

CCP

INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

This material contains information affecting the National Defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C. Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

S-E-C-R-E-T

50X1-HUM

COUNTRY USSR (Moscow Oblast) **REPORT** [Redacted]

SUBJECT Krasny Proletary Factory, Ordzhonikidze Machine Tool Factory, Kolomna Works for Heavy Machinery - Moscow ✓ **DATE DISTR.** 3 August 1961

NO. PAGES 1

REFERENCES RD

DATE OF INFO. [Redacted] **50X1-HUM**

PLACE & DATE ACQ. [Redacted]

THIS IS UNEVALUATED INFORMATION. SOURCE GRADINGS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

[Redacted]

✓ **Attachment 1:** Krasny Proletary Machine Plant in Moscow. Details on number of workers, production norms, and methods of manufacture and assembly. **50X1-HUM**

Attachment 2: Ordzhonikidze Machine Tool Factory in Moscow. Details on number of workers, production methods, and types of machines.

Attachment 3: Kolomna Works for Heavy Machinery in Moscow. Details on number of workers, production methods, and types of machines. ✓

[Redacted] **50X1-HUM**

57

S-E-C-R-E-T

50X1-HUM

STATE	X	ARMY	X	NAVY	X	AIR	X	NSA	X	OCR	X	NIC	X		
<small>(Note: Washington distribution indicated by "X"; Field distribution by "#".)</small>															

5
4
3
2
1

INFORMATION REPORT INFORMATION REPORT

SECRET



50X1-HUM

U.S.S.R.

ad 1

Defence/Economic



Krasni Proletarii, Moscow

50X1-HUM

KRASNY PROLETARI MACHINE

Mr. A. G. Filatov - Chief Engineer.

Mr. A. J. Solotin - Chief Technological Engineer.

This is one of the oldest machine tool factories in the U.S.S.R. and has already celebrated its Centenary. Mr. A.G. Filatov himself had been with the factory for some 25 years and was a most experienced machine tool engineer. In honor of its technical and production achievements the factory has been awarded the Order of Lenin and also the Order of the Red Banner.

2. The factory employs about 6,000 people and has a production of about 40 lathes per day, which is equivalent to 12,000 lathes a year.

3. Only one size of lathe is produced. This has a swing of 16" and can be supplied not only with varying bed lengths, but also in several versions for manufacturing and toolroom use. Top speed is 3,000 r.p.m. and a 14 kilowatt motor is fitted as standard. All unnecessary finish is eliminated, for example gears running at under 800 ft. are shaved and heat treated but not ground. Over 800 ft. all gears are ground. The beds of the manufacturing lathes are ground but those for the precision toolroom version hand scraped. Similarly, shafts "running in air" are ground.

4. So far as accuracy is concerned all machine tools are made to an agreed standard which can be varied to suit the specification requested in the order. Inspection is absolutely rigid to this standard and quite independent of production, in fact the Chief Inspector is responsible to an authority outside the factory. In the case of machines for export the thoroughness of their inspection is accentuated because of national prestige.

SECRET CONTROL

Methods of Manufacture.

GENERALS ONLY



50X1-HUM

SECRET

50X1-HUM

- 2 -

aa

Methods of Manufacture

5. Special purpose machines have been designed and built in the factory incorporating multiple tools for such operations as machining the apron casings in a cycle time of two minutes with automatic transfer mechanism. There is frequent use of drum type indexing fixtures. Applications of special tooling on plano-milling machines is very well done, one machine incorporated 21, another 13 separate tungsten carbide milling cutters. The primary machines in use are of top quality Russian design and manufacture.

Assembly

6. The ~~Lathes~~ are assembled on a moving track and the component parts are transferred to the assembly line in the same manner as used for a motor car assembly track.

7. Finally, machines are finish painted ^{AND} mounted on a circular moving track, which also takes them through the drying oven.

SECRET CONTROL
U. SECRETIALS ONLY

SECRET

REF ID: A66666



50X1-HUM

U.S.S.R.

aa 2

50X1-HUM

Defence/Economic.



Moscow Orjonikidze Machine Tool Factory, Moscow.

Mr. V.N. Zhuravlev - Chief Engineer.

Owing to the nature of the work, and possibly as a relic of earlier times, the entrance to this factory was guarded by armed police.

2. Right from the inception about a quarter of a century ago this factory has been largely devoted to the design, development and manufacture of the more special types of production machine of a complex nature; latterly devoting much greater attention to large Transfer Lines which will be referred to later.

3. The technical staff is highly specialised and is frequently used in a consultative capacity for technical help and "know-how" not only by the industries in the Soviet Union but also the mass production industries in other associated countries such as China, Poland, Hungary etc.

4. In current production are the Soviets own version of multiple vertical spindle Chucking Machines of a more advanced design than the Bullard and Ryder, each station being equipped with a unit somewhat similar to the individually built vertical spindle Boring Machine known as the Bullard "Man-a-trol" which can be converted to a semi-automatic machine. In the 8-spindle machine, each station incorporates a fully automatic machine in itself. These machines are normally supplied heavily tooled



50X1-HUM

5. The usual technical snags (machine design and work subject modifications) that develop with new Transfer Lines and create bottle-necks and holdups in the shop where they are produced, necessitate their having a major fill-up job and in this connection they manufacture about 200/250 6-spindle Bar Machines per annum. This quantity is spread over three sizes. Because of the large factory area and the many machines

SECRET CONTROL to be seen...
U. S. OFFICIALS ONLY



50X1-HUM

SECRET

50X1-HUM

- 2 -

aa

to be seen time did not permit a detailed examination of the Automatics but the 1" size, although obviously much larger and heavier than the Wickman had a maximum top speed of only 2,200 r.p.m. The quantities specified of 200/250 were actually being made but it was in fact only a fill up job as there are two other major factories devoted largely to Multi-Spindle Machines which are produced in much greater quantities.

6. Technically both from a design and manufacturing point of view this organisation can be relied upon satisfactorily to execute all contracts that it undertakes no matter how special or complicated the machines may be, and no doubt the final result would compare favourably with the products of a firm such as Gebr. Heller G.m.b.H etc.

7. The labour force totals approximately between 5,000/6,000 and both the heavy and light shops are well laid out and are divided into sections for special tooling, unit heads, special machines and erection. The plant is completely self-contained and does not purchase anything outside other than raw materials and items such as ball and roller bearings and electric motors. There are two Transfer Machines almost complete, one approximately 75 ft long, for the complete machining of large size 6-cylinder diesel engine blocks to operate in a cycle time of $1\frac{1}{2}$ minutes, the other being a shorter line for the corresponding cylinder head. A huge engine block line has been supplied to the Chelyabinsk Tractor Factory controlled by one operator.

8. The machine tools in use in this factory are 80% Russian, of modern design and obviously maintained in first-class condition.

50X1-HUM

**SECRET CONTROL
USE BY OFFICIALS ONLY**

SECRET

50X1-HUM

U.S.S.RDefence/Economic✓ Kolomna Works for Heavy Machinery

50X1-HUM

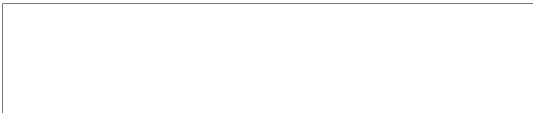
Mr. I. M. Shahrai - Director
 Mr. I. S. Ionov - Engineer
 Mr. I. J. Chernomarez - Engineer.

The factory itself employs over 6,000 hands on the production of heavy machine tools and was formerly engaged in the manufacture of agricultural equipment, but following the embargo by the N.A.T.O. Powers on the supply of most types of heavy machine tools to the U.S.S.R. the factory was changed over to the production of some of these heavy machine tools. This occurred about the time of the Korean War and the result has been a most spectacular achievement in the short space of little more than ten years. The expansion has been so great that (probably in order not to disturb production) separate buildings have been erected for various activities with the result that the undertaking as a whole covers a huge area. It possesses its own ferrous and non-ferrous foundries and, with the exception of raw materials and bought-out components such as bearings and electric motors, etc. it is a completely self-contained unit.

2. The current manufacturing programme comprises a range of Vertical Boring Mills, the largest of which will accept work up to a diameter of about 65 ft. and is powered by two motors of about 155 h.p. each. The heaviest machine of this type is catalogued to weigh about 750 tons; Gear Hobbing Machines up to a maximum of about 40 ft work diameter with the heaviest catalogue weight of 250 tons; Heavy Spline Hobbing Machines; Heavy Worm Milling Machines; Table Type Horizontal Boring Machines in two sizes up to 6 1/2" diameter spindle, weight 26 tons; Post Milling Machines with weights exceeding 100 tons; Heavy Duty Vertical Slotting Machines; Heavy Duty Shaping Machines; Long Bed Copy Milling Machines (Spar Type) up to 65 ft. long, weighing about 150 tons;

SECRET CONTROL
U. S. OFFICIALS ONLY/Tool Rotating⁹⁸⁶³

SECRET



- 2 -

Tool Rotating Shaft Turning Machines; Horizontal Hydraulic Extrusion Presses for tubes and sections; Vertical Hydraulic Presses for such varied applications as tube and pipe manufacture, aircraft components using rubber pad tooling; Heavy Mechanical Presses (limited range); Hydraulic Tube and Pipe Testing Presses; Hydraulic Presses for ceramics; Die Casting Machines. Most of the Hydraulic and Mechanical Presses are built to special requirements but pressures as high as 10,000 tons and weights exceeding 300 tons were noted.

3. These huge machines are extremely well made in finely equipped shops, assembled without fuss and compare favourably with any maker of similar large machines. For convenience of manufacture the tables of the large Vertical Boring Mills are made in two halves and assembled with the centre line like two large combs in mesh. There were six of these large Vertical Boring Machines with tables up to about 30 ft. diameter in erection in one shop and any of them can be assembled in 3/4 months.

4. When the decision was taken to convert this factory from agricultural equipment to heavy machine tools the urgency was so great that production machine tools were withdrawn from other factories in many parts of the U.S.S.R. As a result it is equipped with a wide selection of machine tools of which probably 50% are of Russian origin,

50X1-HUM

5. The labour is divided into three categories, roughly equivalent to our skilled, semi-skilled and unskilled, and the basis of their wages is piecework. There are various incentives and the performance of each machine operator is publicized by the colour of a flag on his machine. For the operator who exceeds his quota there is a flag of one colour and for the one who is behind another colour, and in between various other colours denoting various degrees of efficiency. The difference in earnings between a typical low output operator and a typical high output operator could be as much as one third.

6. A new method is used of burnishing large flat surfaces by means of a special carbide tool and special lubricant under pressure

SECRET CONTROL
SECRET
U. S. OFFICIALS ONLY

on a Planing

9863

50X1-HUM

SECRET

50X1-HUM



- 3 -



on a Planing Machine, which dispenses with scraping for all excepting super precision surfaces. They also employ a new material which is a substitute for cast iron and had been used for all major "castings" of a large Planing Machine that had been in operation for seven years. This material is "the baby of the Works Director". The Russian Development Engineers themselves had been skeptical for a long time about this development but are now completely satisfied as to its suitability for a wide range of components. They estimate that this new material will reduce the cost to one fifth that of cast iron.

**SECRET CONTROL
U.S. EYES ONLY**