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CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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SECTION I. HISTORICAL OUTLINE OF THE PLANT

1. The area known as the Krasnogorsk Mechanical Plant (Krasnogorskiy Mekhanicheskiy Zavod) or Zavod 393, identified in 1950 by the name "Zorky"¹, was originally occupied by a textile factory dating its origin to the early days of the century. This area is now known as the "Old Territory". In the late 1920s or early 1930s, the buildings of the textile factory were converted into an optical plant, at which time a number of new buildings and workshops were constructed on grounds adjacent to the old territory combining both areas into a large optic-mechanical plant. The added area is now called the "New Territory".
2. After conversion and during the initial period of development of the larger plant, a number of German specialists, including many from the Carl Zeiss works, Jena, were employed there for technical aid. Many of these early contracted specialists were known to the recent deportees. One of them, a Mr. Friebe, or Friebel, a former foreman in Jena, was again in the Soviet Union as a deportee. He was presumably employed in one of the Leningrad plants as designer or production expert. It is believed that the town of Krasnogorsk gradually developed from a small workers' settlement of former textile personnel into a larger populated area now largely inhabited by personnel of the mechanical plant.
3. In the fall of 1941, the entire moveable equipment, as well as most of the plant personnel, were evacuated to Novosibirsk where the equipment was re-assembled and permanently established. After World War II, only part of the personnel returned to Krasnogorsk where they assisted the German specialists in the construction of the present mechanical works. It is believed that military instruments were developed and experimented on at the Krasnogorsk plant and were shipped to Novosibirsk for final production. One of the Krasnogorsk German specialists, Mr. Vandenherz, a vacuum coating expert, had been sent to the Novosibirsk plant for the installation of a vacuum coating apparatus. Apparently, the equipment he worked on originated in Jena; however, it is unknown whether or not any other types of equipment were sent there. No Zeiss personnel were known to have been employed at that plant.
4. In 1946-1947, the Krasnogorsk plant was completely refurbished with the dismantled equipment brought from Jena. During that period, many of the workshops, laboratories, etc., were reestablished under the supervision of the German specialists-deportees. The organization of the workshops and installation of equipment was performed according to well-prepared plans. The plant absorbed approximately 107 of the 300 deported Jena specialists. Later, during 1949-1950, this number was augmented by younger deportees (dependents) who, after completing education and training at various Soviet schools, joined the ranks of the plant workers. This brought the number of German personnel to approximately 112. The total number of plant personnel has been estimated as 3500 to 4000. The primary task assigned to the German specialists was to train their Soviet counterparts in the technique and intricacies of the Zeiss production methods, especially in the field of photogrammetry. Conjointly, they were required to develop and organize their workshops for flawless and efficient production operations. Many of the specialists were also active in various laboratories, testing and experimental workshops, and designing offices comprising the Central Design Bureau, TsKB, Tsentrallye Konstruktorskoye Byuro. It is believed that the TsKB served the needs of not only the Krasnogorsk plant, but also played an important part in the development and research field of the entire Soviet optical industry, both military and commercial, particularly in that segment of industry governed by requirements of the Ministry of Armaments.
5. During the first part of their stay in Krasnogorsk, the German specialists had been working in various sections of the new and old plant areas, but this situation was basically changed in March - April 1949. Following a

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reorganization specifically aimed at the isolation of the German specialists from the rest of the plant, all Germans were transferred to a newly established Workshop No. 36. This all-German workshop, administered and supervised by Soviet personnel, and combined laboratories, technical offices, preparatory and assembly workshops, etc., was organized in a manner similar to other departments of the plant and was assigned tasks to develop, experiment, produce, and repair most of the instruments and equipment used in various shops of the main plant. In addition, many of the specialists served as consultants and advisors to other departments and workshops whenever their assistance was required. In emergencies and for technical problems, they would generally be invited and escorted to the sections needing their aid; however, these invitations were soon discontinued and, instead, the Soviets would come to Workshop No. 36. It was apparent that this was an attempt to isolate completely the Germans and eliminate their observations of activities in other sections of the plant. Visits to departments and workshops of the main plant were prohibited or held to a minimum. Entering and leaving the plant area was ordered to be done in groups and under escort. Gradually, work assignments diminished to the extent that only repairs and reconstruction of old captured German equipment, such as recording kine-cameras "Siemens", kine-theodolites "Askania", time recorders, etc., were performed. After the departure of the first group of specialists in January 1952, the various sections of Workshop No. 36 were again reorganized, and, with the exception of those offices where the few remaining German designers and specialists were still active, the sections were complemented with Soviet personnel. The vacated mechanical workshops were converted into shops for production of electrical motors.

6. The number designation, Zavod 393, was apparently an identifying or administrative code number assigned to the plant by the Ministry of Armaments and presumably came into existence during the period of reconstruction or in connection with experiments performed on military instruments. This number was noted by the deportees in the early days of their stay in Krasnogorsk appearing on boxes and crates of the dismantled equipment arriving from Jena. It was also noted on stationery used for inter-departmental messages and correspondence. The Germans also occasionally marked their inter-workshop communications with this number. They were soon told by their Soviet supervisors to discontinue this practice and forget this number as an item unessential for their purposes. It was felt that the Soviets attempted to disassociate the plant from the numerical designation as a link to the Ministry of Armaments and evidently considered the knowledge of this number by unauthorized persons as an eventual security risk. The use of this number was completely discontinued in 1950/51 with the beginning of camera production.
7. The popularity of the name "Zorky" came first into being approximately in the end of 1949 or early 1950 when cameras under the same trade-mark were put in production and subsequently on sale. However, this name had already been used by the deportees early in 1947 as part of the mailing address, but not as the plant designation. The plant as such was always known to the deportees as the "Krasnogorsk Mechanical Plant". Source did not know whether or not this name, as the plant designation, had ever been changed to "Zorky". The latter frequently appeared in publications advertising the "Zorky" camera and accessories, creating an impression that it originated at a plant of this name. The deportees continued to use "Zorky" in the mailing address up to the date of the first group's repatriation in January 1952. After this date, according to stories circulated among June 1952 returnees, the name "Zorky" had been related and replaced by "Gorod Krasnogorsk". Mailing addresses used by the deportees were as follows:

a. Between November 1946 and January 1952:

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Moskovskaya Oblast
 Pochtovoye Otdeleniye Zorky
 Pochtovy Tashchik No. 2
 Name of addressee

Moscow Oblast
 Post Office Zorky
 Post Office Box No. 2
 Name of addressee

- b. Beginning January 1952:2

Moskovskaya Oblast
 Gorod Krasnogorsk
 Pervoye Goskudskoye Pochtovoye Otdeleniye
 Name of Addressee

Moscow Oblast
 Krasnogorsk Town
 1st Municipal Post Office
 Name of Addressee

8. The plant was primarily engaged in the development and production of photogrammetric and photographic equipment, precision instruments, and a variety of related optical devices for commercial and military use.

SECTION II. ORGANIZATION

A. Main plant organization.

1. Ministry of Armaments - (MV - Ministerstvo Vooruzheniya)

- a. This ministry is one of the many ministries of the Soviet government for production and control. Included in this ministry is a Department for Optics and Precision Mechanics; the Krasnogorsk Mechanical Plant, Zavod 393, was under the direct supervision of this department. This department is in charge of the planning and assignment of projects for fulfillment of quotas in the production of optical and precision mechanic equipment. During the period 1946-1947, Ustinov was the Minister of Armaments and Zverev was Chief of the Department for Optics and Precision Mechanics.

2. Krasnogorsk Mechanical Plant, Zavod 393.

- a. The Plant was under the supervision of a director who was responsible for the fulfillment of plans and production quotas assigned by the Department for Optics and Precision Mechanics. Plant Director during the period 1946 through 1950 was Skarzinskiy. He was replaced in 1950 by Solovyev, who died in 1952.
- b. An additional responsibility of the plant director was participation in the community life of Krasnogorsk. During periods of food rationing, he was responsible for the supply and distribution of food in the Krasnogorsk area. This was perhaps because the majority of the people in the area worked in the plant. He was also influential in the local governmental administration.
3. The Krasnogorsk Mechanical Plant, Zavod 393, was sub-divided into various administrative and planning departments and production sections. These are as follows:

a. Personnel Department

- (1) This department was responsible for the general personnel administration and security. There were at least four identifiable sections or units: hiring department (otdel nayma); the security office, Section 1 (Pervy Otdel); the guard detachment; and the superintendent's office, - Komendatura, which was responsible for guarding the homes of the German specialists, granting of permission to travel and assignment of guards during authorized travel, and performing various administrative tasks in connection with the welfare of the German specialists and their families. The Chief of Personnel was Kiryushin.
- (2) The Personnel Department apparently was connected and responsible to the MVD or MGB and not directly to the Plant

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Director. The Personnel Chief may have reported directly to the MVD in addition to his position as assistant to the Plant Director.

- (3) The Security Office - Section 1 (Pervy Otdel) was responsible for the security of the plant and the safeguarding of classified material within the plant area. This office functioned as a storage place for classified blueprints, drawings, and documents of projects. Each work section or department brought such items to the security office for storage. Chief of the Security Office may have been Sidorovich.

b. Planning Department.

- (1) The Planning Department was responsible for drawing up of production plans for the various shops and sections within the plant, for checking on the plan fulfillment within the plant, and for submitting reports on the plan fulfillment to the Ministry of Armaments through the Plant Director.
- (2) The name of the Planning Department Chief is unknown.

c. Finance Department.

- (1) The Finance Department was responsible for the financial administration, including bookkeeping, time records, and payrolls, within the plant area. These duties were sub-divided within the various subsections in the plant area.
- (2) The department was supervised by a finance officer, name unknown.

- d. Other Departments. There were other departments on the same level with the general administration of the plant; however, the number of these departments is unknown. It is probable that these various departments were concerned with the supply, transportation, power production, and similar functions necessary for the operation of the plant.

e. Engineering Department.

- (1) The Engineering Department was responsible for the technical direction of the plant. The Engineering Department was headed by a Chief Engineer. During the period 1946-1949, the Chief Engineer was Samoylov, who was replaced by Turygin. In 1951, Turygin was replaced.
- (2) The Engineering Department is further sub-divided into various technical sections and laboratories, as follows:
- (a) Technological Section. Supervised by the Head Technologist, name unknown. This section is responsible for the administration of production, and coordination and control between the various production sections.
- (b) Mechanical Section. Name of supervisor unknown. This section was responsible for the installation, maintenance, and usage of the machines within the entire plant.
- (c) Power Section. Name of supervisor unknown. This section is responsible for the installation and maintenance of electrical power supply and distribution of electric power within the various shops and departments in the plant area.

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- (d) Central Testing Laboratory. (TsIL - Tsentralnaya Issledovatel'skaya Laboratoriya). The chief of the laboratory was Mrs. Turygina, wife of the Chief Engineer Turygin. This laboratory was responsible for the testing of instruments used throughout the plant and the testing and measuring of parts and units produced in the plant. Approximately 15-20 persons, mostly women, worked in this laboratory.
 - (e) Chemical Laboratory. The chief of the laboratory for a short time was Mrs. Belayeva, wife of Engineer Belayev. This laboratory was responsible for research and testing of various chemicals, paints, and chemical treating used in the plant. Number of personnel employed is unknown.
 - (f) Other Sections. These sections were further subsections of the Engineering Department; however, their exact function and number is unknown. They probably functioned in supply, transportation, and other operational matters of the plant.
 - (g) Technical Control Section (OTK - Otdel Tekhnicheskogo Kontrol'ya). The name of the Chief Inspector is unknown. This section was responsible for final approval and acceptance of all finished products manufactured within the plant. It is likely that the Technical Control Section operated independently from the plant administration and reported directly to some other agency, possibly to the Ministry of State Production Control.³ Inspectors directly responsible to the Technical Control Section were located in all the production shops within the plant.
 - (h) Central Design Bureau - TsKB.
4. There were approximately 40 workshops and production sections within the plant area. These were under the direct supervision of the Chief Engineer, Engineering Department. Some of the workshops had only Soviet personnel and others included both Soviet and German personnel. The various workshops included the following:
- a. Miscellaneous Workshops - including Foundry, Carpenter, Pattern, Engraving, Metal Stamping, Tempering, and other unknown workshops. The number of Soviet personnel employed is unknown to source. German specialist Hesselbarth was employed in the Metal Tempering Workshop as a supervisor-instructor and consultant until approximately March 1949.
 - b. Preparatory Workshop No. 7.
 - (1) This workshop contained various machine tools, lathes, and grinders required for the production of metal parts from raw stocks for assembly work in the various sections throughout the plant.
 - (2) There were 15 German specialists employed in this shop. The number of Soviet personnel is unknown.
 - c. Optical Workshop No. 10.
 - (1) This workshop handled the production of optical parts (lenses, prisms), by grinding, polishing, cementing, and coating, for assembly of products within the plant. This section was

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completely equipped with machines from the dismantled plant at Zeiss, Jena. There were approximately 150-200 Soviets employed.

- (2) There were 15 German specialists headed by Dipl. Eng. Bihlmaier who acted also as a scientific consultant.

d. Lens Mounting and Camera Production Workshop.

- (1) The mounting of lenses and the serial production of cameras, primarily the Zorky and the Moskva II cameras. This was primarily an assembly section. The number of Soviets is unknown.
- (2) There were seven German specialists headed by Valentin Bauer, a specialist in lens mounting.

e. Workshop No. 13 - Assembly of photogrammetric equipment and aerial cameras.

- (1) Primarily engaged in the repair of captured German aerial cameras, production of photogrammetric plotting and measuring devices, and production of movie cameras. Prior to the arrival of the German specialists, in October 1946, Workshop No. 13 was a very small unit. It was greatly expanded with the addition of equipment and personnel from the dismantled plant at Jena. Prior to the arrival of the equipment from Jena, the German personnel within the shop were engaged in the reorganization for production as follows:
- (a) Planning Branch. Functioned as planning unit for work assignments within Workshop No. 13.
- (b) Bookkeeping Branch for administration, personnel files, time-records.
- (c) Technical Branch. Responsible for the technical supervision of workshop No. 13. The supervisor also acted as assistant manager of the workshop. There were six German specialists in the Technological Branch.
- (d) Technical Control Branch. Under the direct supervision of the Technical Control Section of the main plant.
- (e) Testing Laboratory. Contained the necessary equipment for testing and measuring the various component parts and complete units before they were turned over to the Technical Control Branch for final acceptance.
- (2) The production shops of Workshop No. 13 consisted of the following:
- (a) Preparatory Shop for the production of mechanical parts to be used in the assembly of the various pieces of equipment. There were two German specialists here.
- (b) Assembly Shop for Aerial Cameras. Primarily engaged in the repair of captured German aerial cameras until 1950 when the Soviets started production on a new type of aerial camera. From 1947 until March 1949, four German specialists worked in this section and then were transferred to the Assembly Shop for Photogrammetric Instruments. Approximately 30-40 Soviets were employed here. With the start of serial production of the new type of aerial camera, no German specialists were allowed in this section.

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- (c) Assembly Shop for Photogrammetric Instruments. Assembly of photogrammetric instruments began during May-June 1947 from parts brought from the dismantled plant at Jena and parts produced in the Preparatory Shop, Workshop No. 13. The Soviet supervisor in charge was Lashkov. Approximately 20 Soviets were employed here. Four German specialists transferred from the Assembly Shop for Aerial Cameras were employed.
- (d) Assembly Shop for Movie Cameras. Staffed entirely with Soviet personnel, number unknown. Source did not know particulars of work performed.
- (e) Mechanical-Electrical Repair Shop. Repair and maintenance of mechanical and electrical machines and tools. Staffed entirely with Soviet personnel, number unknown. Source did not know particulars of work performed.

f. Gear Production Workshop.

- (1) Production of all types of gears. Number of Soviet personnel unknown.
- (2) Technician-foreman Karl Hartmann worked in this shop until 1949.

g. Paint Shop.

- (1) Finishing of parts by various painting and electro-coating methods. Number of Soviets employed unknown.
- (2) Technician-foreman Gottwald Chemnitz worked as technical consultant.

B. Central Design Bureau - TsKB (Tsentralnoye Konstruktorskoye Byuro)

1. Originally the TsKB existed as the designing section of the plant. With the arrival of the German specialists and dismantled equipment, this section was reorganized and established as a large development and research department which presumably served the needs not only of the plant but also played an important part in the development and research of the entire Soviet optical industry. The technical offices and laboratories of this department were located within the Old Plant Area.

2. The four main sections were as follows:

a. SKB-1 - Design office for Photogrammetric and Photographic equipment.

In charge, Engineer Belayev
Deputy, Engineer Denisev
Manned with approximately 20-30 Soviet designers and draftsmen.
No German personnel

b. SKB-2 - Design office for Military Instruments.

In charge, General Nikolayev⁴
Approximately 20-30 Soviet designers and draftsmen
No German personnel

c. Experimental Laboratories: This section was comprised of six laboratories, one optical computation office, and one special designers group. Engineer Turygin was in charge of the laboratories until 1949. He was then replaced by Krivovyas, former

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supervisor of the Optical Branch, Measuring and Testing Laboratory.

The laboratories were complemented with both German and Soviet specialists. Detailed description of laboratories follows below.

- d. Workshop No. 14, Production Shop for Experimental Models:
This workshop was primarily working for the TsKB, and partially for the production sections of the main plant. The name of the person in charge is unknown. It consisted of an unknown number of only Soviet personnel. There were possibly 50 to 60 engineers and technicians. This workshop was presumably assembling experimental models for the TsKB sections and also preparing models for use in other production workshops. It is possible that a small quantity of military items was produced at this shop.
3. The majority of the German specialists was working in the following sections:
- a. SKB-3: All-German Design Office.
- (1) The chief of this section was Schrupf. He was also in charge of Group I, Photogrammetric Instruments. This group worked primarily for SKB-1. Group II, headed by Kurt Junge, Military Instruments, worked for SKB-2. Both groups consisted of approximately 23 German designers and scientists assisted by two Soviet office personnel.
- (2) Instruments worked on at SKB-3 were as follows:
- (a) Photogrammetry
- 1 Aerial camera, 30x30 cm F-50 cm, with automatic diaphragm control.
 - 2 Aerial camera, 50x50 cm, F-100 or 150 cm, with image motion compensation.
 - 3 Contact printer for 50x50 cm negative size.
 - 4 Developing device for 50 cm-wide film.
 - 5 Perforator for 50 cm-wide film.
 - 6 Glossy drum print dryer.
 - 7 SOD instrument. Photographic Measuring.
- (b) Military Instruments
- 1 Range finder and gun sight for tanks.
 - 2 JUMO guiding system and other devices.
- b. Experimental Workshop No. 14 a: This workshop was attached to Workshop No. 14 (see 2d. above) and consisted of 15 German mechanics and approximately six Soviets. The name of the Soviet supervisor is unknown. Walter Bernst, German foreman, was in charge of the German group. Personnel of Shop No. 14a were isolated from Workshop No. 14 and were not able to observe the operation of that section. Among others, the task of 14a was to assemble experimental models for the SKB sections and laboratories. It also may have performed work on military instruments for Group II under Kurt Junge. Further details on this workshop are unknown to the source.

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4. Description of Laboratories

a. Electrical Laboratory

This laboratory contained both German (seven), and Soviet (approximately ten) personnel. Engineer Burdashkin was the Soviet in charge with Joachim Erhardt heading the German group. The Germans were electrical specialists for special electric parts, units, and devices partly to be used with military instruments. The expert for the electrical parts of the JUMO was Engineer Blume. Work was performed on computation, construction of models, and other experimental tasks.

b. Photo Cell Laboratory

Contained both German (six), and Soviet (five or six) personnel. The Soviet supervisor was Novitskiy. The head of the German group was Dr. Goerlich. Research and experimentation was done on various types of photo cells, vacuum cells, and especially on infrared cells.

c. Crystal Laboratory

Both German and Soviet (three or four) personnel. The name of the Soviet supervisor is unknown. The Germans were Harald Straubel and Wilhelm Lotz. They did experimental development and production of crystal material for infrared devices. Source did not know the nature of the crystal substance other than that the crystals were "grown" in glass vials.

d. Kino Laboratory

This laboratory was under the supervision of Gardin and two or three Soviet assistants. There were no Germans in this shop. Gardin had formerly experimented and tested a kino camera that was in production in Workshop No. 12. There was experimentation with high speed cameras and a motion picture projector with continuous film forwarding and optical compensation. Details of the work performed in this laboratory were unknown to the source.

e. Photo Laboratory

This laboratory contained only three or four Soviet personnel with Dr. Gundlach acting as scientific consultant. The name of the Soviet in charge is unknown. Experimental work was done on various reproduction processes for making photographs, photo reproduction of scales, film developing, printing, and etching, on both metal and glass. Experimental work was also done for other sections using photographic methods.

f. Measuring and Testing Laboratory

This laboratory consisted of two branches, Mechanical and Optical. Petrov was in charge of the Mechanical Branch. Krivovyas was head of the Optical Branch until 1949 and was replaced by an unknown Soviet supervisor. There were approximately 12 Soviet personnel, most of whom were female. German consultants were Rudolf Reindl and Willi Hoffmann. The functions of this laboratory were similar to those of the Central Testing Laboratory of the main plant. The Mechanical Branch performed all types of tests on measurement of scales, gears, precision measuring instruments, and especially of experimental models and newly developed elements. The Optical Branch performed testing and measuring of focal lengths, distortions, resolution power, and other types of optical measurements.

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g. Optical Computation Office

This office contained German and approximately 15 Soviet personnel. The Soviet in charge was Engineer Maltsev. Dr. Robert Tiedeken headed the German group. The primary work of this office was the mathematical computation of various lenses and optics used for photogrammetric, military, and other instruments. During these early days, Dr. R. Tiedeken was given an assignment to develop a new type of wide angle, distortion-free lens for photogrammetric mapping purposes, with characteristics similar to, or better than, the Russar. As well as source can remember, this work did not materialize and no tangible results were achieved.

h. Special Design Group

This group was under direct jurisdiction of the Chief of Laboratories, Turygin and, later, Krivovyas. The German technical supervisor was Willi Roeger. There were two or three Soviet female personnel serving as draftsmen. Their primary work was the design of laboratory equipment, tools, and instruments for use in the various laboratories.

i. Demonstration and Experimental Branch

Each of the SKB sections, 1 and 2, had a separate room where old and new experimental models were on display for demonstration and experimentation purposes. There they were analyzed and studied for improvements of design, operation, accuracy, etc. Germans were allowed to enter these rooms only when absolutely necessary.

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Models on display at the SKB-1 room included a number of old aerial cameras of German, English, American, and Soviet origin. There was a collection of Zeiss photogrammetric instruments displayed for study and reference. In addition, there was on display a collection of photo equipment, cameras and accessories, pertaining to the Zorky and Zenith camera production. Added to this collection were German, American, and British manufactured types that were used as samples in the design section designing cameras. The demonstration and experimental room of SKB-2 probably contained a similar selection of military instruments. No further information was available to source on this subject.

C. Workshop No. 36

1. This all-German workshop was established in March - April 1949 and the organization of the administration was similar to other major departments and workshops of the main plant. Workshop No. 36 was located in the basement of Korpus K - part of the main building in the New Plant Area. The workshop was divided into four administrative branches and ten operational sections. Its supervisory staff, all Soviets, consisted of a supervisor (administrator) and approximately ten engineers, technicians, and office personnel. For a period of nine or ten months after the arrival of the German specialists, the first technical supervisor was Ippolitov who was then replaced by Yushkin. The ten operational offices (sections) comprising technical offices, laboratories, and assembly shops, were manned exclusively with German personnel and partly supervised by the Soviet engineers and technicians. The four administrative branches were as follows:

- a. Security Branch - responsible for physical security, safeguarding of classified matter, and liaison with Personnel Department. This branch appeared to have direct contact with the Security Section No. 1 of the main plant.
- b. Technological Branch - technical planning and coordination of production methods.

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- c. Planning Branch - planning of work schedules, production norms, procurement of supplies, etc., in coordination with the Technological Branch.
 - d. Bookkeeping - liaison with the Finance Department, accountings, files, and pay records.
2. The concentration of all German specialists within one small operational area resolved itself into a unique situation. The close contact and cooperation enjoyed between all sections enabled the specialists to combine their efforts and skill to a highest degree. For instance, during experimentations or assembly of models, designers were able to step over to an assembly shop and offer advice and suggestions on the spot. Engineers and technicians could be consulted on problems without much delay. Because of the high efficiency, the shop was frequently called upon to solve difficult problems at various workshops of the main plant. Urgent repairs and the development of a variety of instruments on short notice were frequently assigned to the shop. [redacted] the achievements experienced at the shop during its short phase of existence were of great value to the entire plant. Workshop No. 36 seemed to exist as a small self-sufficient plant within a large one.

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Operational Sections

D. Design Section (Konstruktorskoye Byuro)

3. The Soviet supervisor of the Design Section was Fesenko. The German personnel were divided into Group I - Schruppf, and Group II - Roeger. During the early period (1949-1950), the Schruppf group was divided into a Photogrammetric Group (I) and a Military Instruments Group (II), corresponding with the currently assigned tasks begun at SKB-3, TsKB. Since no work was later performed on military instruments, this subdivision was discontinued and all designers were assigned similar tasks for the development of various instruments, such as photo cameras, accessories, and testing and laboratory devices. The development tasks were in most cases assigned to Workshop No. 36 by SKB-1. The following photogrammetric instruments were developed:
- a. Aerial mapping camera, 13x18 cm, with Russar lens, F-70 mm, and Vertiporoch shutter. A light weight camera for use in smaller and faster aircraft. The work was performed by Schruppf, Hecker, Scharfenberg, and Nietschmann.
 - b. Stabilized camera mount; worked on by Schruppf, Hecker, Scharfenberg.
 - c. Photo-cartograph, a combined stereo-plotting and rectifier, based on principles given by Prof. Drobishev. The designers were Scharfenberg, Belzner, Kraft, Ziegert, and Guldbrandsen.
 - d. Flicker comparator for astronomical purposes (identification and measuring work). This was worked on by Scharfenberg, Schneider, and Kraft.
 - e. Various testing and adjusting devices for the production of aerial cameras were worked on by Schruppf, Scharfenberg, Guldbrandsen, Ziegert, and others.
4. A large assignment given to the designers was to increase and modernize the plant's main production which was cameras and accessories. In general, many of these auxiliary devices were developed to adapt the Zorky for scientific work. The production of these devices also showed the intention of the Soviets to modernize and increase their camera output. The following were designed:
- a. A camera called Zenith, similar to the design of the Contax-S.

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- b. An auxiliary timing device for the Zorky camera to give it a slower shutter speed, between 1/25 and 1 second.
 - c. A new detachable back for the Zorky to be used with plates, adapters, and ground glass focusing, designed for scientific photography.
 - d. Accessories for microphotography with the Zorky by means of attaching it to a microscope, accessories for taking close-up pictures by use of extension tubes, and a small printing device for printing 24x36 mm negatives to positives.
 - e. Various testing devices relative to the production of the Zorky camera. One of these was for measuring the distance from the film plane to the lens mounting ring. Another device was for measuring the distance between the lens shoulder and the focal point.
5. Whereas the Zorky was designed as an expensive type of camera in the price range of approximately 1,000 rubles, there was a need for a smaller, cheaper camera in the price range of 200-300 rubles each. This cheaper camera, 24x36 mm was then developed carrying the name "Semya" meaning Seed or Offspring. A camera similar to the Robot, 24x24 mm, but not a copy, was also designed. It was similar in form and elements with the same rapid picture taking ability. One of the last assignments given to Shop No. 36 was the design of a microfilm camera similar to the known Documental Zeiss. This design was not completed in January 1952 and it is not known whether it was finished and put in production. During the years of 1950 and 1951, the designers received assignments to test and modify the German blueprints of the Stereoplanigraph and the Small Autograph. The Soviets began to develop their own blueprints for these instruments making them suitable for their future production methods. The gradual depletion of the supplies brought from Jena made these modifications necessary.
6. Other instruments developed by the design section were:
- a. A radiation device for infrared research, called "black body", with one type designed for laboratory use and one to be used in the field. This was essentially an accurate temperature controlling device for radiation of known infrared values.
 - b. A photoelectric cell testing stand containing galvanometers and other electrical devices for testing of the cells. The testing stand was not in production at the plant.
7. The main work performed by the design section in 1950-51 was the reconstruction of kinotheodolites and accessories and continued with the reconstruction of the Askania kinotheodolites, Gtk -10/20. The Soviet designers presumably received an order from higher headquarters for the reconstruction of these instruments and apparently did not progress far on their development. When the time arrived for the submission of experimental models, the Soviets could not produce any and consequently assigned this task to the German section on short notice. Auxiliary instruments, such as timetypers and comparators, were also reconstructed.
8. The Military Instruments Group worked in the beginning of 1949 only for a short time on the JUMO device and then continued working with the rest of the designers on items in the photogrammetric and photographic fields.
9. Optical and Computation Office
- Dr. Robert Boleken was in charge of these group which handled mathematical calculations of various optical parts, prisms, lenses,

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- etc., in accordance with specifications given by designers. This office made frequent use of the optical calculations available on file at the Leningrad Optical Institute. This group continued working in close cooperation with the optical section of TsKB on a consultative basis.

Measuring and Testing Laboratory

10. Dipl. Ing. Rudolf Reindl was in charge of this laboratory. The function of this section was to test all instruments and parts produced in Workshop No. 36. Problems that could not be solved at this section were sent to higher testing laboratories of the plant. During the design and development of the Soviet Multiplex experimental model, this section played a very important part in the measuring and testing of the Russar projection lens.

Optical Production Section

11. The Soviet supervisor was Perfilyev. After his death, he was not replaced by another Soviet. Dipl. Ing. Oscar Bihlmaier was in charge of this German group. Production of lenses, prisms, mirrors, and various optical parts required for the production of models at Shop No. 36 was worked on in this section.

Mechanical Section

12. With the establishment of Workshop No. 36, this section was complemented with nearly all foremen and mechanics formerly working in the various work sections of the main plant. It had no Soviet supervisor. This section was divided into two groups.

a. Group I was headed by Walter Bernst. He was also head of the section.

b. Group II was headed by Valentin Bauer.

This section consisted of 48 German mechanics and about 6 Soviets. The section produced mechanical parts and assembled experimental models. The Bernst group was primarily concerned with producing parts and various instruments, while the Bauer group worked on the assembly of photographic accessories, cameras and other photo equipment.

Kinotheodolite Group

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13. Hans Belzner, Dipl. Ing., was in charge of this group. This group was organized approximately in 1950 with the assignment of overhauling and modernizing the Askania kinotheodolite Gtk-40 and Kth-41. Partial drawings were made to cover only those parts required for the modernization. These kinotheodolites were used by Soviet military agencies for rocket and artillery research control work. This section was frequently visited by officers and enlisted personnel who would from time to time bring instruments for repair, replacement of parts, testing, and adjustment. These personnel wore army and air force uniforms. It was known only that they were coming from various distant places. From conversation with the officers and soldiers, it could be deduced that they were coming from testing, firing, or training grounds. The name of one place was Sofrenskiy Poligon; Poligon is the Russian name for testing and proving grounds. One of the clients had an abbreviated designation NII-88 (Nauchno Issledovatel'skiy Institut - Scientific Research Institute). The equipment brought in by these Soviet personnel was mostly captured German equipment. The repairs and testing were done in the various sections and laboratories of Workshop No. 36. There were about 30 of these kinotheodolites with accessories, including electrical equipment, time writers, and film viewers - comparators, for repair and modernizing.

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Electrical Laboratory

14. Dipl. Ing. Joachim Erhardt was in charge of this laboratory. General electric work relative to the over-all development and production of Workshop No. 36. At one time this and the Mechanical Section worked intensively on a series of special electric motors. These were destined for some part of the main plant. It is possible that these motors were to be used in the aerial cameras being produced in the Aerial Camera Section of Shop No. 13. The motors contained a mark or designation, MUKS, followed by a number. The experimental model of the JUMO device was completed in the end of 1949 or early 1950. There was no indication that it had been put in serial production. Periodically, a few Soviets would work in this laboratory for short periods, particularly during the manufacturing of the MUKS motors. Extensive work was also performed on the Siemens Recording Camera, parts for Kinotheodolites, and so on.

Photo Cell Laboratory

15. Dr. Paul Goerlich was in charge of this laboratory which worked in close cooperation with the Photo Laboratory of the TsKB. The nature of their work was similar to that of the TsKB laboratory.

Vacuum Coating Laboratory

16. Group I - Hans Braune was in charge. Group II - Heinz Fuchs was in charge. No Soviet personnel were employed at this laboratory. The Braune group worked on reflecting coatings for mirrors, while the Fuchs group worked on light reducing coatings, such as coated lenses and interference filters. Fuchs experimented on the effect of several layer coatings on lenses and filters for heat radiation and protection. Also experimented with vacuum coatings of corrective filters for color photograph printing. Dr. Notni performed some mathematical calculations for these experiments.

Special Laboratory

17. Originally, this laboratory was established as a crystal laboratory for Dr. Harald Straubel; however, during the period 1949 to 1952, there was little work to be done on crystals, and Straubel was therefore assigned various tasks in the electrical field. These tasks included the construction of a Regel Transformer for the TsKB laboratories, experimentation on black bodies, etc. Dr. Gundlach was also working at this laboratory. He was occasionally acting as consultant for photographic and photochemical matters. Because of his advanced age, he was primarily marking time while waiting for his repatriation.

SECTION III. PLACEMENT OF PERSONNEL (See page 53 for relationships and organizational chart of personnel)

Ministry of Armaments

(MVA - Ministerstvo Vooruzheniya)

Ustinov Soviet Minister in 1946 to date unknown

Krasnogorsk Mechanical Plant (Zavod 393)

Skarzinsky Soviet Director until 1950

Solovyev Soviet Director from 1950; died in 1952

Personnel Department

Kiryushin, Soviet Chief of Personnel

Section No. 1 - Security

Sidorovich Soviet Security Chief

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Planning Department

Name of Planning Chief unknown

Engineering Department

Samoylov	Soviet	Chief Engineer until 1949
Turygin	Soviet	Chief Engineer 1949 until 1951

Finance Department

Name unknown

Other Departments

Names unknown

Technological Section

Name of head technologist unknown

Mechanical Section

Name unknown

Power Section

Name unknown

Central Testing Laboratory (TsIL - Tsentral'naya Issledovatel'skaya Laboratoriya)

Turygina	Soviet	Chief of Laboratory. Wife of Turygin, Chief Engineer
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Chemical Laboratory

Belayeva	Soviet	Chief of Lab for a short period; wife of Belayev, Eng., SKB-1, TsKB
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Other Sections

Names unknown

Technical Control Section (OTK - Otdel Tekhnicheskogo Kontrol'ya)

Name of Chief Inspector unknown

Miscellaneous Workshops

Names of Soviet personnel at Foundry, Carpenter, Pattern, Engraving, Metal Stamping, and other workshops unknown.

Metal Tempering Workshop

Hesselbarth	German
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Preparatory Workshop No. 7

Name of Soviet supervisor unknown

Beck, Karl	German	Died in Jena in 1952
Bader, Armin	German	
Polzmann, Gustav	German	
Braungart, Konrad	German	
Fischer, Hans	German	

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Fischer, Otto	German
Franke, Karl	German
Greulich, Frich	German
Grosch, Bruno	German
Hackerott, Willi	German
Karpf, Heinrich	German
Schmidt, Willi	German
Steinmetz, Artur	German
Tonndorf, Georg	German
Wittenbecher, Willi	German

Optical Workshop No. 10

Name of Soviet supervisor unknown

Bihlmaier, Oscar	German	Scientific Consultant for this group.
Braune, Hans	German	Technical Consultant
Eschenbach, Emil	German	
Fuchs, Heinz	German	Technical Consultant
Gruber, Rudolf	German	
Kessler, Friedrich	German	
Klipp, Fritz	German	
Koch, Martin	German	Assistant to Bihlmaier
Mueller, Otto	German	
Mueller, Willi	German	
Riese, Herbert	German	
Schubert, Kurt	German	
Vandenherz, Bruno	German	
Wedel, Willi	German	
Winter, Fritz	German	

Lens Mounting and Camera Production and Lens Mounting Workshop

Name of Soviet supervisor unknown

Bauer, Valentin	German	Head of group
Barkhahn, Paul	German	
Dennhardt, Marianne	German	Daughter of Dennhardt, Julius
Hartwig, Karl	German	
Prasser, Georg	German	
Proeschild, Alfred	German	
Winter, Herbert	German	

Workshop No. 13 - Assembly for Photogrammetry and Aerial Cameras

Names of Soviet administrative and technical personnel unknown.

Technological Branch

Belzner, Hans	German	Transferred to SKB-3, TsKB in 1948
Henszge, Walter	German	
Keucher, Rudolf	German	
Mahler, Johannes	German	Head of group
Schmidt, Hans	German	
Schneider, Friedrich	German	Transferred to SKB-3, TsKB in 1948

Preparatory Shop

Name of Soviet supervisor unknown

Flayler, Paul	German	Head of group
Schending, Artur	German	

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Assembly Shop of Aerial Cameras

Name of Soviet supervisor unknown

Felbinger, Ernst	German	
Rudolph, Paul	German	
Rudolph, Guenter	German	Son of Paul Rudolph
Rudolph, Gert	German	Son of Paul Rudolph

The above German personnel worked in the Assembly Shop for only a few months in the beginning of 1947 and then transferred to the Assembly Shop for Photogrammetric Instruments. Henszge and Keuscher, Technological Branch of Workshop 13, acted frequently as technical advisors in the Photogrammetric Assembly Shop.

Assembly Shop for Photogrammetric Instruments

Lashkov, Soviet Technical Supervisor

See above under Assembly of Aerial Cameras for German personnel.Assembly Shop for Movie Cameras

This shop was manned exclusively by Soviet personnel.

Mechanical and Electrical Repair Shop

This shop was manned exclusively by Soviet personnel.

Gear Production Workshop

Hartmann, Karl German

Paint Shop

Chemnitz, Gottwald German

Central Design Bureau (TsKB - Tsentralnoye Konstruktorskoye Byuro)

The actual head of this bureau is unknown. However, it is possible that either Eng. Belayev, SKB-1, or General Nikolayev, SKB-2, below, may have been in charge.

SKB-1 Design Office for Photogrammetric and Photographic Instruments

Belayev	Eng.	Soviet	In charge of section
Denisev	Eng.	Soviet	Assistant

There were no German personnel in this section. There were approximately 20 to 30 Soviet personnel.

SKB-2 Design Office for Military Instruments

Nikolayev, General Soviet In charge of section

There were no German personnel. There were approximately 20 to 30 personnel.

SKB-3 Design Office.

This office contained all German personnel which were divided into two groups.

Schrumpf, Hermann German Head of design office

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Group I: Photogrammetric Instruments

Belzner, Hans	Transferred from Shop No. 13 in 1948
Doehnel, Walter	
Guldbrandsen, Henry	
Gruber, Ramona	Secretary. Daughter of Gruber, Rudolf
Hecker, Gerhard	
Kraft, Heinrich	
Nietschmann, Otto	
Ortlepp, Emil	
Scharfenberg, Helmuth	
Ziegert, Adolf	
Schneider, Friedrich	Transferred from Shop No. 13 in 1948

Group II: Military Instruments

Bernhard, Karl	
Eichler, Helmut	
Geller, Ernst	
Helias, Wilhelm	
Junge, Kurt	In charge of group
Lenski, Gerhard	
Notni, Werner	
Peterhoff, fnu	
Ritter, Otto	
Schmidt, Ulrich	
Stauch, Fritz	

Workshop No. 14 - Production of Experimental Models

All Soviet workshop.

Experimental Workshop No. 14 a

Name of Soviet supervisor unknown

Bernst, Walter	German	In charge of group
Borner, Alfred		
Fraebel, Oscar		
Funfak, Erich		
Kirschner, Fritz		
Koller, Franz		
Nelle, Kurt		
Quandt, Martin		
Querchfeld, Helmut		
Richter, Otto		
Riedel, Erich		
Schräiber, Walter		
Schroeder, Rudolf		
Weschke, Bernhard		
Willing, Gerhard		

Experimental Laboratories of the TsKB

Turygin,	Soviet	In charge until 1949
Krivovyas	Soviet	In charge replacing Turygin

Electrical Laboratory

Burdashkin	Soviet	Supervisor
Becker, Heinrich	German	
Blume, Paul	German	
Erfer, Kurt	German	
Erhardt, Joachim	German	Head of group
Hoetzel, Franz	German	
Prinz, Karl	German	
Volland, Hans	German	Son of Volland, fnu, PRISMA, Sokolniki, Moscow

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Photo Cell Laboratory

Novitskiy	Soviet	Supervisor
Gaenswein, Paul	German	
Goerlich, Paul	German	Head of group
Hartmann, Werner	German	
Heyne, Irmgard	German	Secretary to Dr. Goerlich
Kroos, Alfred	German	
Wolf, Gottfried	German	

Crystal Laboratory

Name of Soviet supervisor unknown

Lotz, Wilhlem	German	
Straubel, Harald	German	In charge

Optical Computation Office

Maltsev	Soviet	Supervisor
Sonnefeld, August	German	
Tiedeken, Robert	German	In charge of group
Tiedeken, Werner	German	Son of Robert Tiedeken

Measuring and Testing LaboratoryOptical Branch

Krivovyas	Soviet	In charge until 1949
Reindl, Rudolf	German	Head of group
Hoffmann, Willi	German	Died in USSR in 1949

Kino Laboratory

Gardin	Soviet	
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Photo Laboratory

Name of Soviet supervisor unknown

Gundlach Karl

Designers Group

Name of Soviet supervisor unknown

Roeger, Willi	German	Technical supervisor
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Workshop No. 36Office of the Technical Manager

Ippolitov	Soviet	Technical Manager until approximately the middle of 1949
Yushkin	Soviet	Technical Manager replacing Ippolitov
Nitishinskiy	Soviet	Interpreter
Pushkina	Soviet	Cultural adviser - political propagandist

Security Branch

Name of person in charge unknown

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Technological Branch

Volchenkov, Engineer Soviet Supervisor

Planning Branch

Perov, Technician Soviet Supervisor

Bookkeeping

Name of person in charge unknown

Designing Section

Fesenko, Engineer Soviet Supervisor

Belzner, Hans Transferred to the Kinotheodolite
Group in 1950

Bernhard, Karl Draftswoman

Dennhardt, Marianne

Doehnel, Walter

Eichler, Helmut

Etzrodt, Paul

Geller, Ernst

Gruber, Ramona (Secretary) Daughter of Gruber, Rudolf.

Guldbrandsen, Henry

Hecker, Gerhard

Junge, Kurt

Kraft, Heinrich

**Lenski, Gerhard

**Mahler, Johannes

Nietschmann, Otto

Ortlepp, Emil

Peterhoff, Inu

Ritter, Otto

**Roeger, Willer Head of Group II

Scharfenberg, Helmuth

Schmidt, Ulrich

Schmidt, Hans

Schneider, Friedrich

Schrumpf, Hermann Head of Group I

Stauch, Fritz

Ziegert, Adolf

Optical and Computation Office

Helias, Wilhelm

Notni, Werner

Sonnefeld, August

Tiedeken, Robert In charge of group

Tiedeken, Werner Son of Robert

Measuring and Testing Laboratory

Gaenswein, Paul

Hoffmann, Willi Deceased in 1949 in the USSR

Reindl, Rudolf In charge of group

Optical Production Shop

Perfilyev, Chief Engineer Soviet Deceased in 1949

**Not returned from Masnogorsk.

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**Bihlmaier, Oskar
 Eschenbach, Emil
 Gruber, Rudolf
 Klipp, Fritz
 Koch, Martin
 Mueller, Otto
 Müller, Willi
 Schubert, Kurt
 Wedel, Willi
 Winter, Fritz

In charge of group

Performed special assignments on
 aspherical lenses for Workshop No. 10.

Mechanical WorkshopGroup I

Bernst, Walter
 Bauer, Armin
 Beck, Karl
 Blume, Peter
 Borner, Alfred
 Bollmann, Gustav
 Braungart, Konrad
 Dennhardt, Julius
 Fischer, Hans
 Fischer, Otto
 Fickler, Paul
 Felbinger, Ernst
 Fraebel, Oskar
 Franke, Karl
 **Funfack, Erich
 Greulich, Erich
 Grosch, Bruno
 **Hackerrott, Willi
 Hartmann, Karl
 Hesselbarth, Hermann
 Karpf, Heinrich
 Kirschner, Fritz
 Koller, Franz
 Nelle, Kurt
 Quandt, Martin
 Querchfeld, Helmut
 Richter, Otto
 Riedel, Erich
 Scheiding, Otto
 Schmidt, Willi
 Schreiber, Walter
 Schroeder, Rudolf
 Steinmetz, Artur
 Tonndorf, Georg
 Vandenherz, Horst
 Vandenherz, Peter
 Weschke, Bernhard
 Willing, Gerhard
 Winter, Herbert
 Wittenbecher, Willi

Head of Group I

Deceased in Jena in 1952
 Son of Blume, Paul

Son of Vandenherz, Bruno
 Son of Vandenherz, Bruno

Group II - Mechanical Workshop

Barkhan, Paul
 Bauer, Valentin

Head of group II

**Personnel not returned from Krasnogorsk.

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Hartwig, Karl
 Prasser, Georg
 Proeschild, Alfred
 Rudolf, Gert
 Rudolf, Guenter
 Rudolf, Paul

Son of Paul
 Son of Paul

Kinotheodolite Group

Belzner, Hans

Transferred from Design Section in
 1950. Head of group.

Chemnitz, Gottwald
 Henszge, Walter
 Kessler, Fritz

Transferred from Vacuum Coating Lab
 in 1950.

Keucher, Rudolf

Electrical Laboratory

**Becker, Heinrich
 Blume, Paul

**Erler, Kurt
 Erhardt, Joachim
 Hoetzel, Franz
 Prinz, Karl
 Volland, Hans

Head of group.

Son of Volland, fnu, PRISMA

Photo Cell Laboratory

Goerlich, Paul
 Hartmann, Werner
 Heyne, Irmgard (Secretary)
 Kroos, Alfred
 Wolf, Gottfried

Head of group

Vacuum Coating Laboratory

Braune, Hans
 Fuchs, Heinz
 Kessler, Fritz

Group I
 Group II
 Transferred to Kinotheodolite Group
 in 1950

Riese, Herbert
 Vandenherz, Bruno

Special Laboratory

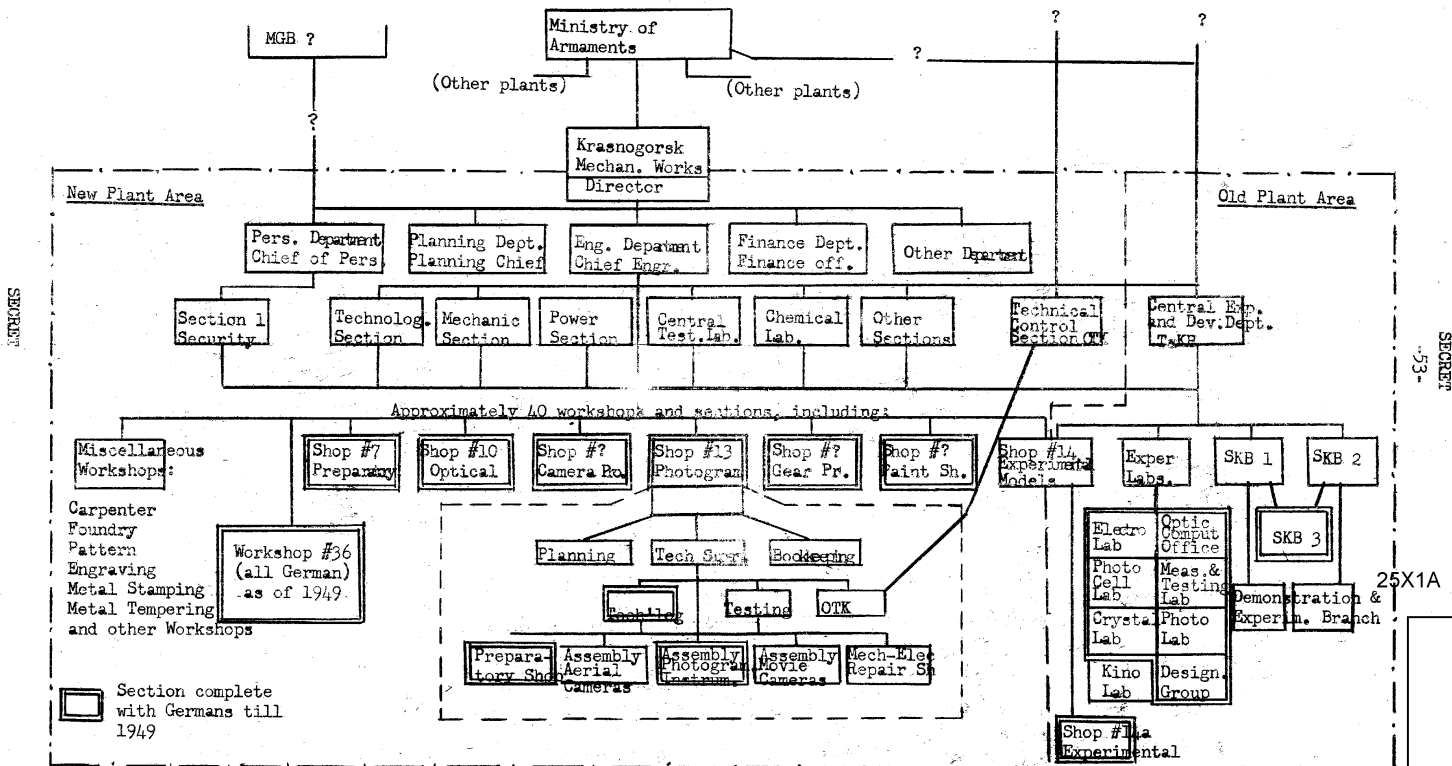
Straubel, Harald
 Gundlach, Karl
 Lotz, Wilhelm

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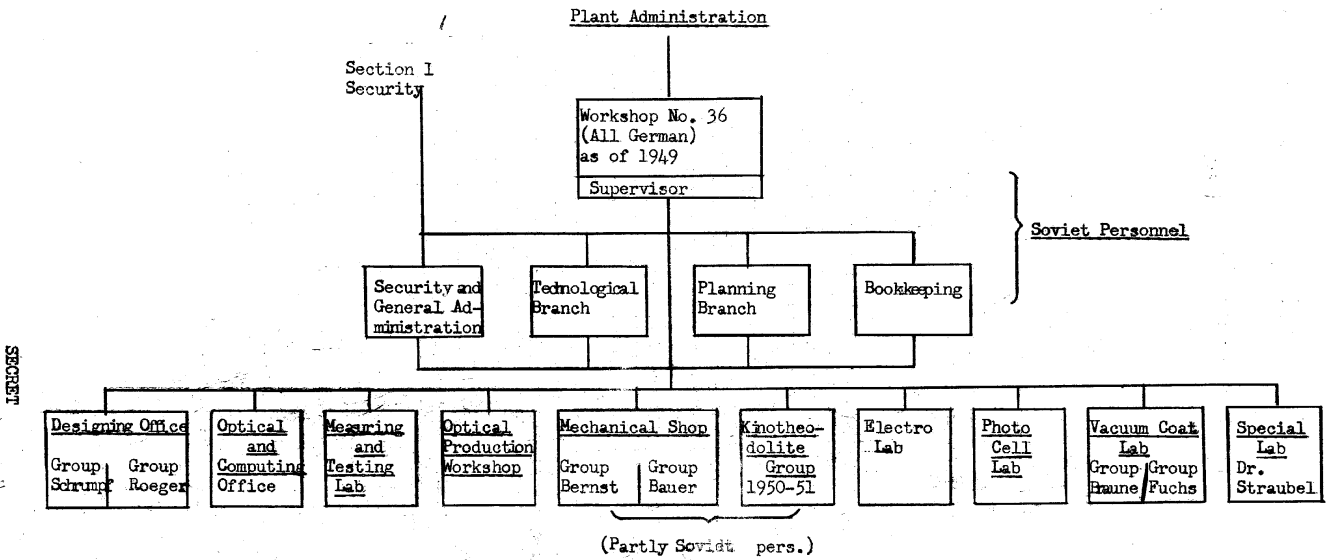


A. Organization Chart of Zavod 393, Krasnogorsk

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B. Organization Chart of Workshop No. 36, Zavod 393

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