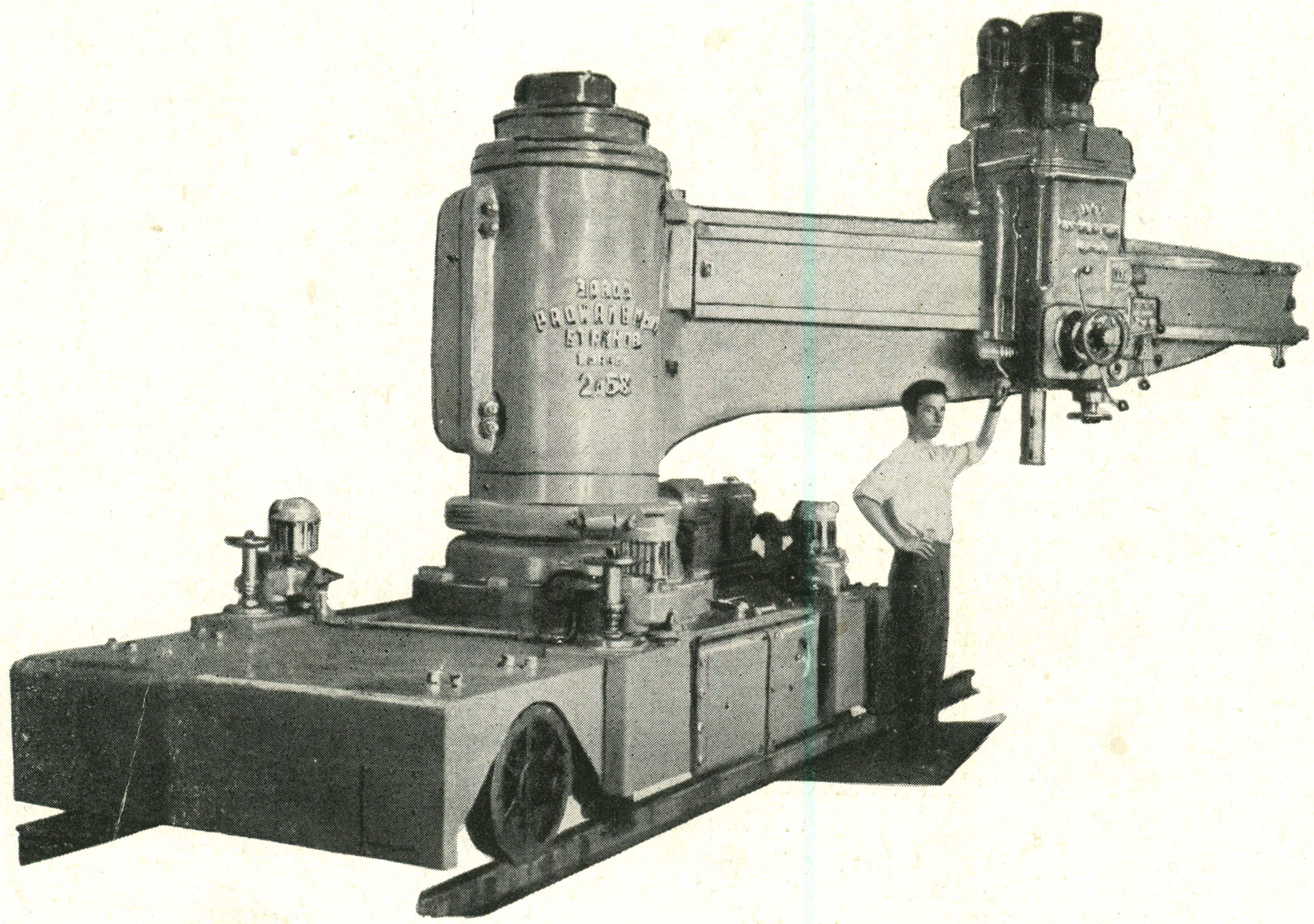
V/O "MACHINOEXPORT"

Smolenskaya-Sennaya Ploshchad, 32/34
MOSCOW, G. 200 U.S.S.R.

CABLE ADDRESS:
MACHINOEXPORT Moscow

МАШИНОЭКСПОРТ

TRAVELLING RADIAL DRILLING MACHINE



Model

2Д58

V/O „Stankoimport"

MOSCOW - USSR

Model

2Д58

The Travelling Radial Drilling Machine has been designed for drilling, boring, reaming, tapping and spot facing on large or awkward work.

The machine is mounted on a rigid bogie, arranged on four wheels, which move along railway of standard gauge by means of a separate motor.

21 different spindle speeds and 18 spindle feeds are obtained through speed and feed gear boxes. The spindle has both forward and reverse motions, the reverse of the spindle being effected through either a driving clutch or reversing motor. The spindle feed can be operated either by power or manually.

The spindle head is traversed along the arm both by power and by hand.

The arm is of strong section and can be swung radially through a complete circle.

Clamping of spindle head on arm, locking of outer column on inner one and bogie on rails are obtained by hydraulic means through separate electric motors.

The machine is equipped with nine motors.

SPECIFICATIONS

CAPACITY

Maximum drill diameter in mild steel, mm. .. 100

Distance between center of spindle and center of railway guage (radius of drilling), mm:
- Minimum .. 850
- Maximum .. 3500

Distance, end of spindle to top of rail, mm:
- Minimum .. 900
- Maximum .. 1400

Distance between rail axes, mm. 1592

Type of rail .. P38|11-a acc. to GOST 3542–47

SPINDLE AND SPINDLE HEAD

Taper in spindle .. Morse No. 6

Maximum vertical travel of spindle (by power and manually), mm. .. 500

Maximum traverse of spindle head on arm, mm. .. 2650

ARM

Maximum swing of arm .. 360°

SPEEDS AND FEEDS

Number of spindle speeds .. 21

Range of spindle speeds, r.p.m. 9–1000

Number of spindle feeds .. 18

Range of spindle feeds, mm. per revolution .. 0.1–2.12

Speed of bogie, m|min. .. 10

DRIVE

220|380 volt, 3 phase, 50 cycle A. C. motors:

Spindle drive:
- Power, kw. .. 14
- Speed, r.p.m. .. 1500

Bogie travel:
- Power, kw. .. 1.7
- Speed, r.p.m. .. 1000

Hydraulic pumps (6 motors):
- Power, kw. 0.6
- Speed, r.p.m. .. 1500

Coolant pump:
- Power, kw. .. 0.1
- Speed, r.p.m. .. 3000

SPACE OCCUPIED

Floor space, mm. .. 5025 x 4300

Height of machine, mm. .. 3360

WEIGHT

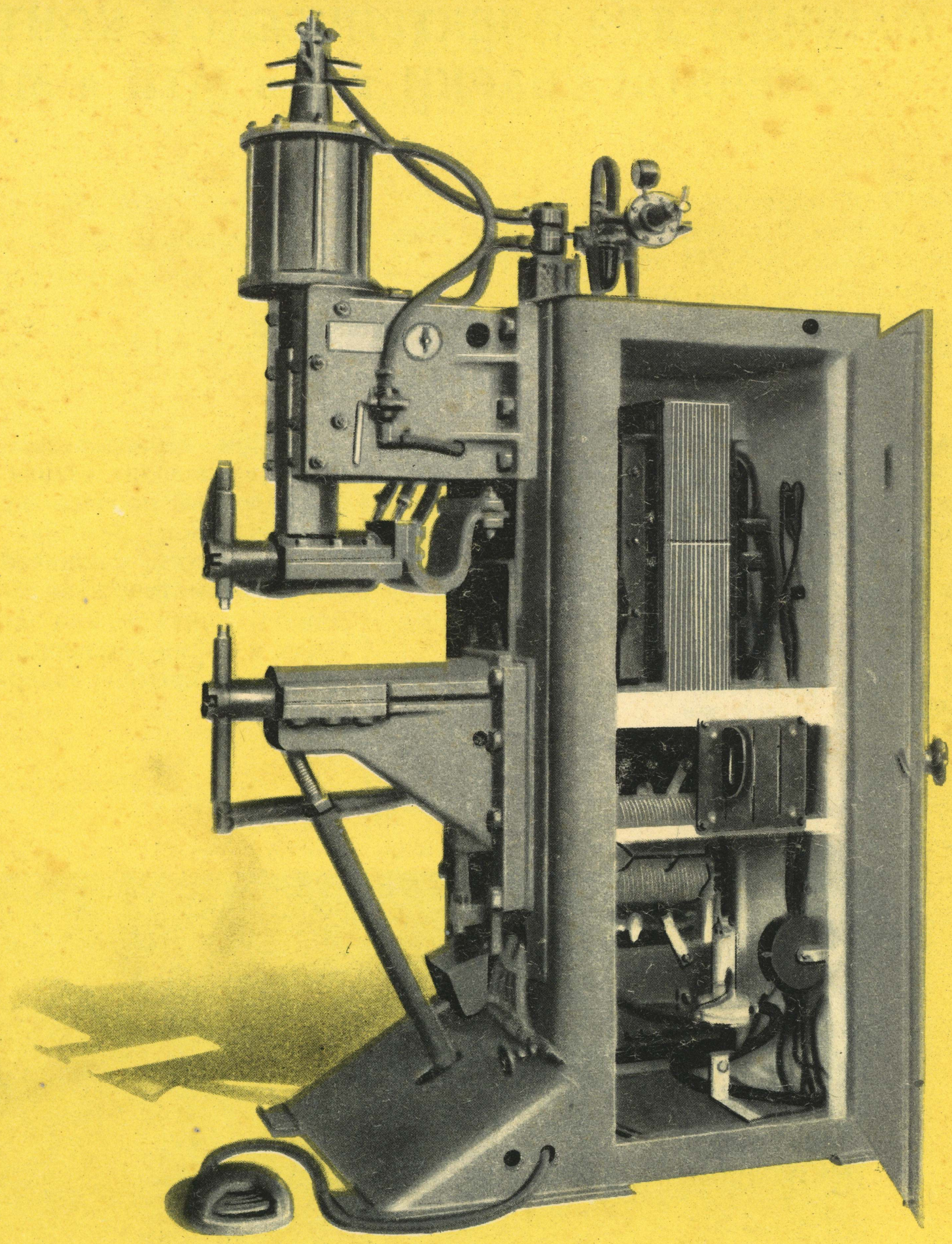
Net weight, kg. .. approx.–25000

V/O "Stankoimport"

MOSCOW-USSR

Cable address: STANKOIMPORT. MOSCOW.

МИНИСТЕРСТВО ЭЛЕКТРОПРОМЫШЛЕННОСТИ СОЮЗА ССР



МАШИНЫ

ДЛЯ ТОЧЕЧНОЙ ЭЛЕКТРОСВАРКИ

МТМ МТП

6820

МАШИНЫ ДЛЯ ЭЛЕКТРИЧЕСКОЙ КОНТАКТНОЙ ТОЧЕЧНОЙ СВАРКИ типов МТП и МТМ-75*

НАЗНАЧЕНИЕ

Машины типов МТП и МТМ-75 предназначаются для электрической контактной сварки деталей из малоуглеродистой стали и позволяют производить сварку следующими способами:

1. При опущенной педали, когда сварочные циклы следуют непрерывно один за другим.

2. При периодическом опускании педали, когда происходит сварка только одной точки, но сварочный процесс протекает по заранее установленному режиму.

Кроме того, машина МТМ-75 позволяет вести неавтоматическую сварку, когда при каждом опускании педали происходит сварка одной точки и время прохождения сварочного тока зависит от времени задержки педали в нижнем положении.

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* С выходом настоящего выпуска каталога, выпуск 6823 считать устаревшим.

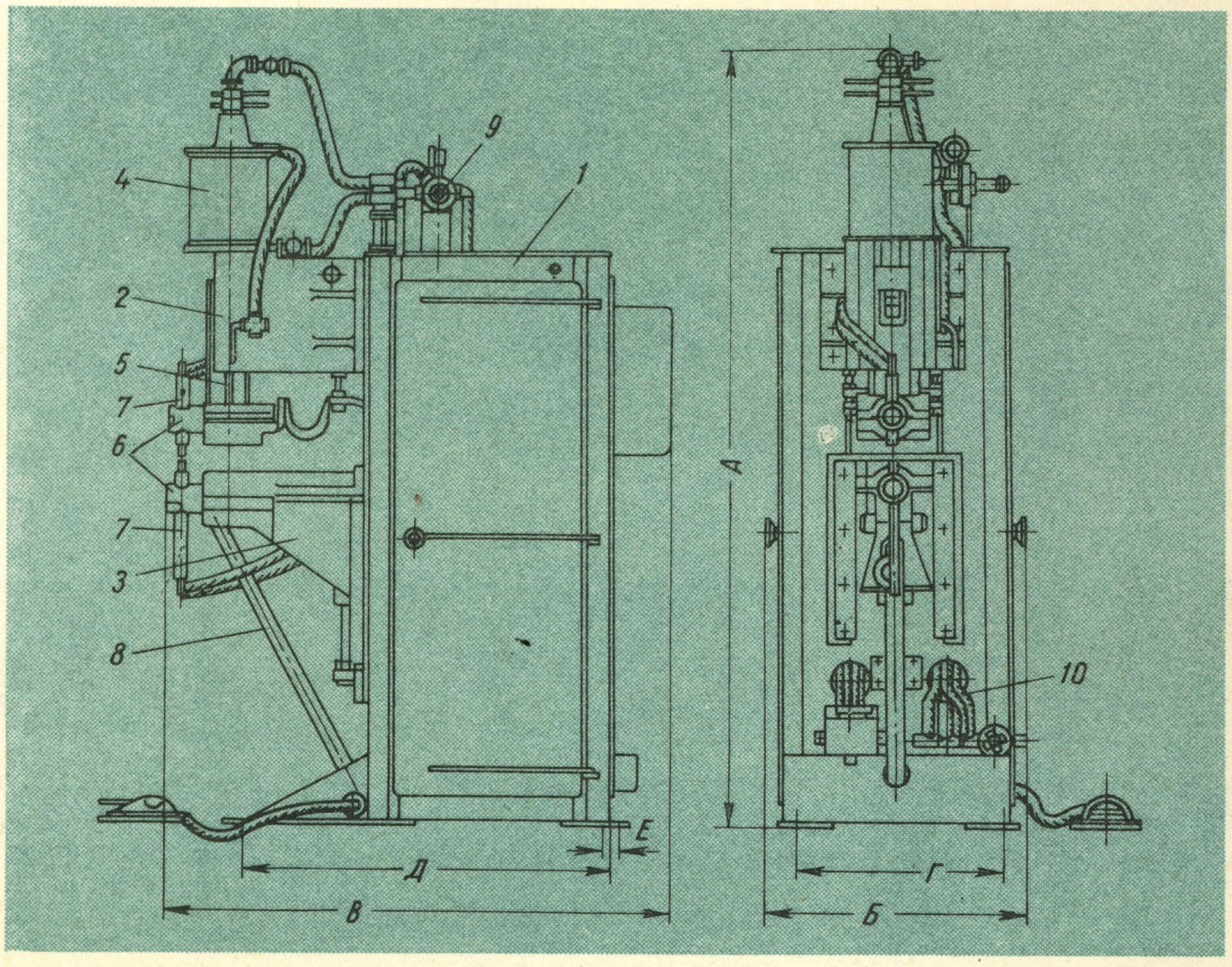

Рис. 1. Общий вид и габаритные размеры (см. в технических данных) точечной машины типа МТП: *1* — корпус машины; *2* и *3* — кронштейны; *4* — привод давления; *5* — ползун; *6* — хоботы; *7*—электрододержатели; *8*—подпорка; *9* — пневматическая система; *10* — система охлаждения.

6820

ELECTRICAL SPOT WELDING MACHINES

Types MTП and MTM-75

APPLICATION

Type MTП and type MTM-75 spot welding machines are designed for the resistance welding of low-carbon steels. Welding may be carried out in the following ways:

1. Pedal held down; for continuously recurring cycles of welding.

2. Pedal periodically depressed; to produce one spot weld on a predetermined welding cycle.

In addition, Type MTM-75 machine provides for non-automatic operation. In such cases, a spot weld is produced every time the pedal is depressed. Duration of current flow is controlled by releasing the pedal.

Ratings

Description		Units	Type of machine						
			МТП-75	МТП-100	МТП-150	МТП-200	МТП-300	МТП-400	МТМ-75
Primary voltage		volts	380	380	380	380	380	380	220 or 380
Duty factor (on a recurring short-rime duty cycle)		%	20	20	20	20	20	20	12.5
Maximum weldable total thickness of low-carbon steel	Automatic welding	mm	2.5+2.5	4+4	5+5	6+6	7+7	8+8	2.5+2.5
	Non-automatic welding	mm	5+5	8+8	10+10	12+12	14+14	16+16	—
Number of welds per minute		—	up to 68	up to 68	up to 60	up to 60	up to 40	up to 40	up to 50
Number of secondary voltage steps		—	8	8	8	8	8	8	8
Regulation limits of secondary voltage		volts	3.39–6.03	3.4—6.8	4.65—8.1	4.75—8.45	4.63—9.27	5.15—10.3	3.5—7
Effective throat depth		mm	500—550	500—550	500—550	500—550	500—550	500—550	350
Working stroke of the upper electrode with smooth regulation		mm	30	30	30	30	30	30	20
Additional movement of upper electrode		mm	50	50	70	70	90	90	—
Vertical regulation of lower electrode contact mechanism		mm	150	150	160	160	160	160	—
Lateral regulation of lower electrode		mm	100	—	—	—	—	—	—
Maximum pressure between electrodes		kg	550	660	1500	1500	3200	3200	350
Time intervals	under welding pressure, upsetting, pauses	sec	0.04—1.4	0.04—1.4	0 04—1.4	0.04—1.4	0.04—1.4	0.04—1.4	—
	of current flow	sec	0.04–6.5	0.04—6.5	0.04—6.5	0.04—6.5	0 04—6.5	0.04—6.5	—
Air pressure in mains		kg per sq. cm	5	5	5	5	5	5	—
Consumption of compressed air per hour		cubic meters	4	4	6	6	12	12	—
Cooling water consumption per hour		liters	430	680	795	795	1200	1200	400
Motor output		kW	—	—	—	—	—	—	0.6
Overall dimensions	Height	mm	2100	2155	2225	2225	2650	2650	1315
	Width	mm	750	750	750	750	795	795	500
	Length	mm	1360	1590	1435	1435	1550	1550	961

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«MACHINOEXPORT»

Description		Units	Type of machine						
			МТП-75	МТП-100	МТП-150	МТП-200	МТП-300	МТП-400	МТМ-75
Installation dimensions	Frontal dimension between foundation bolts	mm	590	590	590	590	640	640	450
	Longitudinal dimension between foundation bolts	mm	1050	1050	1100	1100	1230	1230	560
	Holes for foundation bolts in machine frame	mm	18	18	18	18	18	18	—
Weight		kg	930	1000	1100	1200	1400	1500	525

A step change-over switch provides eight steps of secondary voltage. Machines with ratings up to 200 kVA are equipped with plug type switches; those with ratings higher than 200 kVA are equipped with drum type change-over switches.

The foot switch is electrically connected to an electronic timer. The wiring to this foot switch is encased in a flexible conduit which allows the foot swich to be placed in a position most convenient for the operator.

An additional electronic timer is provided with МТП-300 and МТП-400 spot welders. This timer, which may be separately regulated, is used for pulsating operation when welding heavy cross-sections.

Time interval of current flow — from 0.1 to 1.0 second

Time interval of pause—from 0.1 to 1.0 second

Overall welding cycle time — from 1 to 6 seconds.

When so ordered, an additional electronic timer may be furnished with МТП-150 and МТП-200 spot welding machines.

Shipping Complement of Type МТП Machines

Spot welding machines, Type МТП, are shipped with a description of the machine, a set of spare parts and a set of special tools.

PUNKTSCHWEIßMASCHINEN

Type МТП und MTM-75

BESTIMMUNG

Die Maschinen Type МТП und MTM-75 dienen zum Kontaktschweißen von kohlenstoffarmen Stahlteilen. Mit diesen Maschinen kann wie folgt geschweißt werden:

1. Bei dauernd heruntergedrückter Pedale folgen die Schweißzyklen ununterbrochen hintereinander.
2. Bei periodischem Druck auf die Pedale für jeden zu schweißenden Punkt verläuft die Arbeit in vorher festgesetztem Takt.

Mit der Maschine MTM-75 kann auch nichtautomatisch geschweißt werden, d. h. jeder Druck auf die Pedale gewährleistet einen Schweißpunkt, wobei die Durchflußzeit des Schweißstroms von der Zeit abhängt, in der auf die Pedale gedrückt wird.

Technische Daten

Beschreibung		Maßeinheit	Maschinentype						
			МТП-75	МТП-100	МТП-150	МТП-200	МТП-300	МТП-400	МТМ-75
Primärstrom		V	380	380	380	380	380	380	220 oder 380
ED (kurzzeitige Einschaltdauer bei hoher Schalthäufigkeit)		%	20	20	20	20	20	20	12,5
Gesamtstärke des kohlenstoffarmen Schweißguts (Stahl)	bei automatischem Schweißen	mm	2,5+2,5	4+4	5+5	6+6	7+7	8+8	2,5+2,5
	bei nicht automatischem Schweißen	mm	5+5	8+8	10+10	12+12	14+14	16+16	—
Anzahl der Schweißpunkte pro Minute		—	bis 68	bis 68	bis 60	bis 60	bis 40	bis 40	bis 50
Anzahl der Regelstufen der Sekundärspannung		—	8	8	8	8	8	8	8

Beschreibung		Maß-einheit	Maschinentype						
			МТП-75	МТП-100	МТП-150	МТП-200	МТП-300	МТП-400	МТМ-75
Regelbereich der Sekundärspannung		V	3,39—6,03	3,4—6,8	4,65—8,1	4,75—8,45	4,63—9,27	5,15—10,3	3,5—7
Nutzausladung		mm	500—550	500—550	500—550	500—550	500—550	500—550	350
Arbeitsvorschub der oberen Elektrode mit stufenloser Regelung		mm	30	30	30	30	30	30	20
Zusatzvorschub der oberen Elektroden		mm	50	50	70	70	90	90	—
Senkrechtregelung des unteren Kontaktteils		mm	150	150	160	160	160	160	—
Wagrechtregelung der unteren Elektrode		mm	100	—	—	—	—	—	—
Größter Druck zwischen den Elektroden		kg	550	660	1500	1500	3200	3200	350
Benötigte Zeit	für Arbeitsspiel plus Pause	Sek	0,04—1,4	0,04—1,4	0,04—1,4	0,04—1,4	0,04—1,4	0,04—1,4	—
	für Stromdurchfluß . .	Sek	0,04—6,5	0,04—6,5	0,04—6.5	0,04 - 6,5	0,04 - 6,5	0.04 - 6,5	—
Druckluftspannung in der Leitung . .		at	5	5	5	5	5	5	—
Druckluftverbrauch		m³/Std	4	4	6	6	12	12	—
Kühlwasserverbrauch		*l*/Std	430	680	795	795	1200	1200	400
Leistung des Elektromotors		kW	—	—	—	—	—	—	0,6
Abmessungen	Höhe	mm	2100	2155	2225	2225	2650	2650	1315
	Breite	mm	750	750	750	750	795	795	500
	Tiefe	mm	1360	1590	1435	1435	1550	1550	961
Montagemaße	Abstand zwischen den Fundamentschrauben, der Breite nach . . .	mm	590	590	590	590	640	640	450
	Abstand zwischen den Fundamentschrauben, der Tiefe nach	mm	1050	1050	1100	1100	1230	1230	560
	Durchmesser der Öffnungen für die Fundamentschrauben . . .	mm	18	18	18	18	18	18	—
Gewicht		kg	930	1000	1100	1200	1400	1500	525

Durch Umschaltung der Stufen können acht verschiedene Sekundärspannungen erhalten werden. Die Maschinen mit 200 kVA Leistung sind mit Steckumschalter, die Maschinen mit mehr als 200 kVA mit Trommelumschalter ausgestattet.

Der Fußhebelknopf ist mit dem Elektronenzeitregler durch von einer flexiblen Spirale geschützte Drähte verbunden und kann an einen für den Schweißer bequemen Ort angeordnet werden.

Zur Lieferung der Maschinen Type МТП-300 und МТП-400 gehört auch ein zusätzlicher Zeitregler, welcher die beim Schweißen bedeutender Materialstärken erforderliche Pulsierung erzeugt und eine unabhängige Regelung ermöglicht.

Dauer des Stromimpulses: 0,1—1 Sekunde.
Pause: 0,1—1 Sekunde.
Gesamtschweißdauer: 1—6 Sekunden.

Auf Wunsch des Bestellers können auch die Maschinen Type МТП-150 und МТП-200 mit zusätzlichen Zeitreglern ausgestattet werden.

Zur Ausrüstung der Maschinen Type МТП gehören

Ersatzteile und Werkzeug. Der Lieferung wird eine Beschreibung beigelegt.

MACHINES A SOUDER PAR POINTS

Types МТП et MTM-75

APPLICATIONS

Les machines МТП et MTM-75 sont destinées au soudage électrique par points de pièces en acier doux. Elles se prêtent à l'utilisation par les différents procédés suivants:

1. Marche à la volée avec la pédale abaissée (les cycles de soudage se succédant sans interruption);

2. Marche coup par coup, en appuyant périodiquement sur la pédale, pour soudage de points isolés en régime prédéterminé.

La MTM-75 permet d'effectuer en outre le soudage non-automatique en appuyant sur la pédale de commande pour chaque point intéressé, la durée de passage du courant de soudage dépendant alors du temps pendant lequel la pédale est maintenue dans la position abaissée.

Caractéristiques techniques

Désignation		Unités	Type de la machine						
			МТП-75	МТП-100	МТП-150	МТП-200	МТП-300	МТП-400	MTM-75
Tension primaire		V	380	380	380	380	380	380	220 ou 380
Facteur d'utilisation (service intermittent variable)		%	20	20	20	20	20	20	12,5
Epaisseur totale soudée maximum (acier doux)	soudage automatique	mm	2,5+2,5	4+4	5+5	6+6	7+7	8+8	2,5+2,5
	soudage non-automatique	mm	5+5	8+8	10+10	12+12	14+14	16+14	—
Nombre maximum de soudures à la minute		—	68	68	60	60	40	40	50
Positions de réglage de la tension secondaire		—	8	8	8	8	8	8	8
Limites du réglage de la tension secondaire		V	3,39 à 6,03	3,4 à 6,8	4,65 à 8,1	4,75 à 8,45	4,63 à 9,27	5,15 à 10,3	3,5 à 7
Longueur utile des bras		mm	500 à 550	500 à 550	500 à 550	500 à 550	500 à 550	500 à 550	350
Course de l'électrode supérieure (réglage continu)		mm	30	30	30	30	30	30	20
Course supplémentaire de l'electrode supérieure		mm	50	50	70	70	90	90	—
Réglage vertical du porte-électrode inférieur		mm	150	150	160	160	160	160	—
Réglage transversal de l'électrode inférieure		mm	100	—	—	—	—	—	—
Effort de compression maximum entre les électrodes		kg	550	660	1500	1500	3200	3200	350
Périodes:	Compression, refoulement (forgeage), repos	sec	0,04 à 1,4	0,04 à 1,4	0,04 à 1,4	0,04 à 1,4	0,04 à 1,4	0,04 à 1,4	—
	passage de courant	sec	0,04 à 6,5	0,04 à 6,5	0,04 à 6,5	0,04 à 6,5	0,04 à 6,5	0,04 à 6,5	—
Pression d'air dans le système		At	5	5	5	5	5	5	—
Débit d'air comprimé		m^3/h	4	4	6	6	12	12	—
Débit d'eau de refroidissement		l/h	430	680	795	795	1200	1200	400
Puissance du moteur		kW	—	—	—	—	—	—	0,6
Cotes d'encombrement	hauteur	mm	2100	2155	2225	2225	2650	2650	1315
	largeur	mm	750	750	750	750	795	795	500
	longueur	mm	1360	1590	1435	1435	1550	1550	961
Cotes de montage:	distance en largeur entre les boulons d'ancrage	mm	590	590	590	590	640	640	450
	distance en longueur entre les boulons d'ancrage	mm	1050	1050	1100	1100	1230	1230	560
	diamètre des trous pour les boulons d'ancrage	mm	18	18	18	18	18	18	—
Poids de la machine		kg	930	1000	1100	1200	1400	1500	525

Un commutateur de réglage permet d'obtenir huit valeurs différentes de la tension secondaire de la machine. Les machines jusqu'à 200 kVA sont munies de commutateurs à fiches; celles dont la puissance est supérieure à 200 kVA sont munies de commutateurs rotatifs.

Le bouton de pédale est connecté à un régulateur de temps électronique au moyen de conducteurs protégés par une gaine spirale souple et peut être disposé dans un endroit facilement accessible pour le soudeur.

Un régulateur de temps supplémentaire est prévu pour les machines types МТП-300 et МТП-400; il sert à obtenir un régime pulsatoire pour le soudage de fortes épaisseurs et assure un réglage indépendant.

La durée d'une impulsion de courant est de 0,1 à 1 sec.

La durée du repos est de 0,1 à 1 sec.

Le temps total de soudage est de 1 à 6 sec.

Sur demande spéciale des usagers, les machines type МТП-150 et МТП-200 peuvent aussi être munies d'un régulateur de temps supplémentaire.

Accessoires

La machine type МТП est fournie avec un lot complet de pièces de rechange, des outils spéciaux nécessaires et une notice descriptive.

Внешторгиздат. Заказ № 2310/4513

ОПЕЧАТКИ

к каталогу электрооборудования вып. № 6820

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ТЕХНИЧЕСКИЕ ДАННЫЕ

Наименование величины		Единица измерения	Тип машины						
			МТП-75	МТП-100	МТП-150	МТП-200	МТП-300	МТП-400	МТМ-75
Первичное напряжение		*в*	380	380	380	380	380	380	220* 380
ПВ (повторно-кратковременная работа)		%	20	20	20	20	20	20	12,5
Наибольшая суммарная свариваемая толщина малоуглеродистой стали	при автоматической сварке	*мм*	2,5+2,5	4+4	5+5	6+6	7+7	8+8	2,5+2,5
	при неавтоматической сварке	*мм*	5+5	8+8	10+10	12+12	14+14	16+16	—
Число сварок в минуту		—	до 68	до 68	до 60	до 60	до 40	до 40	до 50
Число ступеней регулирования вторичного напряжения		—	8	8	8	8	8	8	8
Пределы регулирования вторичного напряжения		*в*	3,39—6,03	3,4—6,8	4,65—8,1	4,75—8,45	4,63—9,27	5,15—10,3	3,5—7
Полезный вылет		*мм*	500—550	500—550	500—550	500—550	500—550	500—550	350
Рабочий ход верхнего электрода с плавной регулировкой		*мм*	30	30	30	30	30	30	20
Дополнительный ход верхнего электрода		*мм*	50	50	70	70	90	90	—
Вертикальная регулировка нижней контактной части		*мм*	150	150	160	160	160	160	—
Поперечная регулировка нижнего электрода		*мм*	100	—	—	—	—	—	—
Максимальное давление между электродами		*кг*	550	660	1500	1500	3200	3200	350
Выдержка времени	сжатия, проковки, паузы.	*сек*	0,04—1,4	0,04—1,4	0,04—1,4	0,04—1,4	0,04—1,4	0,04—1,4	—
	прохождения тока	*сек*	0,04—6,5	0,04—6,5	0,04—6,5	0,04—6,5	0,04—6,5	0,04—6,5	—

* Машина изготовляется на одно из указанных напряжений сети переменного тока 50 *гц*.

Наименование величины		Единица измерения	Т И П М А Ш И Н Ы						
			МТП-75	МТП-100	МТП-150	МТП-200	МТП-300	МТП-400	МТМ-75
Давление воздуха в сети		*ат*	5	5	5	5	5	5	—
Расход сжатого воздуха		*м³/час*	4	4	6	6	12	12	—
Расход охлаждающей воды		*л/час*	430	680	795	795	1200	1200	400
Мощность электродвигателя		*квт*	—	—	—	—	—	—	0,6
Габариты	высота, *А**	*мм*	2100	2155	2225	2225	2650	2650	1315
	ширина, *Б*	*мм*	750	750	750	750	795	795	500
	Глубина, *В*	*мм*	1360	1590	1435	1435	1550	1550	961
Установочные размеры	расстояние между фундаментными болтами по ширине, *Г*	*мм*	590	590	590	590	640	640	450
	расстояние между фундаментными болтами по глубине, *Д*	*мм*	1050	1050	1100	1100	1230	1230	560
	диаметр отверстий под фундаментные болты, *Е*	*мм*	18	18	18	18	18	18	—
Вес		*кг*	930	1000	1100	1200	1400	1500	525

* Буквы А, Б и т. д. см. на рис 1.

КОНСТРУКЦИЯ МАШИН ТИПА МТП

Машина типа МТП (рис. 1) состоит из следующих основных узлов: сварочного трансформатора, встроенного в корпус машины *1*, верхнего *2* и нижнего *3* кронштейнов, привода давления *4*, ползуна *5*, хоботов *6* с электрододержателями *7*, подпорки *8*, пневматической системы *9*, системы охлаждения *10* и электрического устройства.

Трансформатор — броневого типа с дисковыми обмотками и водяным охлаждением, обеспечивает возможность широкого диапазона изменения вторичного напряжения машины.

Корпус машины выполнен в виде металлической конструкции, сваренной из труб (являющихся ресиверами для сжатого воздуха), угольников, фронтальной плиты и башмаков, служащих основанием всей машины.

Верхний кронштейн выполнен в виде чугунной отливки и прикрепляется к верхней части фронтальной плиты корпуса. Кронштейн от корпуса электрически изолирован.

Нижний кронштейн выполнен в виде чугунной отливки и устанавливается в стальных направляющих, прикрепленных к нижней части фронтальной плиты корпуса. Вращением подъемного винта нижний кронштейн может перемещаться в вертикальном направлении. В машине типа МТП-75 нижний кронштейн имеет также дополнительную регулировку и в горизонтальном направлении.

К верхней части кронштейна прикреплена медная контактная крышка, зажимающая хобот *6*. Контактная крышка соединена медными гибкими шинами с одним полюсом сварочного трансформатора.

Привод давления осуществлен в виде пневматического цилиндра, рассчитанного на получение воздуха из нормальной заводской воздушной сети 5—5,5 *ат*. Цилиндр имеет два поршня, из которых верхний служит ограничителем хода нижнего. Нижний поршень передвигает ползун с верхним электродом и создает давление между электродами.

Ползун соединен со штоком пневматического цилиндра и передвигается в стальных закаленных направляющих, прикрепленных к верхнему кронштейну. Ползун представляет собой чугунную отливку, к нижней части которой прикреплена медная контактная крышка, прижимающая хобот *6*. Контактная крышка соединена медными гибкими шинами со вторым полюсом сварочного трансформатора.

В верхнем и нижнем хоботах закрепляются электрододержатели *7* со сменными наконечниками. Хоботы и электрододержатели сделаны из меди, а сменные наконечники — из специального износоустойчивого сплава марки ЭВ.

Закрепление хоботов и электрододержателей выполнено так, что позволяет проворачивать и передвигать их в осевом направлении.

Подпорка уменьшает минимальный прогиб нижнего кронштейна при создании давления между электродами. Она выполнена в виде трубы со входящим внутрь винтом с опорной гайкой. При подъеме или опускании кронштейна гайка должна быть установлена в соответствующее положение.

Пневматическая система (рис. 2) состоит из редуктора для изменения величины давления сжатого воздуха, поступающего из воздушной сети, лубрикатора и электромагнитного клапана, соединяющего во время работы машины верхнюю или нижнюю камеру привода давления с воздушной сетью.

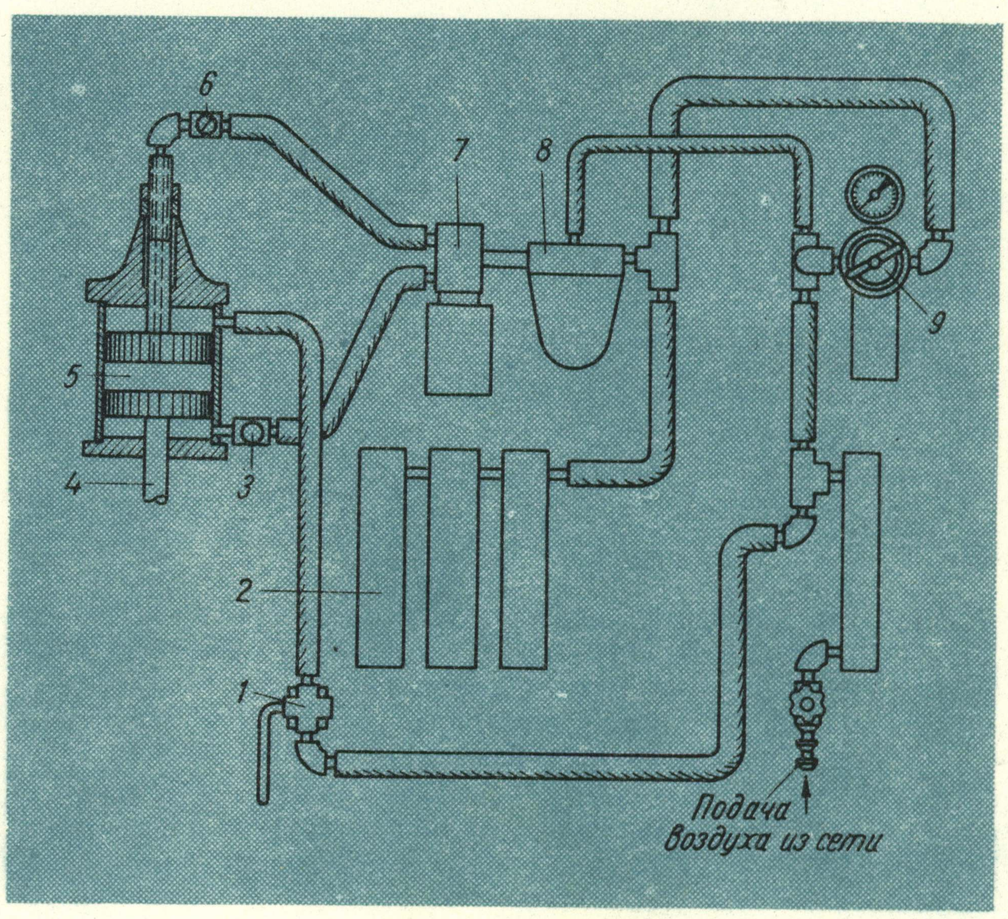

Рис. 2. Пневматическая схема точечной машины типа МТП. *1* — кран трехходовой; *2* — ресивер; *3* — дросселирующий клапан; *4* — нижний шток; *5* — пневматический цилиндр; *6* — дросселирующий клапан; *7* — электромагнитный пневматический клапан; *8* — лубрикатор; *9* — редуктор воздушный

Трехходовой кран служит для выпуска сжатого воздуха из верхней камеры цилиндра в атмосферу. Дросселирующие клапаны, установленные у входных отверстий цилиндра, регулируют скорость поступления воздуха в камеры цилиндра.

Система охлаждения состоит из распределителя с вентилем, шлангов, подводящих и отводящих воду ко всем охлаждаемым частям машины (сварочному трансформатору, контактным крышкам, хоботам, электрододержателям и лампам игнитронного контактора) и сливной коробки.

Электрическое устройство (рис. 3) состоит из игнитронного асинхронного контактора, электронного регулятора времени, переключателя ступеней, педальной кнопки и добавочного регулятора времени.

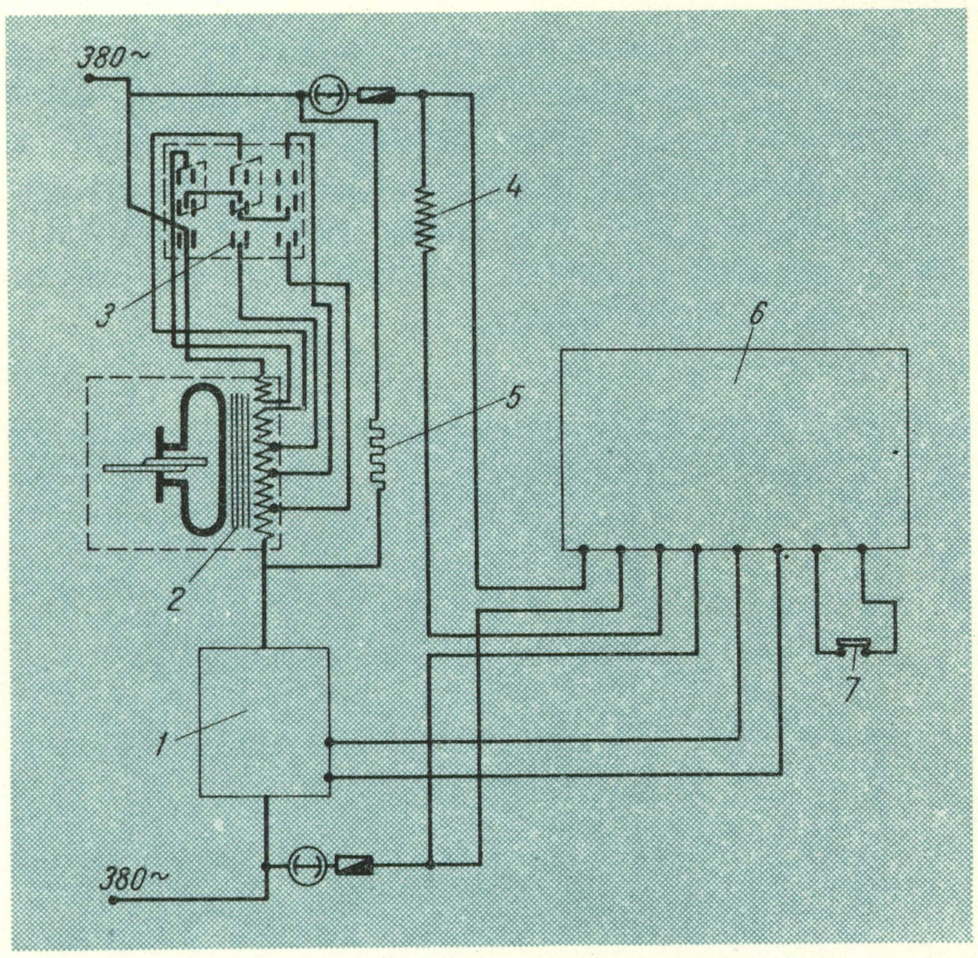

Рис. 3. Электрическая схема машины типа МТП-150 без добавочного регулятора времени: *1* — игнитронный контактор; *2* — сварочный трансформатор; 3 — переключатель ступеней; *4* — катушка электромагнитного клапана; *5* — балластное сопротивление; *6* — электронный регулятор времени; *7* — педальная кнопка.

Игнитронный асинхронный контактор соединяет первичную обмотку сварочного трансформатора с сетью переменного тока во время работы машины. Контактор обеспечивает точную работу машины и не нуждается в периодической настройке.

Электронный регулятор времени управляет работой электромагнитного клапана и определяет время выдержки детали под током и под давлением и паузы между отдельными сварочными циклами. Время выдержки регулируется в следующих пределах: сжатия, проковки и паузы — от 0,04 до 1,4 сек., прохождения тока—от 0,04 до 6,5 сек. Регулировка осуществляется регулирующими потенциометрами, снабженными шкалами и надписями, соответствующими отдельным операциям цикла сварки. Регулятор дает возможность независимого регулирования продолжительности импульса сварочного тока, продолжительности сжатия деталей и продолжительности паузы.

Переключатель ступеней дает восемь значений вторичного напряжения машины. Машины мощностью до 200 *ква* снабжены переключателями втычного типа, свыше 200 *ква* — переключателями барабанного типа.

Педальная кнопка соединена с электронным регулятором времени проводами, проложенными в гибкой защитной спирали, и может устанавливаться в удобном для сварщика месте.

Добавочный регулятор времени входит в комплект машин типов МТП-300 и МТП-400; он служит для создания пульсационного режима при сварке деталей больших толщин и дает возможность независимого регулирования.

Продолжительность импульса тока — от 0,1 до 1 сек.

Продолжительность паузы — от 0,1 до 1 сек.

Продолжительность общего времени сварки — от 1 до 6 сек.

По особому требованию заказчика добавочным регулятором времени могут быть также снабжены и машины типов МТП-150 и МТП-200.

ПРИНЦИП ДЕЙСТВИЯ

При нажатии на педальную кнопку (см. электрическую и пневматическую схемы) напряжение подается на катушку электромагнитного пневматического клапана. При этом пневматический клапан открывает доступ редукцированному воздуху в среднюю камеру цилиндра давления.

Нижний поршень и связанный с ним ползун опускаются вниз до сжатия свариваемой детали.

Через определенный интервал времени срабатывает игнитронный контактор, включающий первичную обмотку трансформатора на время, необходимое для нагрева места сварки до требуемой температуры; затем напряжение со сварочного трансформатора выключается и после паузы, необходимой для проковки, электропневматический клапан переключает подачу воздуха со средней камеры цилиндра в нижнюю. Нижний поршень вместе с ползуном перемещается вверх, освобождая при этом деталь.

Одновременно воздух, находящийся в средней камере цилиндра, через дросселирующий клапан выходит в атмосферу.

Величины всех интервалов времени сварочного цикла устанавливаются настройкой электронного регулятора времени.

Машина будет продолжать работать автоматически до тех пор, пока нажата педаль.

Длительность паузы между отдельными сварочными циклами определяется соответствующей установкой рукояток регулятора времени.

Верхний поршень цилиндра привода давления служит ограничителем перемещения нижнего поршня и положение его определяет величину рабочего хода ползуна с токоведущей крышкой и электродом.

Для получения дополнительного хода достаточно повернуть рукоятку трехходового крана. Верхняя камера при этом, нормально соединенная непосредственно с сетью сжатого воздуха, получает сообщение с атмосферой и верхний поршень перемещается до упора вверх, не препятствуя более дополнительному перемещению нижнего поршня с ползуном.

Для подбора требуемого режима сварки, в зависимости от толщины свариваемых деталей, в машинах типа МТП предусмотрена возможность регулирования величин вторичного напряжения и рабочего давления. Рабочее давление плавно регулируется воздушным редуктором и величина его определяется по манометру. Измерение вторичного напряжения производится переключателем ступеней, смонтированным внутри машины. Для избежания ударов при подъеме и опускании ползуна на пути выхода воздуха из нижней и средней камер цилиндра установлены дросселирующие клапаны.

КОМЛЕКТНОСТЬ ПОСТАВКИ МАШИН ТИПА МТП

С машиной поставляется комплект запасных частей, необходимый специальный инструмент и прилагается описание.

КОНСТРУКЦИЯ МАШИН ТИПА МТМ

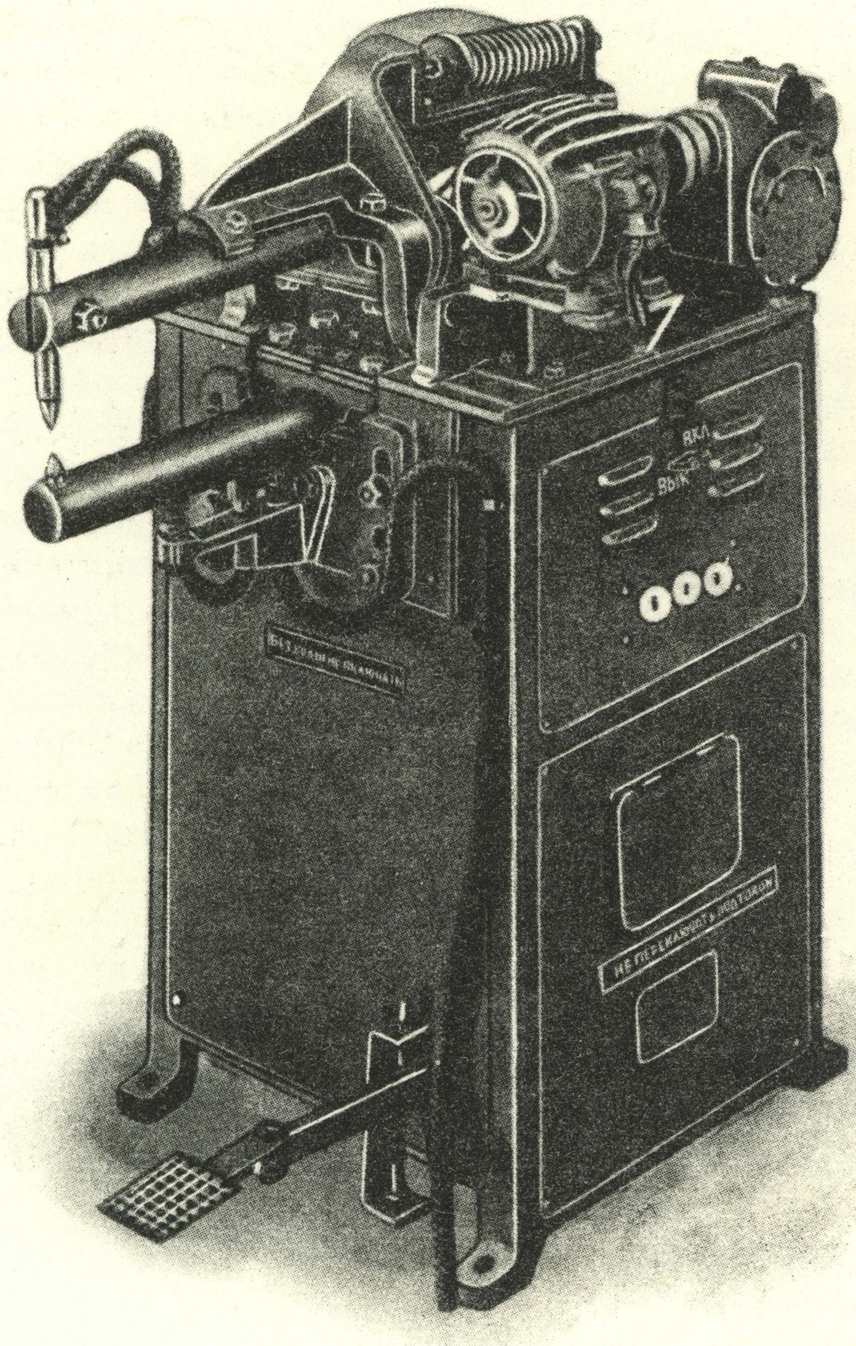

Рис. 4. Машина для электрической контактной точечной сварки типа МТМ-75.

Основание машины (рис. 5) состоит из двух литых стенок (боковин) *1*, связанных между собой перемычками из полосовой стали, и литой чугунной плиты *2*.

На плите *2* смонтирован механический привод *3*, механизм давления *4*, рычаг *5* для крепления верхнего хобота *6*, кронштейн *12* для крепления нижнего хобота *13* и механический контактор *14*. На правом щитке машины установлен пластинчатый переключатель ступеней *15*, предохранители *16* в сети двигателя, пакетный трехполюсный выключатель *17* и борновая доска *18*.

Металлический привод состоит из трехфазного двигателя, червячного редуктора, зубчатой разъемной муфты сцепления и кулачкового устройства — рабочего кулака и токовых кулачков. Управление муфтой сцепления производится специальными клиньями, закрепленными на подвижной полумуфте, и подковообразным рычагом от педали.

Полный поворот кулачкового устройства на 360° обеспечивает цикл автоматической сварки одной точки: сближение электродов, зажатие изделия, включение тока, заданную токовыми кулачками выдержку времени протекания сварочного тока, выдержку под давлением свариваемого изделия после выключения тока и освобождение изделия — подъем верхнего электрода.

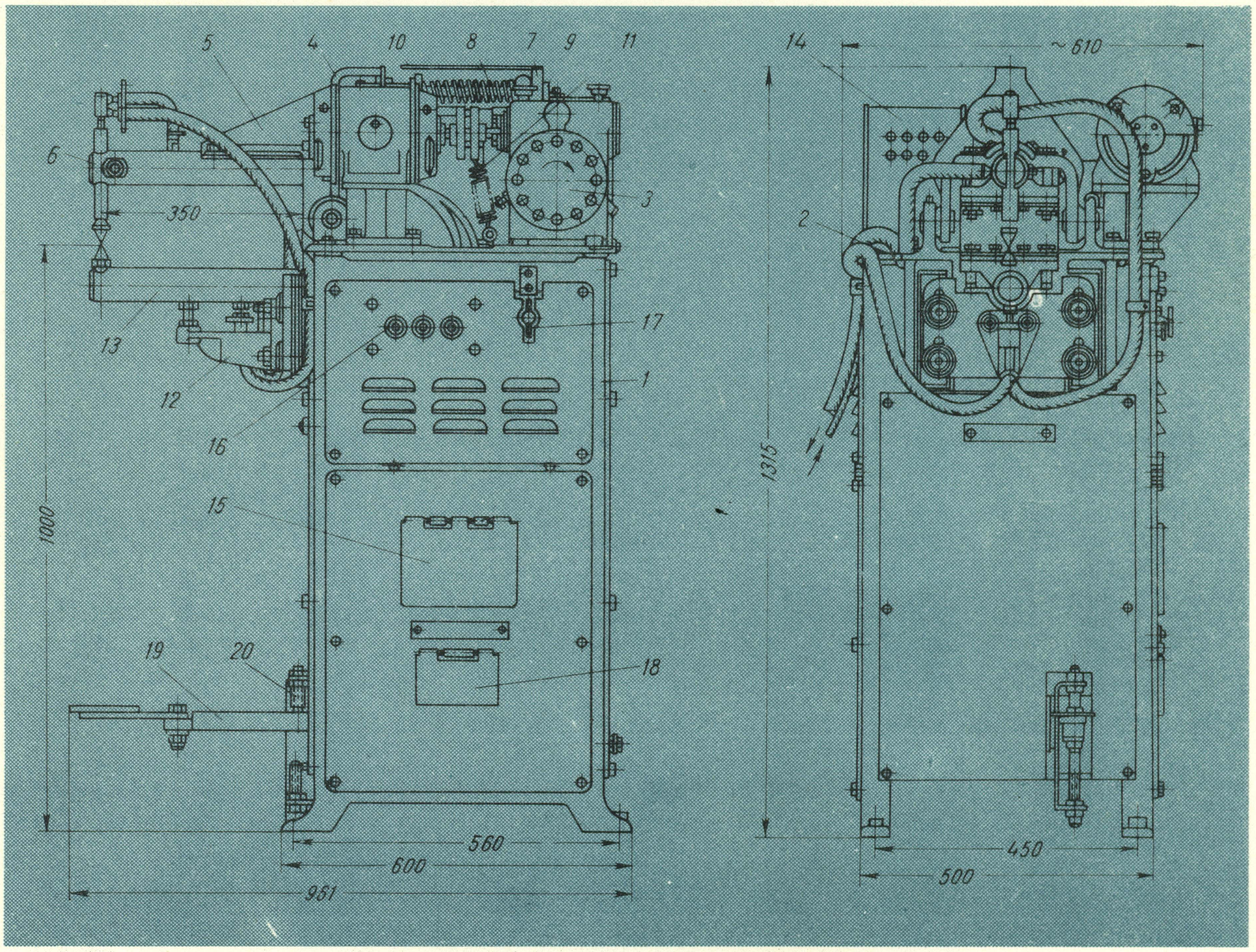

Рис. 5. Общий вид и габаритные размеры точечной машины типа МТМ-75 с механическим приводом: *1* — стенка; *2* — плита; *3* — механический привод; *4* — механизм давления; *5* — рычаг; *6* — верхний хобот; *7* — серьга; *8* — рабочая пружина; *9* — гайка; *10* — шкала; *11* — возвратная пружина; *12* —кронштейн; *13* — нижний хобот; *14* — механический контактор; *15* — переключатель; *16* — предохранители; *17* — пакетный выключатель; *18* — борновая доска; *19* — педаль; *20* — болт.

Механизм давления состоит из следующих деталей:

а) рабочего рычага *5*, в котором закреплен верхний хобот *6*;

б) серьги *7*, в которой закреплен ролик;

в) рабочей пружины *8*, насаженной на шпильку;

г) гайка *9* для регулирования давления;

д) шкалы *10*, служащей ориентиром для настройки режима;

е) возвратной пружины *11*, служащей для обеспечения плотного прилегания ролика к поверхности рабочего кулака.

Педальное устройство состоит из педали *19*, качающейся на горизонтальной оси, и тяги, связывающей педаль с подковообразным рычагом механического привода. Ход педали регулируется болтами *20*.

Под действием пружины, помещенной внутри основания машины, педаль стремится занять верхнее положение. Хоботы верхний и нижний — круглые медные. Верхний хобот имеет цилиндрическое отверстие, в котором зажимается свеча с электродом, нижний хобот имеет коническое отверстие, в которое вставляется электрод.

Электрическое устройство. Сварочный трансформатор — броневого типа, с водяным охлаждением, мощностью 75 *ква* при ПР=12,5%, рассчитан на включение в сеть переменного тока 50 *гц* на напряжение, указанное на щитке машины.

Обмотки расположены на среднем стержне магнитопровода. Первичная обмотка имеет ответвления, подведенные к переключателю *15*,

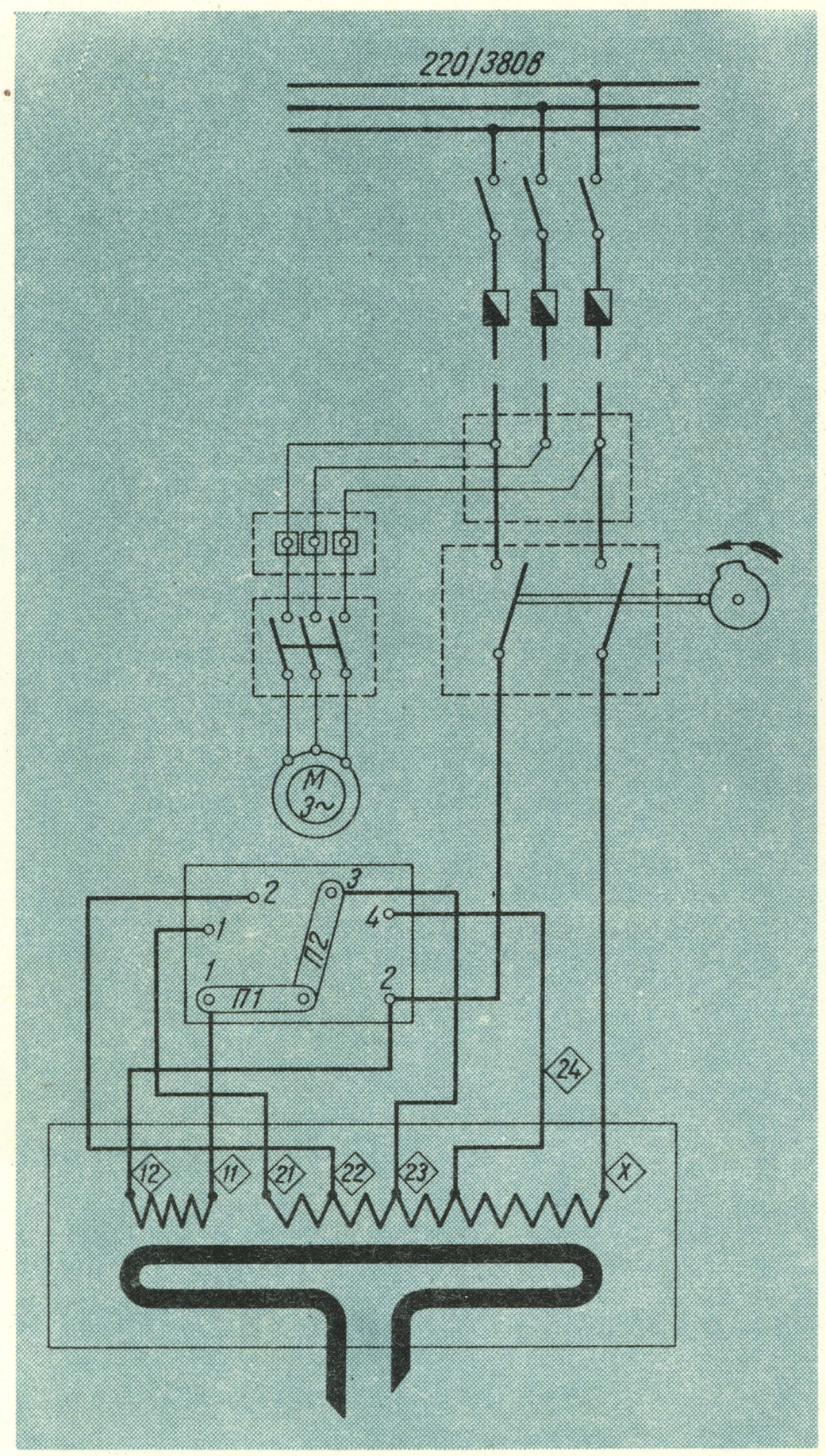

Рис. 6. Электрическая схема точечной машины типа МТМ-75.

при помощи которого можно менять вторичное напряжение.

Вторичная обмотка сварочного трансформатора — одновитковая. Вторичный виток охватывает первичную обмотку. Обе обмотки залиты теплопроводной кварцекомпаундной массой.

Охлаждающая вода проходит через вторичный виток.

Включение и выключение первичной цепи трансформатора на сварку производится механическим контактором *14*.

Для установки машины не требуется специального фундамента, машина может устанавливаться на полу в цехе. Рекомендуется машину закреплять, для чего в лапах корпуса имеются отверстия.

Составили: *С. Н. Волков* и *П. А. Руднев.* Художник *А. И. Пирогов.*

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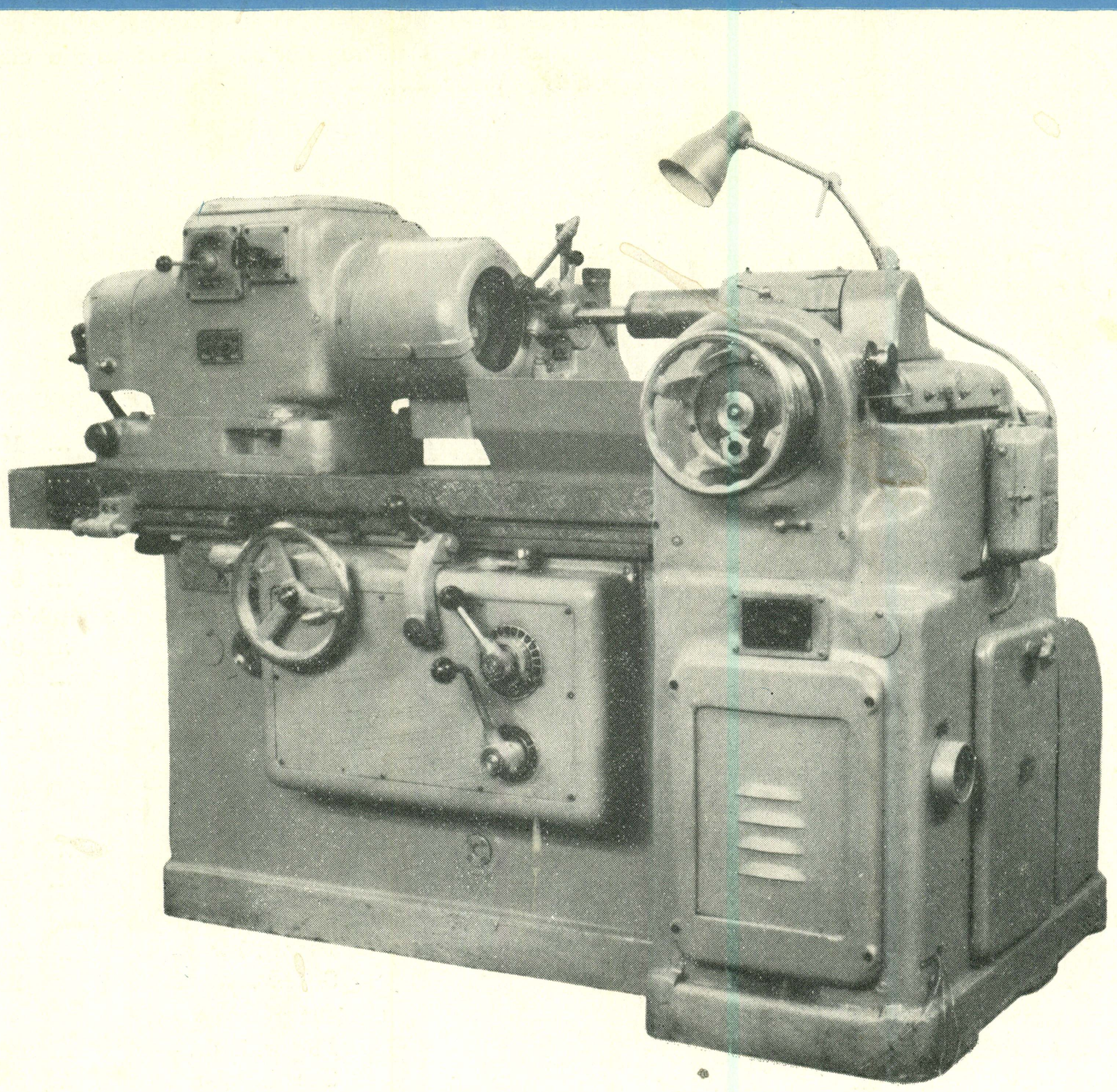
INTERNAL GRINDING MACHINE



Model 3A240

V/O „Stankoimport"

MOSCOW - USSR

Model 3A240

The 3A240 Hydraulic Internal Grinding Machine, is designed for grinding straight and tapered holes.

The work to be ground is held in a chuck mounted on the spindle of the work head. The work head spindle is driven by Vee belt from a three-speed motor mounted on the work head assembly. The work head base is of swiveling type providing for grinding a maximum included angle of 20°.

Power traverse of the table carrying the work head is operated hydraulically, the speed being controlled by a hydraulic control valve.

Hand table travel used for positioning purposes is controlled with the large diameter handwheel. The stroke of the table is set by adjustable dogs. The hand travel and hydraulic traverse of the table are interlocked.

The grinding wheel spindle is driven from a motor mounted on the bed. The automatic cross feed to the cross slide carrying the wheel head is applied through a ratchet mechanism. Sensitive hand motion is also provided. The automatic feed mechanism operates at every other reversal of the table. The wheel truing device has micrometer adjustment to the diamond. The machine is equipped with three motors.

SPECIFICATIONS

CAPACITY

Diameter of hole thaf can be ground mm:	
Minimum	12
Maximum	100
Maximum length that can be ground, mm	130
Maximum swing, mm:	
Inside water guard ...	240
Without water guard ...	500
Distance from center of spindle to table, mm	268
Grinding wheel cross movement to center of work head, mm:	
Forward	25
Backward	15
Maximum distance from work head spindle to wheel head flange, mm ...	670

TABLE WORK HEAD, WHEEL HEAD

Maximum traverse of table, mm ...	380
Swivel of work head for taper grinding, deg	10
Work head spindle hole diameter, mm ...	27
Maximum cross traverse of wheel head slide, mm	40
Grinding wheel dimensions, mm:	
Minimum diameter	10
Maximum diameter	80
Maximum face	50

SPEEDS AND FEEDS

Work head spindle speeds, r.p.m. ...	180; 290; 570
Wheel head spindle speeds, r.p.m. ...	15000
Table speeds (hydraulic), m/min:	
Minimum	0.3
Maximum	8
Wheel head cross feed per stroke of table, mm:	
Minimum	0.001
Maximum	0.005

DRIVE

220/380 volt, 3 phase, 50 cycle A C. motors:

Wheel head:	
Power, kw	2.8
Speed, r.p.m. ...	1500
Work head (three-speed):	
Power, kw	0.35
Speeds, r.p.m.	1000; 1500; 3000
Coolant pump:	
Power, kw... ...	0.125
Speed, r.p.m. ...	3000

SPACE OCCUPIED

Floor space, mm	2100 × 1105
Height of machine, mm	1315

WEIGHT

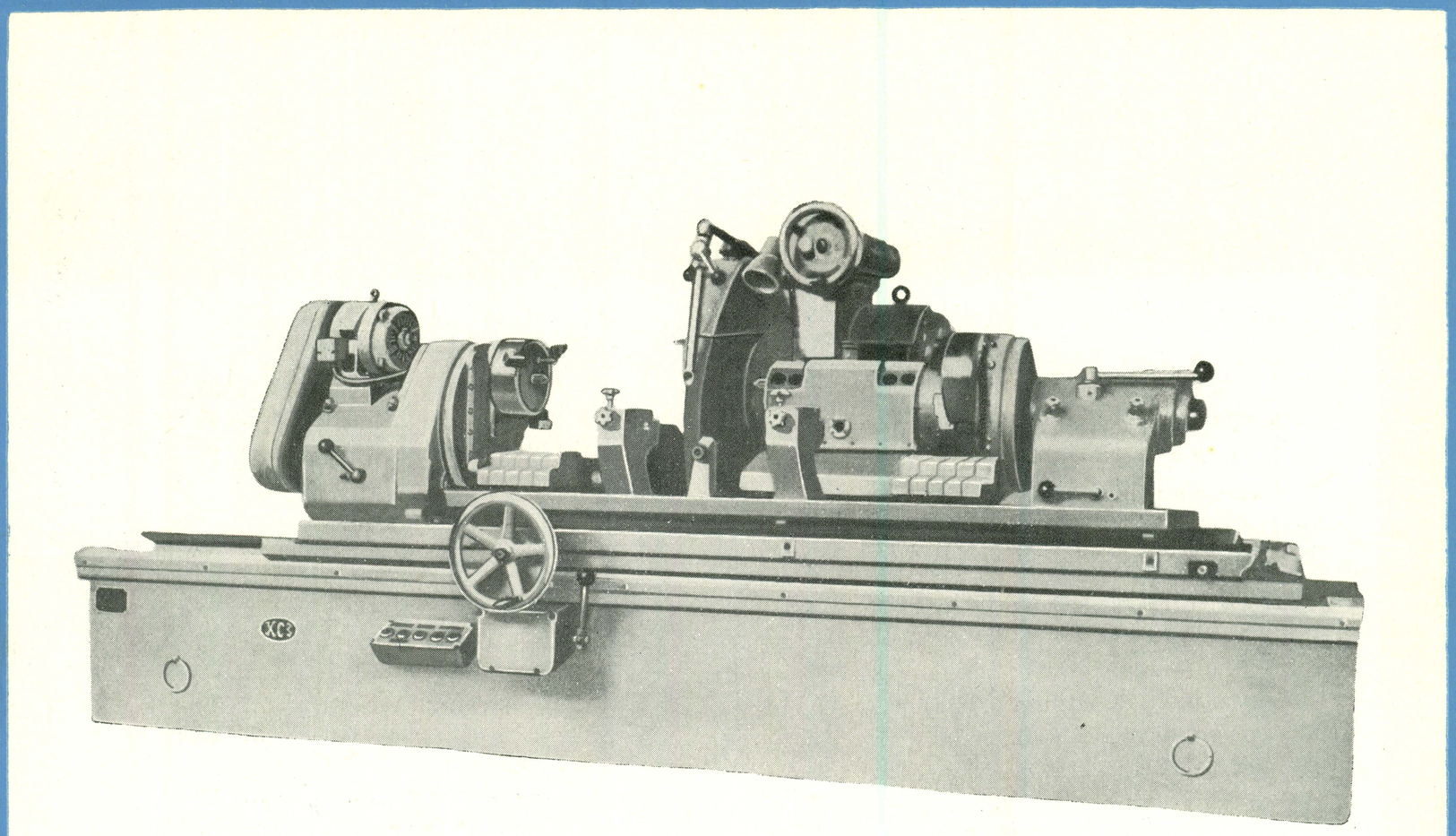
Net weight, kg	approx. 1900

V/O „Stankoimport"

MOSCOW-USSR

Cable address: STANKOIMPORT. MOSCOW.

CRANKSHAFT REGRINDING MACHINE



Model

3423

V/O „Stankoimport"

MOSCOW - USSR

Model 3423

The 3423 Crankshaft Regrinding Machine is designed for regrinding both pins and line bearings of automotive crankshafts. It may also be used for plain cylindrical grinding of many other automotive parts. While regrinding pins the crankshaft is held in chucks mounted on the headstock and footstock spindles. The chucks and balance weights are mounted on slides, the positions of which are adjustable in order that the required off-center distance may be secured when grinding pins of different crankshafts. When regrinding line bearings the crankshaft is held in centers.

Power from the motor to the work spindle is transmitted by means of a belt drive with three-step pulleys.

The longitudinal movement of the table and the cross movement of the wheel head are performed manually.

The swiveling table permits grinding of tapered surfaces.

A wheel truing device, equipment for horizontal and vertical adjustment of the crankshaft to be ground and a work drive dog for center grinding are supplied with the machine. The machine is equipped with three motors.

SPECIFICATIONS

CAPACITY

Height of centers, mm ...	... 300
Distance between centers, mm	... 1600
Distance between wheel and work centers, mm:	
Minimum ...	... 275
Maximum ...	... 595
Diameter that can be ground (in steadyrest), mm:	
Minimum ...	... 30
Maximum ...	... 100
Maximum crankshaft throw, mm	... 110
Maximum length of work, mm	... 1600
Maximum weight of work, kg	... 125

TABLE

Maximum table travel, mm	... 1600
Maximum swivel of table	... 5°

WHEEL HEAD

Maximum cross travel of wheel head, mm ...	... 320
Grinding wheel dimensions, mm:	
Maximum diameter	... 900
Minimum diameter	... 550
Minimum face ...	... 33
Maximum face ...	... 40
Hole diameter ...	... 305

SPEEDS

Work speeds, r.p.m. ...	... 33; 64; 115.

DRIVE

220/380 volts, 3-phase, 50 cycle A.C. motors:

Wheel head:	
Power, kw ...	... 7.0
Speed, r.p-m.	... 1000
Headstock:	
Power, kw ...	... 1.0
Speed, r.p.m.	... 1000
Coolant pump:	
Power, kw ...	... 0.125
Speed, r.p.m.	... 3000

SPACE OCCUPIED

Floor space, mm ...	... 4270×1795
Height of machine, mm ...	... 1620

WEIGHT

Net weight, kg	... Approx. 6000

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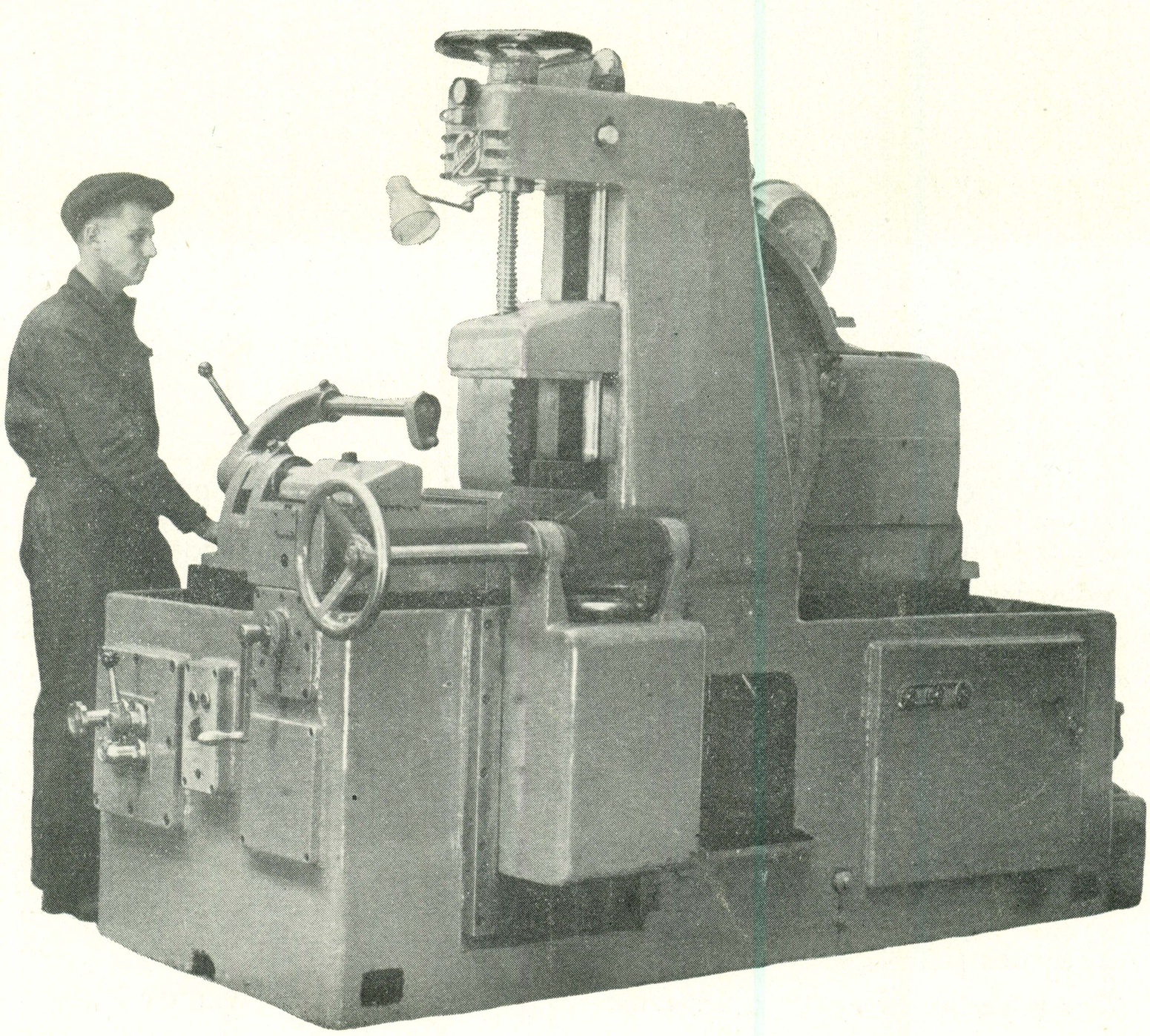
COLD SAWING MACHINE



Model

867

V/O „Stankoimport"

MOSCOW - USSR

Model 867

The 867 Cold Sawing Machine has been designed for cutting off round and square stocks and other structural shapes.

This machine is exceptionally rigid and strong, its bed being of extra heavy box section construction, proportionally designed to withstand all stresses during the operation.

The saw spindle has four different speeds, so that correct saw speeds may be obtained to suit the material being cut.

The working feed and return stroke of the saw carriage, the vertical and horizontal sizes are operated through a hydraulic system.

An outer bogey can be provided to support the ends of long bars.

SPECIFICATIONS

CAPACITY

Cutting capacity for rounds, mm	...	350
Cutting capacity for squares, mm	...	300
Cutting capacity for I-beams	...	No. 60
Cutting capacity for channels	...	No. 40

SAW BLADE

Diameter of saw blade, mm	...	1030

SPEEDS AND FEEDS

Number of saw spindle speeds	...	4
Range of saw spindle speeds, r.p.m.	...	3.48-9.66
Range of feeds (hydraulic), mm/min.	...	25-400

DRIVE

220/380 volt, 3-phase, 50 cycle, A.C. motors:

Saw spindle drive:		
Power, kw	...	... 7
Speed, r.p.m.	...	... 1000
Hydraulic pump:		
Power, kw	...	... 2.8
Speed, r.p.m.	...	... 1500

SPACE OCCUPIED

Floor space, mm	...	... 2890x1470
Height of machine, mm	...	... 2040

WEIGHT

Net weight, kg		approx. 6000

V/O „Stankoimport"
MOSCOW-USSR
Cable address: STANKOIMPORT. MOSCOW.

Министерство строительного и дорожного машиностроения СССР

КРАН

ЖЕЛЕЗНОДОРОЖНЫЙ

К-251

МАШГИЗ — 1950

КРАН

ЖЕЛЕЗНОДОРОЖНЫЙ

Железнодорожный кран К-251 предназначен для погрузочно-разгрузочных работ со штучными грузами и сыпучими материалами, а также для тяжелых строительно-монтажных и аварийно-восстановительных работ.

Кран может работать с крюком и грейфером. При замене крюка на грейфер кран обслуживает склады сыпучих и кусковых материалов.

Нормальная длина стрелы крана равна 15 м; в случае необходимости она может быть удлинена до 25 м при помощи вставок длиной по 5 м каждая.

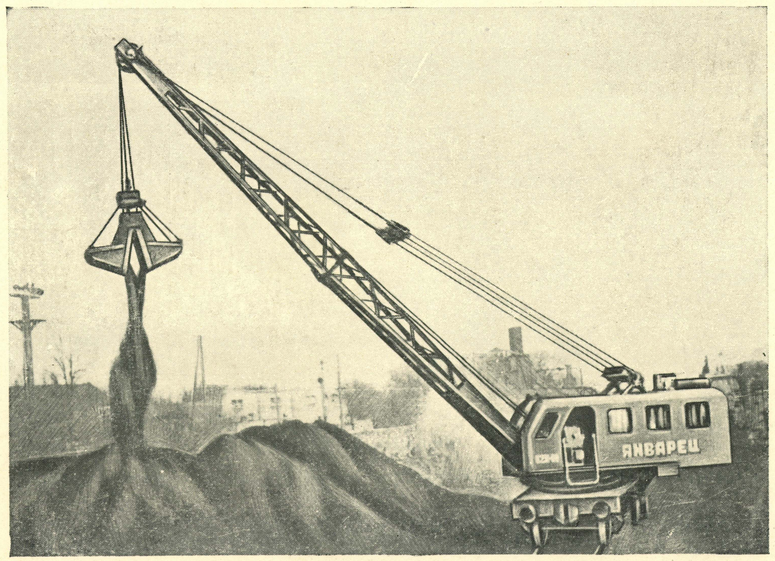
Для производства погрузочно-разгрузочных работ с больше-габаритными грузами весом до 5 т и удлиненной стрелой на небольших вылетах кран снабжается гуськом.

Для повышения устойчивости при работе с предельными грузами кран снабжен гидравлическими аутригерами.

Кинематическая схема крана позволяет производить полное совмещение операций.

Управление основными механизмами и тормозами крана — гидравлическое.

Кран оборудован автосцепкой, пролетной трубкой и нормальными железнодорожными сцепными приборами.

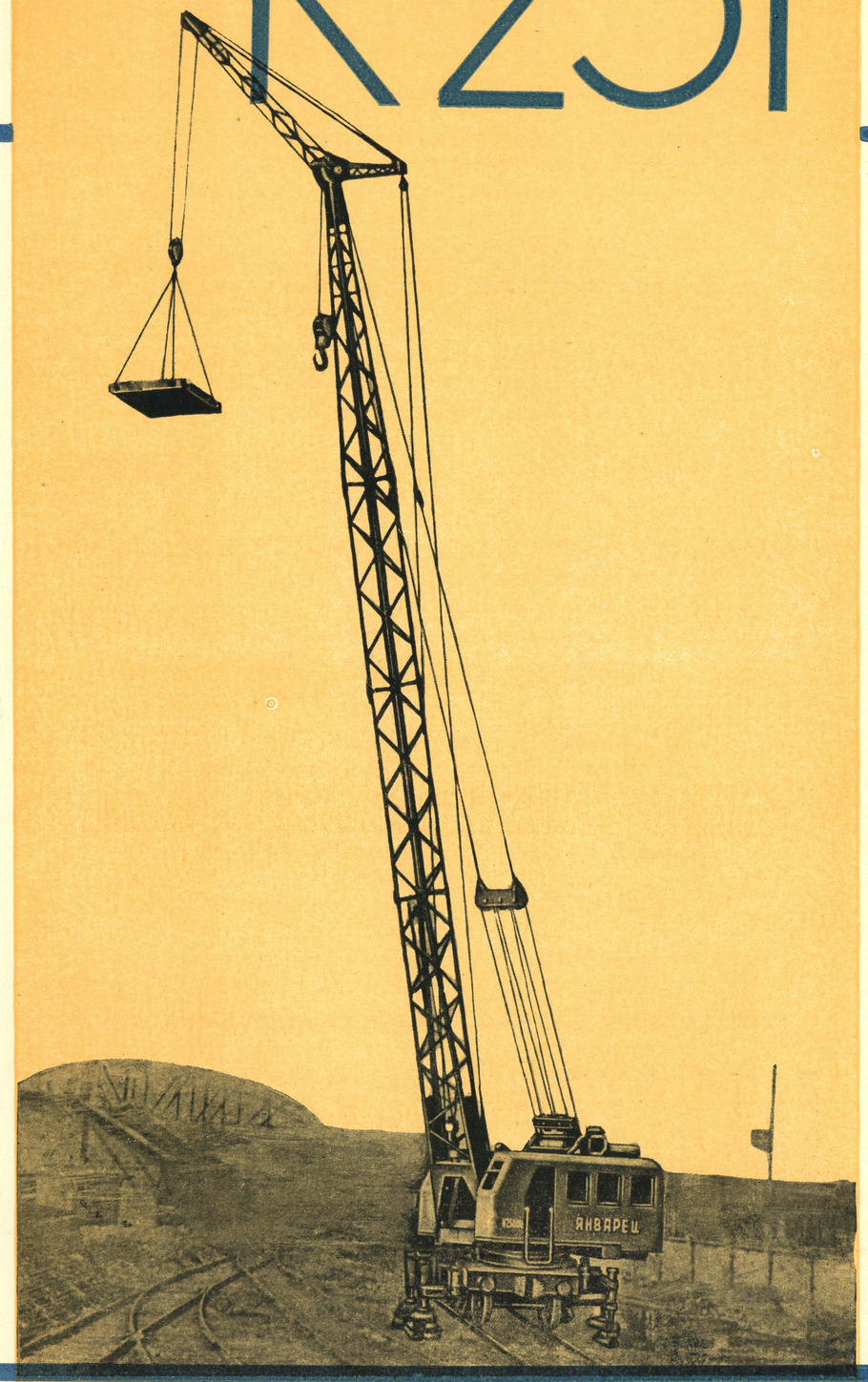


МСДМ

ТЕХНИЧЕСКАЯ ХАРАКТЕРИСТИКА

	На аутригерах	Без аутригеров
Грузоподъемность крана в т:		
При длине стрелы 15 м		
при вылете стрелы 4,5 м	25	15,0
» » » 6 »	25	10,0
» » » 10 »	10	5,0
» » » 14 »	5,0	3,0
При длине стрелы 25 м		
при вылете стрелы 6,5 м	12	7,5
» » » 8 »	12	5,0
» » » 10 »	7,5	3,0
» » » 14 »	4,0	1,75
» » » 20 »	2,5	1,0
При длине стрелы 25 м с гуськом при вылете стрелы 12—15 м	5	
Скорость передвижения крана в км/час:		
без груза	15—25	
с грузом	2—10	
в составе поезда	до 60	
Двигатель:		
тип	Бескомпрессорный дизель 2Д6	
мощность в л. с.	120	
число оборотов в минуту:		
при максимальной мощности	1150	
при холостом ходе	500	
Генератор:		
тип	ПН-550	
напряжение в в	460	
мощность в квт	88	
число оборотов в минуту	1460	
Тяговый электродвигатель:		
тип	ДК-305А	
мощность в квт	38/43	
напряжение в в	190	
число оборотов в минуту	1020/3000	
Ходовая характеристика:		
ширина колеи в мм	1524	
диаметр ходовых колес в мм	900	
Емкость грейферов в м³	1,5; 2,0; 3,0	
Вес крана со стрелой 15 м в т	71,8	

К·251



ГЛАВСТРОЙМЕХАНИЗАЦИЯ

поставляет строительные и дорожные машины, оборудование для производства строительных материалов, электро- и пневмоинструмент, а также запасные части к строительным и дорожным машинам.

ГЛАВСТРОЙМЕХАНИЗАЦИЯ

ОСУЩЕСТВЛЯЕТ СВОЮ ДЕЯТЕЛЬНОСТЬ ЧЕРЕЗ СЕТЬ ПОДЧИНЕННЫХ ОРГАНИЗАЦИЙ

★

Союзный трест «Строймеханизация» —
Москва, Софийская набережная, д. № 6, тел. В 1-11-46.
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Контора «Сибстроймеханизация» — Новосибирск, Трудовая, д. № 23. Телеграфный адрес — «Строймех».

★

Контора «Уралстроймеханизация» —
Свердловск, Дом Промышленности, 2-й этаж.
Телеграфный адрес — «Строймех».

★

Контора «Ленстроймеханизация» —
Ленинград, Апраксин двор, корпус 41, пом. 683.
Телеграфный адрес — «Ленстроймех».

★

Минская контора «Главстроймеханизация» —
Минск, ул. Карла Маркса, № 5.
Телеграфный адрес — «Главстроймеханизация».

★

Контора «Строймехзапчасть» —
Москва, ул. Жданова, д. № 20, тел. Б 3-55-57.

ГЛАВСТРОЙМЕХАНИЗАЦИЯ

Т 07713. Зак. 2524. Тир. 3.300.
Типография «Известий».

LOCOMOTIVE CRANE K-251

The K-251 Locomotive Crane is designed for handling separate loads and friable materials, as well as for heavy construction and emergency-restoration operations.

The Crane may operate by means of a hook or a clam-shell bucket. When the hook is changed for a clam-shell bucket, the Crane may handle both friable and separate loads.

The normal length of the Crane boom is 15 m; if needed, it may be lengthened until 25 m by means of auxiliary beams, having a length of 5 m.

For handling large loads up to 5 tons by means of a lengthened boom at a small pitch the Crane is supplied with an auxiliary "goose-neck" frame.

The Crane has hydraulic outriggers for greatening its stability when handling maximum loads.

The kinematic scheme of the Crane allows various operations to be combined.

The main gears and brakes of the Crane have hydraulic controls.

The Crane is supplied with automatic coupling, span pipe and regular railway coupling devices.

SPECIFICATION

Crane load-lifting capacity in tons:

	With out-riggers	Without out-riggers
At a boom length of 15 m:		
within a reach of 4.5 m	25	15
„ „ „ „ 6 m	25	10
„ „ „ „ 10 m	10	5
„ „ „ „ 14 m	5	3
At a boom length of 25 m:		
within a reach of 6.5 m	12	7.5
„ „ „ „ 8 m	12	5
„ „ „ „ 10 m	7.5	3
„ „ „ „ 14 m	4	1.75
„ „ „ „ 20 m	2.5	1
At a boom length of 25 m, an auxiliary "goose-neck" frame and a reach of 12—15 m	5	

Crane travelling speed in km per hrs:	
without loads	15—25
with loads	2—10
as part of a train	until 60
Engine:	
type	Semi-Diesel 2Д6
output, H. P.	120
speed, r.p.m.:	
at maximum output	1150
idling	500
Generator:	
type	ПН-550
voltage, V	460
output, kW	88
speed, r.p.m.	1460
Traction electric motor:	
type	ДК-305А
output, kW	38/43
voltage, V	190
speed, r.p.m.	1020/3000
Running gear specification:	
gauge, mm	1524
wheel diameter, mm	900
Clam-shell capacity, cu. m	1.5; 2.0; 3.0
Crane weight, with a 15 m boom, tons	71.8

VSESOJUZNOJE OBJEDINENIJE

«MACHINOEXPORT»

EISENBAHNDREHKRAN K-251

Der Eisenbahndrehkran K-251 dient für Beladung und Entladung von Stückgütern und Schüttungsmaterialen, ebenso wird er auch bei schweren Bau-, Montage- und Wiederherstellungsarbeiten verwendet.

Der Kran kann sowohl mit einem Haken als auch mit einem Greifer arbeiten. Wenn man den Haken durch einen Greifer ersetzt kann der Kran Stückgut und Schüttungsmaterial-Lager bedienen.

In normaler Ausführung ist der Kranausleger 15 m lang; diese Länge kann bei Bedarf durch Einsätze von je 5 m Länge vergrößert werden.

Bei Beladung und Entladung von großen sperrigen Lasten bis zu 5 t Gewicht und einem verlängerten Ausleger mit kleinen Ausladungen wird dem Kran ein Kopfarm zugegeben.

Wird der Kran für einen Betrieb mit Höchstlasten verwendet, so wird er zwecks Vergrößerung seiner Standfestigkeit mit hydraulischen Hilfsstützen versehen.

Das kinematische Schema des Kranes ermöglicht eine gleichzeitige Ausführung sämtlicher Betriebsvorgänge.

Die Steuerung der Hauptvorrichtungen des Kranes sowie der Bremsen ist hydraulisch.

Der Kran ist mit einer selbsttätigen Einrückungsvorrichtung und normalem Eisenbahnkuppelgerät ausgerüstet.

TECHNISCHE CHARAKTERISTIK

Tragfähigkeit des Kranes in t:

	Mit Hilfsstützen	Ohne Hilfsstützen
Auslegerlänge 15 m:		
bei Ausladung 4,5 m	25	15
„ „ 6 m	25	10
„ „ 10 m	10	5
„ „ 14 m	5	3
Auslegerlänge 25 m:		
bei Ausladung 6,5 m	12	7,5
„ „ 8 m	12	5
„ „ 10 m	7,5	3
„ „ 14 m	4	1,75
„ „ 20 m	2,5	1
Auslegerlänge 25 m mit Kopfarm:		
bei Ausladung 12—15 m	5	

Kranfahrgeschwindigkeit in km/Std.:

ohne Last	15—25
mit Last	2—10
an einen Zug angehängt	bis 60

Antriebsmotor:

Type	Kompressorloser Dieselmotor 2Д6
Leistung in P.S.	120
Drehzahl/min:	
bei maximaler Leistung	1150
bei Leerlauf	500

Generator:

Type	ПН-550
Spannung in V	460
Leistung in kW	88
Drehzahl/min.	1460

Elektromotor:

Type	ДК-305А
Leistung in kW	38/43
Spannung in V	190
Drehzahl/min.	1020/3000

Laufcharakteristik:

Spurweite in mm	1524
Laufräderdurchmesser in mm	900
Greiferinhalt in m^3	1,5; 2,0; 3,0
Krangewicht mit einer Auslegerlänge 15 m, in t.	71,8

GRUE TYPE CHEMIN DE FER K-251

La grue type chemin de fer K-251 est destinée à la manutention de charges unitaires ou de matériaux pulvérulents. Elle est employée également dans les travaux de construction difficiles ainsi que pour réparations urgentes en cas d'avaries.

Cette grue peut fonctionner avec crochet ou benne preneuse. Dans ce dernier cas la grue dessert les parcs à matériaux pulvérulents ou en morceaux.

La longueur normale de sa flèche est de 15 m; en cas de besoin cette longueur peut être portée à 25 m par des rallonges de 5 m chacune.

Pour les manutentions de charges à grand encombrement pesant jusqu'à 5 t, avec flèche allongée et faibles portées, la grue K-251 peut être équipée d'un bras articulé.

La stabilité de la grue lors des manipulations de charges limites est augmentée grâce à des vérins hydrauliques spéciaux.

Le schéma cinématique de la grue se prête entièrement à la composition de diverses manœuvres.

La commande des mécanismes principaux et des freins de la grue se fait par un système hydraulique.

La grue K-251 est dotée d'un attelage automatique, d'une conduite à air comprimé et d'équipement d'attelage normal.

CARACTÉRISTIQUES TECHNIQUES

	Sur vérins	Sans vérins
Force de la grue, en t:		
Avec flèche de 15 m:		
Portée de la flèche 4,5 m.	25	15
„ „ „ „ 6 m .	25	10
„ „ „ „ 10 m .	10	5
„ „ „ „ 14 m .	5	3
Avec flèche de 25 m:		
Portée de la flèche 6,5 m	12	7,5
„ „ „ „ 8 m .	12	5
„ „ „ „ 10 m .	7,5	3
„ „ „ „ 14 m .	4	1,75
„ „ „ „ 20 m .	2,5	1
Avec flèche de 25 m et bras articulé:		
Portée de la flèche 12 à 15 m	5	
Vitesse d'avancement de la grue, en km/h:		
à vide	15 à 25	
avec charge	2 à 10	
dans un convoi de chemin de fer	jusqu'à 60	
Moteur à combustion interne:		
Type	Diesel, à injection mécanique 2Д6	

Puissance, en C. V.	120
Vitesse de rotation, en tr/min :	
à la puissance maxima .	1150
en marche à vide . . .	500
Générateur électrique:	
Type	ПН-550
Tension, en V	460
Puissance, en kW . . .	88
Vitesse de rotation, en tr/min	1460
Moteur électrique de traction:	
Type	ДК-305А
Puissance, en kW . . .	38/43
Tension, en V	190
Vitesse de rotation, en tr/min.	1020/3000
Caractéristiques du train:	
Voie, en mm	1524
Diamètre des roues du train, en mm	900
Capacité des bennes preneuses, en m^3	1,5; 2,0; 3,0
Poids de la grue avec flèche de 15 m, en t	71,8

Внешторгиздат. Заказ № 3050/6343

AUG 28 1961

THE CHAIRMAN OF THE
COUNCIL OF ECONOMIC ADVISERS
WASHINGTON

August 25, 1961

Dear Walter:

The President was very much impressed with what you had to say about the economic situation and policy in the course of your conversation with him the other day. He has asked me to follow up this conversation by meeting with you at the earliest convenient time for a further discussion of economic issues and for a closer examination of the policy suggestions you made to him. My impression is that he would welcome a memorandum that might grow out of such a further meeting between us and selected members of our staffs.

I am enclosing copies of two items that I think you might find of interest: (1) a copy of the President's letter to Senator Clark, and (2) a copy of the summary of a talk I gave in Madison the other day.

I look forward to hearing from you and seeing you when the pressure of your current negotiations lets up.

With warm regards,

Walter

Walter W. Heller

Honorable Walter P. Reuther
President, United Auto Workers
8000 East Jefferson Avenue
Detroit 14, Michigan

August 28, 1961

The Honorable Walter W. Heller
The Chairman of the Council of
Economic Advisers
Washington, D. C.

Dear Walter:

This will acknowledge receipt of your letter of August 25 with enclosures.

I am very pleased that the President has asked you to follow through on the matters that I discussed with him on August 16, and I look forward to working with you on this matter.

At the moment I am, as you can understand, deeply absorbed in major contract negotiations with the Big Three and as soon as this is behind me I will be in touch with you so that we can work out a mutually convenient time and place to get together.

I am very hopeful that the settlement over the week end with the American Motors Corporation will facilitate our reaching an early agreement with the Big Three. The progress sharing concept incorporated in the UAW-AMC agreement I believe is a significant development in labor-management relations and opens up new and promising possibilities as we search to find answers to compelling human problems. Mr. Edward L. Cushman, Vice President of American Motors, in his press release, a copy of which is enclosed, said in part, "Because of the progress sharing plan the proposed new agreement is clearly and demonstrably non-inflationary despite the fact that it includes the most liberal benefits we have ever offered."

I thought you might like a copy of my statement with respect to the UAW-AMC agreement and a summary of the highlights of the agreement.

I look forward to seeing you.

All good wishes.

Sincerely yours,

WPR:ob
oeiu42
Enclosures

Walter P. Reuther, President
INTERNATIONAL UNION, UAW

OCT 5 1961

THE CHAIRMAN OF THE
COUNCIL OF ECONOMIC ADVISERS
WASHINGTON

October 2, 1961

Dear Walter:

I hope that I am not being too optimistic in assuming that you will soon reach the successful end of the current automobile negotiations as was indicated in your letter of August 28.

I look forward to hearing from you as to a convenient time for us to follow up on the discussion that you had with the President in August.

With warm regards,

Walter

Walter W. Heller

Honorable Walter P. Reuther
President, United Auto Workers
8000 East Jefferson Avenue
Detroit 14, Michigan

Inter-Office Communication

November 6, 1961

RECEIVED
NOV 8 1961
IUD-AFL-CIO

To Walter P. Reuther

From W. L. Ginsburg

Subject Key Economic Indicators

Employment and Unemployment

Total employment for October 1961 reached 67.8 million, an increase of approximately 800,000 over September 1961. But unemployment of 3,934,000 on a seasonally adjusted basis was at 6.8 percent, unchanged from September 1961.

October marks the 11th consecutive month in which unemployment has been virtually at the 7 percent level. This is the first time since the 1930's that such a high rate of unemployment has persisted for so long a period.

Though the unemployment figure was below 4 million for the first time in a year, as Secretary of Labor Goldberg noted, the high rate of unemployment "underscores that we have a stubborn and continuing unemployment problem."

Substantial Labor Surplus Areas

As of September 1961, there were 72 of 150 major labor market areas which had 6 percent or more of the labor force unemployed, and 217 smaller areas with substantial unemployment. (The October 1961 comparable figure was 68 major and 206 smaller labor market areas. Data for October of earlier years are not available.)

In September 1960 there were 42 major and 116 smaller areas with substantial unemployment.

Automobile Industry

Production and Employment

Present industry forecasts call for output of 1.8 million passenger cars for the fourth quarter of 1961, as compared to actual production of 1,739,000 in the fourth quarter of 1960.

In the fourth quarter of 1960, auto production worker employment averaged about 605,000. There are no current available data on employment, though so far this year employment has ranged approximately between 450,000 to 550,000.

Inventories

At the end of October, inventories of domestic built passenger cars were expected to be 700,000, as compared to 920,000 a year ago. By the end of the year forecasts point to 875,000 as against the almost 1,000,000 car inventory with which the industry ended 1960.

Council of Economic Advisors Forecast for 1963

A recently published projection of GNP for 1963 prepared by the Council to serve as a "perspective" showed the following:

Between the second quarter of 1961 and second quarter of 1963:

(a) GNP is expected to rise by approximately 16 percent.
(b) Personal income is expected to rise by approximately the same percentage (17 percent).
(c) But corporate profits are expected to rise more than twice as much. (36 percent)
(d) Personal consumption expenditures are expected to rise less than the GNP (less than 14 percent).
(e) State and local government expenditures are expected to rise at an annual rate of less than 4.5 percent, much less than the 6 percent rate under the Eisenhower Administration.

The entire growth is based on the expectation that total fixed capital investment will increase by 34 percent. Nothing anywhere close to that level has been achieved since 1947.

Between 1954 and 1956, which was the two-year period of most rapid growth in capital expenditures, plant and equipment spending increased by less than 17 percent. This increase was only half of the planned increase for the next two years.

This projection, based on the trickle-down theory, will turn out to be entirely unrealistic. With the expected investment far below that projected, the actual growth in GNP will be much smaller than the Council's "perspective" suggests.

WLG:eh
oeiu42

November 7, 1961
Woody Ginsberg dictated over the phone.

FBR

Employment nation-wide 67.8 million
October 1961 up 800,000 from September 1961

Unemployment 3.9 million October 1961 -- 6.8% of labor force seasonal adjusted.
Unchanged from September 1961, 11th consecutive month, unemployment rate 7% level.

Substantial labor surpluses areas:
September 1961 72 major of 152 total, plus 217 smaller
September 1960 42 major, 116 smaller

Automobile:
Forecast 4th quarter of 1961 is 1.8 million passenger cars .
The actual for the 4th quarter of 1960 - 1,739,000.

Employment in 4th quarter of 1960, actual 605,000 production workers.

There is no current data so far this year. Employment 450,000 - 550,000.
Car inventory:
End of October, inventories were expected to be 700,000
A year ago - 920,000
By the end of year, forecast - - - - - - - - - - - 875,000 against almost 1,000,000 in car inventory at end of 1960.

Detroit unemployment:
In September there were 127,000 or 9% of labor force unemployed.