

CENTRAL INTELLIGENCE AGENCY

REPORT

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1. Order of the Labor Red Banner Podolsk Engineering Factory i/n Kalinin (Ordeņa Trudovogo Krasnogo Znameni Podolski Mekhanicheski Zavod Imeni Kalinina) is located at Podolsk (55-23N, 37-30E), Moscow Oblast, 43 km south of Moscow on the Moscow-Kursk railway. The number 460 has not been used in correspondence since 1946.

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2. The factory, which belongs to the Ministry for Engineering and Instrument Construction, comes under the direct control of the Central Administration for Light Textile Engineering of the Ministry.

History

3. The factory, which was established in 1900, was primarily employed in assembling Singer sewing machines from parts which were imported from abroad. Later the factory produced sewing machine parts of all descriptions. After the revolution the factory, which was considerably expanded, continued to produce sewing machines.

4. In 1941 the factory buildings covered an area of 55,000 sq m, which in 1950 had increased to 66,000 sq m.

5. In autumn 1941, personnel and equipment of the factory were partially evacuated. In 1942, after the German retreat from the vicinity of Moscow, the factory was re-established and took up the manufacture of ammunition of various types and also mines.

6. During the war the factory was designated Factory No. 460 of the Ministry of Munitions. The director was Dmitri Mikhailovich Bubnov, who continued in this capacity for two years after the conclusion of hostilities. During this period the factory, on several occasions, gained a first prize in competitions open to ammunition factories and in 1944 was awarded the Order of the Red Banner. Many members of the staff, including the director Bubnov, were awarded orders and medals.

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7. At the end of 1945 and during the early part of 1946, the factory switched over to the production of sewing machines. All shops were re-equipped and many new special type machine tools introduced.
8. A machine tool production shop was established at the end of 1945. The shop expanded considerably, and during 1946 and 1947 new machinery and specialists were introduced. Production included machine tools of various types, presses, and equipment for the foundry. With the introduction of the necessary equipment and specialists, the manufacture of tools and appliances for the production of sewing machines was undertaken.
9. By the middle of 1946 about 4,700 machine tools and other articles of equipment were installed in the shops. The foundry received a considerable amount of new equipment, and a casting (zalivochny) conveyor and a distributing conveyor were installed. At the end of 1948 a second group of cupola furnaces was fitted in the foundry.
10. About 3,500 workers were given specialized training in the shops, and special schools and study centers were formed. Two design offices were established, one in which engineers and specialists with previous experience in sewing machine construction were introduced, for the production of sewing machines, and a second for the production of metal-cutting machine tools and other equipment required by the factory. All technical documents connected with the production of sewing machines were prepared by the engineering and technical personnel of the factory.
11. During the transition period, the factory turned out spare parts for agricultural machinery and tractors, machine tools of different types, and consumer goods, and in addition fulfilled orders for the electrical industry, including the manufacture of a great number of resistance elements for electric locomotives, and lifting cranes.
12. By July 1946 the foundry and engineering shops had already produced the necessary parts for the manufacture of sewing machines, and the assembly shop started to turn out grade 1 A household type (bytvoi tip) sewing machines. These machines were also known as the family type (semeiny tip). A start was also made in the needle shop on the production of needles.
13. In July the first batch, consisting of 60 sewing machines, was produced and passed tests satisfactorily. In August the first lot of 40,000 sewing machine needles belonging to one number only was produced and passed the test satisfactorily.
14. Output increased gradually, and new types of household and industrial sewing machines were manufactured. The quantity and variety of needles increased. Towards the end of 1948, in addition to numerous spare parts for sewing machines, automatic weaving looms were produced.

Types of Machine ProducedHousehold Machines

15. The following household machines have been produced:
  - a. Household sewing machines type IMZ grade 1 A. These are of the hand, pedal, and extra type. Pedal machines constitute about 15 percent of the total output of household machines and extra machines about 5 percent. Household sewing machines are mass-produced and constitute the basic output of the works.
  - b. In the middle of 1948 production was started on a modernized grade 1 A sewing machine, which was based on a model approved by the Ministry for Engineering and Instrument Construction and the All-Union Chamber of Commerce after tests at the Scientific Research Institute of the Sewing Industry. This machine has better mechanism and an improved external finish.

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Industrial Sewing machines

16. The following industrial sewing machines have been produced:
- a. PMZ shuttle type sewing machine 4th grade, 2,200 rpm. This machine was produced by the factory before the war, and a few have been produced since the war. It was replaced in 1947 by an improved machine, the PMZ 22nd grade.
  - b. PMZ shuttle type rotary machine 22nd grade, 3,500 rpm. This is a general purpose machine. The output of this machine exceeds that of the 4th grade by 30-35 percent. The machine has a 96th grade snuttle with a horizontal axis of rotation.
  - c. PMZ shuttle type machine 23rd grade. This machine is employed on heavy work. It has a 45th grade cylindrical shuttle with an oscillating movement.
  - d. PMZ rotary shuttle two-needle machine 24th grade. This machine has a 112th grade shuttle with a vertical axis of rotation. This machine was produced especially for the foot-wear industry. It replaced the old PMZ 14th grade machine, which was produced at the works before the war, and the 3rd grade machine, which was an exact copy of a foreign machine.
  - e. PMZ rotary shuttle 25th grade, 2,000 rpm. Used for buttonhole stitch on underwear. It has a 107th grade shuttle with horizontal rotation axis allowing a deviation of the needle up to 9 mm. This machine has replaced the PMZ 6th grade machine produced before the war, which has a defect in the mechanism which moves the fabric.
  - f. PMZ rotary shuttle machine 26th grade, 2,500 rpm. Used for zigzag stitching. Shuttle with deviating (otklonyayushcheisya) needle.
  - g. Basic (bazovaya) machine 27th grade. Used for sewing on trimmings and for finishing work. This machine was designed by the Scientific Research Institute of the Sewing Industry. The design of the machine enables it to exchange its individual aggregate units (agregaty-uzly) in order to obtain new alternatives for certain special operations. By replacing discs with corresponding cam profiles and holding clamps, the machine can perform numerous special operations such as sewing on buttons, production of fasteners, sewing on hooks and eyes, clasps, press buttons, tape, made-elastic fabric.
  - h. PMZ tambour machine 28th grade. Used for sewing headgear.
  - i. PMZ buttonhole machine 29th grade. Used for casing-stitching buttonholes for overcoats. Designed after, and an improvement on, the 99th grade.
  - j. Machine for sewing up filled paper bags for the cement and chemical industries. Deals with about 300 bags per hour.

Needle Production

17. About 165 grades of sewing machine needles are being produced at present.

Automatic Weaving Loom Type ATK-100

18. In 1948 the first new automatic weaving loom type ATK-100 was produced at the factory. Kananin, the engineer who designed this loom, was awarded a Stalin Prize for his work. The loom is designated ATK (Avtomat Tkatski Kananina - Kanin's Automatic Weaving Loom) after the designer. The figure 100 indicates the width of fabric in centimeters produced by the loom. This machine is sometimes called KAT-100.
19. The loom is now being mass produced, and a special shop for assembling weaving looms has been established at the factory. The loom produces fabrics one meter in width from cotton yarn. Three categories of loom are produced which differ slightly from one another. They produce fabrics of high, medium, and low thread numbers. The machines work at speeds up to 220 rpm. They are driven by an electric motor type TT-US of 55 kw, electric switch KHLZ, and speed of 950 rpm. The overall dimensions of the machine are: length 1,270 mm, width 2,190 mm, and height 1,670 mm. The weight of the machine with the electric motor is 850 kgs. The framework of the machine is of cast iron with the electric motor installed beneath the frame. The machine has a hand brake.

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20. The rod of the slay gear is made of angle iron to which a wooden shaper rail is attached. Length of slay gear is 2,160 mm; weight: 87 kgs. The shuttle box has a special valve. The striking gear (koyevoi Mekhanizm) is of an original type. The regulating device for fabric feeding consists of a continuous action worm gear with a drive from the crankshaft. The warp watcher (osnovonsblyudatel), which is of an original Kananin design, is the same as that used in the LA-5 machine. If the thread of the warp breaks, a special gear stops the machine. A device for regulating the tension of the warp makes it possible to produce medium woven and closely woven fabrics. The machine is fitted with a wool feeler (utochny shchup).

#### Machine Tools

21. Machine tools produced by the factory are not of original design. Turning lathes, grinding lathes, and presses are of the type built by works belonging to the Machine Tool Industry. The only original productions of this nature at the works are devices for adapting machine tools for specialized work.

#### Output

##### Sewing Machines

22. Post-war production commenced in July 1946 and proceeded as follows:

##### 1946 (Grade 1 A (household) sewing machine)

July	60
August	490
September	1,550
October	3,250
November	4,700
December	5,750
Total	15,900

##### 1947

About 130,000 sewing machines of household and industrial types.

##### 1948

About 270,000 sewing machines of household and industrial types.

##### 1949

About 320,000 sewing machines of household and industrial types.

##### 1950 (through June)

About 190,000 sewing machines.

23. There are four types of household sewing machines which constitute 85 percent of the total machines produced. Industrial machines, of which 11 types are manufactured, make up the remaining 15 percent. Six new types are being designed.

##### Needles

24. Production started in August 1946, during which month about 40,000 needles were produced.

##### 1946

1,450,000 needles of 5 numbers of 1 grade (klass)

##### 1947

9,700,000 needles of 17 numbers/grades

##### 1948

26,000,000 needles of 52 numbers/grades

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1949

About 40,000,000 needles of 125 numbers/grades

1950 (through June)

About 22,000,000 needles of 140 numbers/grades

Automatic Weaving Looms ATK-100

25. Production started in December 1948.

1949 about 380 looms.1950 (through June) about 260 looms.Machine Tools and other Equipment

26. The production of machine tools and other equipment follows:

1946Metal-cutting machine tools and other equipment  
(boulding machines for the foundry, etc.) 1801947

Metal-cutting machine tools and other equipment 190

1948

Machine tools and other equipment 206

1949

Machine tools and other equipment about 200

1950 (through June)

Machine tools and other equipment about 200

Spare Parts for Sewing Machines

27. Since the end of 1948, the manufacture of spare parts for sewing machines has attained considerable importance in the factory. Actual production is not known.

Miscellaneous Articles

28. A comparatively small number of spare parts for agricultural machinery is produced, also simple types of agricultural machinery for the Moscow Oblast. Consumer goods are produced on a fairly large scale.

Personnel

29. Chief personnel are as follows:

Director:	I.A. Shchekin
Chief Engineer:	Borisov
Chief Technologist:	Ershov
Secretary of the Factory Party Committee:	Vasilev

30. About 4,500 workers are employed in two shifts. Some shops work a night shift repairing equipment and preparing material for the morning shift.

Publications31. The works publish a paper Nasha Pravda (Our Truth). This paper, the publication of which started long before the war, has a wide circulation.50X1-HUM  
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Shops

32. A description of the factory shops follows:

- Automatic Machinery Shop (Avtomatny Tsekh). New upsetting (vysadochny) and knurling (nakatny) machines were installed in 1949.
- Foundry (Liteiny Tsekh). Has two band conveyors. In 1948 a second group of cupola furnaces was installed.
- Turning Shop (Tokarny Tsekh)
- Needle Shop (Igolny Tsekh). The hardening of needles by HF current was introduced in 1949.
- Sewing Machine Assembling Shop (Sborochny Tsekh Svoeinykh Mashin). Has a conveyor.
- Automatic Weaving Loom Assembling Shop (Sborochny Tsekh Tkatskikh Avtomatov). A conveyor is being installed.
- Forge (Kuznechny Tsekh)
- Stamping Shop (Shtampovochny Tsekh)
- Shuttle Shop (Chelnochny Tsekh)
- Industrial Machinery Shop (Tsekh Promyshlennykh Mashin)
- Tool Shop (Instrumentalny Tsekh)
- Hinge Shop (Sharnirny Tsekh)
- Hand Drive Shop (Tsekh kuchnykh Privozov)
- Small Parts Shop (Tsekh Mal'kikh Chastei)
- Killing Shop (Frezerovochny Tsekh)
- Wood-working Shop (Derevoobdelochny Tsekh). The drying of wood by HF current was introduced in 1948.
- Screw Shop (Tsekh Vintov)
- Varnish and Ornament Shop (Lakoornamentny Tsekh). Has a conveyor for varnishing sewing machine parts.
- Engineering Repair Shop (Remontno-Mekhanicheski Tsekh)
- Small Details Shop (Tsekh Mal'kikh Detalei)
- Pressure Casting Shop (Tsekh Litiya Pod Davleniyem)
- Machine Tool Construction Shop (Stankostroitelny Tsekh)
- Assembling Shop (Montazhny Tsekh)
- Nickel-Plating Shop (Nikelirovochny Tsekh)

General State of Factory

33. During 1946 and 1947 the factory was run at a considerable loss and received about 16,000,000 rubles in government subsidies. Since 1948, when the factory made a profit of about 5,000,000 rubles, it has shown a profit. This is the result of improved organization such as the tightening up of controls, the keeping of records, the introduction of conveyor lines, and the automatization of certain processes. In addition, the employment of up-to-date technical equipment, such as high-frequency current installations, plastics, and the introduction of improved machinery, such as automatic upsetting machines, new polishing and grinding machines, have reduced the amount of labor required and increased profits.

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34. The maximum rejects take place in the foundry. In 1947 and 1948 rejected articles in the foundry reached 30-35 percent. At the present time the percentage of rejects is lower.
25. The Podolsk Engineering Factory is the most important producer of household and industrial sewing machines in the USSR. However, the staff of the design office, which devises new types of machines, are short of experience, and efficient directors are lacking.
36. New designs of sewing machines are drawn up by the Scientific Research Institute of the Sewing Industry, which collaborates with the Ministry for Engineering and Instrument Construction. The tendency of this institute in designing standard (bazovyy) sewing machines for the near future is to apply the aggregate method, similar to that used in the manufacture of the grade 27 machine now produced in the Podolsk Factory. Various alternatives of this machine could be used in sewing, haberdashery, knitting, footwear, and other industries.

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