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USSR
ELECTRONIC AND PRECISION EQUIPMENT

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I. ITEMS OF SPECIAL INTEREST

A. Meetings and Conferences

On 7 May 1959, a meeting dedicated to Radio Day was held in the Hall of Columns in Moscow. The meeting was opened by N. D. Psurtsev, Minister of Communications USSR. Speeches were also made by G. P. Kazanskiy, deputy chairman of the State Committee for Radioelectronics of the Council of Ministers USSR; D. I. Chesnokov, chairman of the State Committee for Radio Broadcasting and Television of the Council of Ministers USSR, V. I. Siforov, chairman of the Scientific and Technical Society of Radio engineering and Electrical Communications imeni A. S. Popov and Corresponding Member of the Academy of Sciences USSR; and I. T. Akulinchev, an amateur designer and inventor. (Moscow, Komsomol'skaya Pravda, 8 May 59)

On 7 May 1959, meeting in honor of Radio Day was held in the House of Culture imeni A. M. Gor'kiy in Leningrad. Prof S. A. Drobov spoke on "The USSR, the Motherland of Radio." N. N. Posnov, Candidate of Technical Sciences and director of the Leningrad Computing Center of the Academy of Sciences and the Leningradskiy Sovnarkhoz, spoke on the future use of electronic computers in the national economy. (Leningradskaya Pravda, 8 May 59)

A republic conference on mechanization and automation of production processes at industrial and transport enterprises of the Kazakh SSR is now in session in Alma-Ata.

Speakers have included V. A. Gogosov, chairman of the State Scientific and Technical Committee of the Council of Ministers Kazakh SSR, and S. P. Krasivskiy, chief specialist of the State Scientific and Technical Committee of the Council of Ministers USSR, who discussed automation. I. G. Grinman and G. Blyakh, scientific workers of the Institute of Nuclear Physics of the Academy of Sciences Kazakh SSR spoke on automatic control with the use of radioactive isotopes, and on chemical control. (Alma-Ata, Kazakhstanskaya Pravda, 16 Apr 59)

B. Institutes

According to D. D. Aksenov, director of the Institute of Aircraft Instrument Making, his institute has entered into an agreement with the Leningradskiy Sovnarkhoz whereby ten different enterprises, mainly in Moskovskiy Rayon, Leningrad, would be made available to students of the institute for the new work-and-study schedule as specified in the resolutions of the 20th Congress of the CPSU. (Leningradskaya Pravda, 2 Apr 59)

The institute of Scales and Instruments and the Special Design Bureau for Testing Machines of the Moscow City Sovnarkhoz have been combined into the Scientific Research and Design Institute of Testing Machines, Instruments, and Equipment for Measuring Mass. The Moscow Experimental (Eksperimental'nyy) Testing Machine and Scales Plant will be put under the jurisdiction of the new institute and will be converted into an experimental (opytnyy) plant. The sovnarkhoz has resolved to free this plant from the manufacture of extraneous products. (Moscow, Vechernyaya Moskva, 10 Mar 59)

The Chair of Technology of Radio Equipment Production is the newest chair under the Radio Engineering Faculty of the [Leningrad] Electrical Engineering Institute [LETI?]. This chair prepares specialists of a new type: radio engineers, designers, and technologists for work directly in production.

Fedor Yefremovich Yevteyev is head of the Chair of Technology of Radio Equipment Production. (Leningradskaya Pravda, 15 Mar 59)

C. Plants

The Riga Elektro Electrical Engineering Products Plant (zavod elektrotekhnicheskikh izdeliy "Elektro") has a personnel office at ulitsa A. Deglava 60, Riga. (Riga, Sovetskaya Latviya, 26 Mar 59)

[Comment: This appears to be a new plant.]

An instrument making plant is in operation in Tartu. Diesels, steam locomotives, sea-going ships, blast furnaces, and radio relay lines require the instruments made by this plant, which is the only plant of its kind in the USSR. (Tallin, Sovetskaya Estoniya, 3 Mar 59)

The Kursk Storage Battery Plant (Kurskiy akkumulyatornyy zavod) is one of the newest enterprises in the city, but it has already become the main supplier of batteries for traction equipment used in coal mines, mostly in the Donbass, as well as for trucks and for automatic blocking systems of railroads.

In 4 years, the plant has doubled its output of storage batteries.

V. Gayntsev is chief engineer of the plant. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 8 Mar 59)

A new electrical instrument plant has gone into operation in the settlement of Kazan-Bulag, which is located in the foothills far from the rayon center of Kasum-Ismailovo in the Azerbaydzhan SSR. The plant has already manufactured its first products: low-voltage starting equipment. The plant has seven shops: tool shop, automatic turret lathe shop, assembly shop, initial processing shop, heat-treatment shop, carpenter shop, and metal-plating shop. The metal-plating shop is the first silver-plating shop in the Azerbaydzhan SSR.

According to plant director M. A. Yelisuyskiy, the plant has already concluded a number of agreements for supplying instruments to enterprises of many USSR cities. It has already shipped instruments to Rostov, Kuybyshev, Penza, and other cities. (Baku, Bakinskiy Rabochiy, 5 Apr 59)

The Trostyanets Electrical Engineering Plant (Elektrotekhnicheskiy zavod v Trostyantse) is located in Trostyanets, a small rayon center of Sumskaya Oblast. It is near the Smorodino railroad station of the railroad between Kiev and Khar'kov. Construction of the plant began 2 years ago; its first products were manufactured in January 1959.

For the time being, the plant produces only UE-2A electric irons. In 1960, however, it expects to begin the production of a new type of electric steam iron with a heat regulator, and high-amperage knife switches.

In the immediate future, it will begin to produce pickups for radiophonographs. (Kiev, Pravda Ukrainy, 10 Apr 59)

The Vyru Gas Analyzer Plant (Vyruskiy zavod gazoanalizatorov) has been in existence for only 100 days. Its walls are still being put up and equipment is being installed. Nevertheless, by the end of 1959, it is supposed to produce 500 automatic gas analyzers of two types. One type will determine the oxygen content in the atmosphere. The other will measure and indicate the hydrogen content in, for example, the cooling system of turbogenerators. (Tallin, Sovetskaya Estoniya, 11 Apr 59)

During the Seven-Year Plan, three large enterprises, a sugar mill, a mineral fertilizer plant, and an electrical equipment plant will be constructed in Kedaynyay. Recently the Kedaynyay Electrical Equipment Plant manufactured its first products. These first products, which are still not the basic types the plant will produce, consist of plugs, receptacles, distribution boxes, and other articles, which are sent daily to various cities of the Lithuanian SSR. Preparations are now being made to begin production of magnetic starters.

Sakalis is director of the plant. Besides the old machine tools already installed in the plant, new high-production single-design equipment is being installed from the Moscow Krasnyy Proletariy Plant and from plants in Orenburg, Vil'nyus, Vitebsk, Khmel'nitskiy, Leninakan, and other cities.

The plant is supposed to master the production of P-6 magnetic starters. In the USSR, such starters have been produced only on an experimental scale by the Khar'kov Electrical Engineering Plant. Rimantas Shtuykis, chief engineer of the Kedaynyay Plant, recently went to the Khar'kov plant for training. (Vil'nyus, Sovetskaya Litva, 11 Apr 59)

A new plant within 1.5 km of Tyuri Secondary School No 1 in Paydeskiy Rayon is being equipped for the production of micropower electric motors. This plant will have modern equipment and will employ the latest technological processes in the manufacture of parts and assembly of micropower electric motors. (Tallin, Sovetskaya Estoniya, 18 Apr 59)

D. Shortages and Deficiencies

Instrument-making plants are much too slow in putting miniature instruments into production. Thus, the planning and actual putting into operation of thermal electric power stations is delayed, and their construction becomes more expensive.

The plans for thermal control, regulation, and automatics of the Tom'-Usinskaya and Angrenskaya GRES [State Regional Electric Power Stations] were based on the broad application of miniature instruments. Since most such instruments were not available, it was necessary either to use no miniature instruments or to plan for the installation of temporary control panels, both very expensive and time consuming measures.

Why cannot our plants begin the production of miniature instruments? Perhaps power engineers are silent and do not express their needs to instrument makers? Absolutely not! The problem of miniature instruments has been thrashed out for many years in newspapers and periodicals and at scientific and technical conferences, without any result so far. Our comrade instrument makers should have begun the production of all types of miniature instruments and supplied such instruments to Soviet power engineers long ago. -- Engr V. Sukhov (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 27 Mar 59)

Although the Riga Radio Plant imeni Popov was able to begin mass production of the Festival' luxury-class radio receiver, it was unable to fulfill its plan because of a shortage of 18-core type KVShD cable. The "monkey wrench in the machinery" in this case happened to be the Podol'sk Cable Plant, which was supposed to have begun the production of such cable 2 years ago and should have begun supplying it regularly to Latvian enterprises during the fourth quarter of 1957. However, the Podol'sk plant refused to supply this cable and caused difficulties for the Plant imeni Popov.

On 24 April 1959, Vasilenko, deputy chairman of Gosplan USSR, ordered the Podol'sk Cable Plant to ship 100 km of multicore cable to the Latvian Sovnarkhoz. Even so, the Plant imeni Popov did not get its cable. Trips to Gosplan USSR, and conversations with Chernichkin, a member of Gosplan, and Pavlov, Chief Specialist for Cable Products, were all in vain.

"There isn't any wire! We can't give you any!" Chernichkin stated tersely. When he was confronted with the fact that the requirements of the Riga Radio Plant imeni Popov constituted only 0.5 percent of the annual output of the Podol'sk Cable Plant, he condescended, saying: "All right! We'll see you get some!" However, as soon as representatives of the Latvian Sovnarkhoz left Moscow, Chernichkin adopted a new "wise decision": "So you want cable, don't you? So make it yourself!"

Behold yon radio plant, wholly ill-suited for cable production, forced to organize its own manufacture of KVShD cable. Chernichkin does not care that this Riga-made cable is going to cost eight times as much as that made at the Posol'sk plant. -- B. Firsov, chief of Production Division, Administration of Radio and Electrical Engineering and Metalworking Industry of Latvian Sovnarkhoz (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 17 May 59)

Such simple photographic accessories as lens hoods are not available for the Industar-2, Industar-4, Industar-24, and Triplet-22 lenses, and for the Yupiter-3, Yupiter-9, and Yupiter-11 interchangeable lenses, nor can any be found for the Gelios-40, which is so designed as to make its use frequently essential. Lens hoods are sometimes available for FED lenses and for the Yupiter-8, but these are of such poor quality as to be virtually useless. -- Editorial reply to complaint from reader (Moscow, Sovetskoye Foto, May 59, p 86)

The Prokop'yevsk Elektromashina Plant produces defective Buran vacuum cleaners. Rayev is director of this plant. (Moscow, Sovetskaya Rossiya, 31 Mar 59)

II. LOCAL PRODUCTION AND ORGANIZATION

A. Moscow

The electrical industry of Moscow embraces many diverse enterprises producing up to 1,500 type-sizes of machines, 6,500 types of cable products, and more than 3,500 type-sizes of electrical apparatuses. Moscow enterprises produce all kinds of electric machines for industry, construction, and power engineering, and also many consumer goods such as washing machines, tape recorders, electric irons, appliance transformers, and table lamps.

The Seven-Year Plan will see a 50-percent increase in the output of the Moscow electrical industry. The output of electric motors will rise by 66.9 percent over 1958; crane electric motors, by 57 percent; mobile generating units, by 64 percent; and power transformers, by almost 43 percent. The production of certain extremely complex wire and cable will be increased sharply.

Cooperation and specialization of plants will be stressed during the Seven-Year Plan. The Moscow Transformer Plant will specialize in the production of power transformers of all sizes. The Moskabel' Plant will produce mainly nonferrous rolled metal, armored cable, long-distance communications cable, copper winding wire, and enameled wire. The correct specialization of the Dinamo Plant will enable it to produce more crane electric motors, especially DC types.

Although an extensive program has been outlined, planning organizations are slow in solving specialization problems. The proportion of small-series products in coming years will be increased, not decreased, to the detriment of the development and production of improved designs of electrical equipment.

Specialization according to products-list alone has now become insufficient. The main emphasis has been placed on the development of other forms and methods, namely, specialization according to technological principles within each economic region.

The poor work of plant design bureaus and especially of planning and design organizations of Gosplan USSR has been a serious stumbling block in specialization. These organizations make insufficient efforts to standardize products.

The successfull fulfillment of the Seven-Year Plan by the electrical industry of Moscow will depend mainly on the over-all mechanization and automation of production processes, the modernization and renovation of equipment, and the introduction of advanced technology.

The future development of the electrical industry depends greatly on other branches of the national economy, especially the chemical, metallurgical, light, and paper industries. These industries still do not satisfy the electrical industry's needs. The electrical industry still has to use winding wire with cotton and silk insulation, which requires a substantial amount of natural silk and high-count cotton yarn. Electrical hardboard and impregnated cotton yarn has to be used for slot insulation of electric machines. Thus, machines must be heavier, larger, and costlier than if more modern materials were used.

New insulation and magnetic materials are contemplated for use in new designs of machines and power transformers. The production of the new series of electric motors will save about 30,000 tons of hot-rolled metal, 65,000 tons of iron, 3,000 tons of copper, 1,000 tons of high-count cotton yarn, and about 500,000 rubles in production costs. However, these savings cannot be realized because of the shortage of synthetic film and enamel paint. Type "Vinifleks" [vinyl plastic] varnish, which is produced in small quantities, is still of low quality.

New series of power transformers designed at the Moscow Transformer Plant are high in their electric power qualities; their weight and size are 25-30 percent lower than ordinary types. It is contemplated to use cold-rolled transformer steel with low specific losses to make these transformers, but the USSR metallurgical industry does not supply such metal, and the paltry amount of cold-rolled transformer steel it does supply has high losses.

New types of high-voltage power cables need multilayer high-voltage cable paper, which is still unavailable. High-strength heat-resistant enamel wires are needed to take the place of winding wires with cotton and silk insulation. We await new synthetic electrical insulation materials from the chemical industry, especially type "lavsan" insulation, "terilen" and "orlon" synthetic fibers, covering lacquers based on cellulose esters and ethers, etc. The paper industry should organize the production of multilayer high-voltage paper and shrinkproof electrical hardboard.

The development of high-production equipment is very important to the development of the electrical industry. USSR enterprises process hundreds of thousands of tons of thin sheet steel, which is pressed on universal presses. Many thousands of workers are occupied in these operations. Many workers are also used for the manual winding of electric machine armatures. The development of automatic presses for electric steel, automatic stator-winding machines, automatic lines for machining commonly used parts, high-speed insulating machines, continuous presses, and other equipment should be included in the plans of the machine and machine tool building industries.

Until recently, little attention has been given to the development of a scientific research and experimental base. The recently organized "Orgelektroprom" Technological Institute in Khar'kov cannot satisfy the needs of the entire USSR electrical industry. It is time to organize technological institutes and laboratories in a number of large centers of the electrical industry, including Moscow. The scientific and experimental facilities at such enterprises as the Moscow Dinamo Plant, the Plant imeni Vladimir Il'ich, and the Moskabel' Plant should be increased. -- A. Pekshev, chief, Administration of Electrical Engineering Industry, Moscow City Sovnarkhoz (Moscow, Moskovskaya Pravda, 26 Mar 59)

B. Azerbaydzhan SSR

The Batumi Electrical Engineering Plant (Batumskiy elektrotekhnicheskiy zavod) has begun the production of washing machines. During the second quarter of 1959 it will produce 50 washing machines; by the end of 1959, it will have produced 1,500.

The Batumi Electrical Machinery Plant is an enterprise of a branch of industry that is new to the Georgian SSR: electrical engineering and instrument making. Recently, the Administration of Machine Building and Electrical Engineering Industry of the Georgian Sovnarkhoz was divided into the Administration of Machine Building Industry and the Administration of Electrical Engineering and Instrument Making Industry.

The Administration of Electrical Engineering and Instrument Making Industry, is supposed to improve the administration of new enterprises and to "put them on their own feet."

G. S. Bolkvadze, chief of the Administration of the Electrical Engineering and Instrument Making Industry, says the following about his organization's activities:

"Twenty-six plants have been put under the administration's jurisdiction, including the Tbilisi Electric Locomotive Building Plant imeni V. I. Lenin, the Kutaisi Electric Drill and Electric Pump Plant, three plants in Batumi, two in Staliniri, two in Poti, and plants in Kaspi, Zestafoni, and other cities.

"During the Seven-Year Plan, 22 electrical engineering and instrument making plants are to go into operation in Georgia. Of this number, 18 are already in existence. Two of the 18 were formed by consolidation of other enterprises, and 14 are completely new. Four of the 18 were founded out of existing enterprises.

"The first products manufactured by the new plants are electric welding units, electric trucks, speedometers, vibrating machines, and mica strip insulation. By the second quarter of 1959, all 18 plants will be manufacturing new products, including electric motors and equipment for tower cranes, laboratory transformers, enameled wire, and differential pressure relays. Other consumer goods besides washing machines are to be produced.

"At present the administration is busy ensuring that its enterprises get the technical documents for the manufacture of new products and is striving to accelerate the installation of equipment and the manufacture of accessories. Enterprises of Moscow, Leningrad, and Khar'kov are giving substantial aid to this new branch of industry in Georgia." (Tbilisi, Zarya Vostoka, 24 Apr 59)

C. Armenian SSR

Until 1943, there were no instrument-making plants in Armenia. The first such plant was the Yerevan Elektrotochpribor Plant, which quickly began the mass production of type M-24 electrical measuring instruments; these have found much use in many branches of the national economy. Instruments made by this plant are shipped to many USSR enterprises where they are used as component assemblies of important equipment made by these enterprises. The Elektrotochpribor Plant is the basic USSR supplier of current finders, high-voltage indicators, and snap-around amprobes.

In 1957, two new instrument plants were founded. The Yerevan Instrument Making Plant has begun the mass production of millivoltmeters and current-ratio meters, which it supplies to all economic regions of the USSR. Many of these products are also sent to foreign countries. During the first quarter of 1959, the plant began the series production of thermal instrument packages which are used on diesels and diesel locomotives and the production and supply of certain types of marine instruments for the shipbuilding industry.

The Leninakan Instrument Making Plant, which was based on the Pokhpat Artel, specializes in the production of instruments for measuring viscosity and moisture content and for regulating industrial processes.

In 1958, the construction of the first stage of the Kirovakan Avtomatika Instrument Making Plant was completed, and preparations were made for the production of complex electronic instruments. Since January 1959, the plant has been producing miniature electronic instruments for the measurement and automatic regulation of temperature and pressure at thermal electric power stations and at other important installations.

The new Scientific Research Institute of Mathematical Machines is completing the development of new high-speed mathematical machines. The "Avtomatika" Independent Design Bureau has submitted new designs of electrical performing mechanisms for industrial production. The "Prompribor" Independent Design Bureau has designed several new types of electronic moisture meters.

In 1965, instrument making enterprises of the Armenian SSR will have an output approximately seven times that of 1958. During the Seven-Year Plan, five instrument-making plants will be reconstructed and greatly expanded, and the construction of two new enterprises will be completed. Armenian instrument-making plants will produce mainly instrument packages for the automatic regulation of pressure, temperature, moisture, and viscosity, in addition to the previously mentioned instruments.

New enterprises for the production of precision industrial and watch jewels, semiconductor rectifiers and products, ferrites, permanent magnets, and micropower electric motors will be constructed during the Seven-Year Plan. These items are needed for the production of instruments, automation equipment, and electronic computers. The first stages of most of these enterprises will go into operation in 1959.

During the third quarter of 1959, the Sevan Performing Mechanisms Plant will begin the series production of new electrical performing mechanisms designed by the Kirovakan "Avtomatika" Independent Design Bureau.

The Yerevan Electrical Metal-Ceramics and Semiconductor Plant went into operation in April 1959 and began producing permanent magnets for instruments. It is getting ready to produce terminals and other instrument components by the powder metallurgy method. The plant is now making preparations for manufacturing its own semiconductor materials during the second half of 1959.

At the end of May 1959, the construction of the first stage of the Arzni Precision Industrial Jewel Plant will be finished. It will make jewels for instruments and watches out of synthetic corundum, which the Kirovakan Chemical Plant is preparing to produce in 1959. The Arzni plant will also produce sapphire needles for long-play records.

A month ago, the first stage of the Leninakan Micropower Electric Motor Plant went into operation. This plant has already produced its first consignment of micropower electric motors with built-in reducers, which are designed mainly for drive mechanisms of instruments and automation equipment. -- G. Cholkhyan, chief, Administration of Electrical Engineering Industry and Instrument Making, Armenian Sovnarkhoz (Yerevan, Kommunist, 15 May 59)

D. Estonian SSR

The output of instruments and automation equipment by instrument making enterprises of the Estonian SSR will increase to 3.2 times the current level by the end of the Seven-Year Plan. During this period, 14 new instrument making and machine building plants will be built in Tallin, Tartu, Vyru, Yykhvi, Rakvere, Tyuri, Narva, and other cities and settlements of the Estonian SSR. When these plants are put into operation, Estonia will be producing high-voltage lightning arresters, special protective apparatus for high-voltage transmission lines, and high-voltage disconnecting switches.

The Vyru Gas Analyzer Plant is being put into operation and will produce instruments for determining the composition of gas. Oscillographs will be manufactured in Rakvere, and X-ray machines and fluorescent lamps will be produced in Tartu. The Tallin Mercury Rectifier Plant is becoming the largest instrument building enterprise in Estonia. The production of semiconductor products and measuring instruments which employ radioactive isotopes is increasing.

Existing enterprises are being extensively mechanized and automated. -- Ye. Kravets, deputy chief, Administration of Machine Building, Estonian Sovnarkhoz (Tallin, Sovetskaya Estoniya, 27 Mar 59)

During the first quarter of 1959, 3,800 radio receivers were produced in the Estonian SSR. (Tallin, Sovetskaya Estoniya, 16 Apr 59)

E. Latvian SSR

According to Ya. I. Damburg, chief of the Administration of Radio and Electrical Engineering and Metalworking Industry of the Latvian Sovnarkhoz, enterprises of his administration mastered the production of 42 type-designations of consumer goods in 1958.

He states that 76 type-designations will be put into production in 1959, when the output value of consumer goods will reach 742 million rubles. (Riga, Sovetskaya Latviya, 6 Mar 59)

F. Lithuanian SSR

During the first quarter of 1959, enterprises of the Lithuanian SSR produced 2,500 electric welding units, 4,000 electric welding transformers, 4.5 million rubles' worth of electrical installation products, and 501,000 electric meters. This represents a 34-percent increase in the production of electric meters over the same period of 1958. (Vil'nyus, Sovetskaya Litva, 17 Apr 59)

G. Ukrainian SSR

During the first quarter of 1959, 491 electric motors of over 100 kw in power, 143,000 electric motors of 100 kw or less in power, 65,700 radio receivers and television sets, and 72,700 cameras were produced in the Ukrainian SSR.

The production of radio receivers and television sets was only 77 percent of the amount produced during the same quarter of 1958. (Kiev, Rabochaya Gazeta, 16 Apr 59)

H. Belorussian SSR

In 1965, about 6,500 watches, 2,159 cameras, and more than 1,700 radio receivers, radio-phonographs, and television sets will be produced daily in the Belorussian SSR. In 1958, 1,456 watches and 270 cameras were produced daily in the Belorussian SSR. (Minsk, Sovetskaya Belorussiya, 19 May 59)

[Comment: No indication of the existence of an optical plant producing cameras has been given previously in available publications.]

I. Kirgiz SSR

During the first quarter of 1959, enterprises of the Kirgiz SSR produced 9,177 electric motors and 93,000 magnetic starters. (Frunze, Sovetskaya Kirgiziya, 18 Apr 59)

J. Uzbek SSR

During the first quarter of 1959, 1,104 km of armored cable were produced in the Uzbek SSR. (Tashkent, Pravda Vostoka, 19 Apr 59)

III. ELECTRONIC EQUIPMENT

A. General

Between 1949 and 1953, an average of 357,000 radio receivers and television sets were sent to the trade network of consumer cooperatives for sale to the rural populace and to kolkhozes. Between 1954 and 1958, the number of radios and television sets distributed in this fashion was increased to an average of 1,340,000 per year. (Moscow, Sovetskaya Torgovlya, Apr 59, p 11)

USSR industrial production of radioelectronic equipment was 18 times as high in 1957 as it was in 1948. (Moscow, Izmeritel'naya Tekhnika, May 59, p 1)

B. Sound Recording

The further development of sound recording and reproduction techniques in the fields of both broadcasting and reproduction by means of records and magnetic tapes must be accomplished through mastery of high-quality stereophonic reproduction.

At the end of 1958, a meeting of radio specialists adopted a resolution concerning the universal introduction of stereophonic methods of sound recording and reproduction.

GDRZ (State House of Radio Broadcasting and Sound Recording), which does a considerable amount of musical and literary recording, plans to make extensive use of stereophonic methods. The best recordings are to be demonstrated at the exposition in New York in the summer of 1959.

Experimental work devoted to stereophonic recording on a production basis was started at the end of 1957. The first experiments were conducted according to the traditional two-channel system of separating the signal into left and right channels, using equipment developed and manufactured at an experimental plant of the State Committee on Radio Broadcasting and Television on order from GDRZ. The results of this experiment were considered highly successful by specialists and musicians.

In accordance with technical specifications worked out by GDRZ, the experimental plant of the State Committee on Radio Broadcasting and Television has manufactured a small consignment of stationary stereophonic magnetic tape recorders, and the Scientific Research Institute of Radio Broadcast Reception and Acoustics has made the studio equipment and loudspeaker units. This apparatus is currently installed in a special room and has started recording on a production basis. It is designed for operation according to both the traditional two-channel system and the so-called compatible system.

The compatible system adopted in many countries permits the use of the same tapes or records for both stereophonic reproduction with special equipment and for ordinary single-channel reproduction with any double-track tape recorder or phonograph.

The use of this system for the production of master recordings in GDRZ will permit the creation of a recording library stocked with original recordings on universal magnetic tapes suitable for both single-channel and stereophonic reproduction. An MEZ-41 stereophonic tape recorder developed for this purpose uses a 6.35-mm Type-2 ferromagnetic tape with a uniform frequency response from 30 to 15,000 cycles at 38.1 cm/sec, and from 40 to 12,000 cycles at 19.05 cm/sec. At 38.1 cm/sec, the nonlinear distortion factor does not exceed 2.8 percent and the noise level is no greater than 55 decibels. At 19.05 cm/sec, the nonlinear distortion factor does not exceed 3 percent and the noise level is no greater than 53 decibels. The stereophonic recording control panel, (which operates in the 30-15,000 cycle band, produces a nonlinear distortion of less than 0.8 percent at the rated input and output levels. The noise level of the panel at the input is less than 118 decibels with normal amplification. -- V. Sher, chief engineer, GDRZ (Moscow, Radio, May 59, p 9)

Spalis tape recorders are assembled in Assembly Shop No 5 (1) of the Vil'nyus El'fa Plant. (Vil'nyus, Sovetskaya Litva, 15 May 59)

(1) Photo available in source, p 3, bottom

C. Prices

The MAG-8MP portable table-model tape recorder receives its power from a regular house circuit. It is designed for single-track recording at a speed of 15.05 cm/sec and for reproducing the sound and music from a microphone, a wired-radio line, a radio receiver, or a phonograph record. The recorder measures 535 x 440 x 360 mm. It sells for 3.680 rubles retail.

The MEZ-15 console tape recorder, which receives power from a regular house circuit, is designed for single-track recording at a speed of 76.2 cm/sec, for the reproduction of speech and music from a wired-radio line, and for transmitting the same onto the line. It measures 848 x 500 x 900 mm and sells for 9,000 rubles, a temporary price until 1960.

The Reporter-2 (M-30) portable tape recorder is designed for single-track recording at 19.05 cm/sec and for playback. This recorder is supplied by 150-MANMTs-3ch and 15-RMMTs-12ch dry batteries. It measures 300 x 230 x 118 mm, weighs 8 kg, and sells for 4,175 rubles, a temporary price until 1960.

The Yauza (UMP-2) combination tape recorder and record player is a portable set with a tape speed of 19.05 cm/sec for ordinary recording and 8.13 cm/sec for speech recording, and a turntable speed of 78 and 33 rpm. It sells for 1,800 rubles, which price is in effect until 1 January 1960.

The KA-7 control unit for audio volume control of MEZ-15 tape recorders, radio broadcasting lines, etc. has a rated output of 5 watts, measures 700 x 400 x 980 mm, and sells for 1,430 rubles.

The Dnipro-58 Class-3 three-band radio receiver in a fine wood cabinet sells for 375 rubles.

The Dnipro-58 Class-3 three-band radio-phonograph sells for 600 rubles.

The UKV-Ye NIO.208.001 radio-frequency ultrashort-wave unit equipped with a 6N3P tube is designed for radios and radio-phonographs based on standardized subassemblies, such as the Baykal, Vostok-57, Muromets, and Oktava. It sells for 72.50 rubles. (Moscow, Byulleten' Roznichnykh Tsen, No 14, May 59, pp 24-27)

The Central Trade Base of Posyltorg [All-Union Mail Order Office] of the Ministry of Trade RSFSR has the following articles for sale:

Rodina-52 battery radio with batteries and antenna	575 rubles
Rodina-52 battery radio with a TEGK-2-2 thermoelectric generator and an antenna	724 rubles
Rodina-52 battery radio with antenna	459 rubles
TEGK-2-2 thermoelectric generator for a Rodina-52 radio receiver	265 rubles
TEGK-2-2 thermoelectric generator for Iskra, Nov', and B-2 radio receivers	272 rubles

The prices indicated above include all shipping costs to the Moldavian SSR.

Orders may be sent to Aviamotornaya Ulitsa No 50/3, Moscow, Ye-126 -- Advertisement (Kishinev, Sovetskaya Moldaviya, 11 Mar 59)

The Novosibirsk Base of Posyltorg of the Ministry of Trade RSFSR has the following items for sale to citizens of Frunzenskaya Oblast:

Rodina-52 battery radio with galvanic batteries	580 rubles
Batteries for Rodina-52, Iskra, Voronezh, and Nov' radio receivers; these are shipped in sets consisting of two Energiya anode batteries and one Ekran filament battery (price per set)	129 rubles

Set of batteries for the Rodina-47 radio receiver, consisting of two Druzhba anode batteries, and two Deviz filament batteries (price per set)	176 rubles
Batteries for Tula and Zarya radio receivers	46 rubles

Costs of shipping and packing are included in the above prices.

Send orders to the Mail Order Base at Ulitsa S. Razina 52, Novosibirsk. (Frunze, Sovetskaya Kirgiziya, 25 Mar 59)

[Comment: It appears from the above that steps have been taken to alleviate the shortage of batteries mentioned in Soviet newspapers and periodicals during the past year.]

The Rostov Base of Posyltorg of the Ministry of Trade RSFSR has the following articles on sale:

Muromets radio phonograph	1,092 rubles
RG-3 "Yubileynyy" electric phonograph	378 rubles
El'fa electric record player	199 rubles
Dry batteries for Rodina-52, Iskra, Voronezh, and Nov' radio receivers	116 rubles
Dry batteries for Rodina-47 radio receiver	154 rubles
Galvanic batteries for Tula and Zarya radio receivers	42 rubles

The above prices include packing and shipping costs. All orders are to be sent to No 88/3, Ulitsa Moskovskaya, Rostov-na-Donu. -- Advertisement (Yerevan, Kommunist, 18 Mar 59)

The Rostov Base of Posyltorg of the Ministry of Trade USSR has the following articles on sale:

Oktava seven-tube, five-band four-speaker radio	1,546.00 rubles
Muromets seven-tube five-band radio-phonograph	1,092.00 rubles
Ural-57 six-tube four-band radio phonograph	1,039.00 rubles
Kazan'-57 portable four-tube two-band radio-phonograph	572.00 rubles

Strela radio receiver for 110-270 and 220 volts AC — 262.00 rubles

Rodina-52 battery radio with battery set and outdoor antenna kit — 575.00 rubles

The above prices include packing and shipping costs. All orders are to be sent to Ulitsa Moskovskaya No 88/3, Rostov-na-Donu. -- Advertisement (Yerevan, Kommunist, 15 Apr 59)

D. Radios

A new radio transmitter designed by the Leningrad Electrical Engineering Institute imeni V. I. Ul'yanov (Lenin) on order for Soviet meteorologists weighs only 140 grams. It is designed for sending signals from any kind of sonde from the upper layers of the atmosphere to observers below.

The transmitter utilizes miniature tubes and transistors, consumes 0.25 watt, and is supplied by a small battery. Prolonged testing has shown that it is operationally reliable. (Yerevan, Kommunist, 19 May 59)

Designers have developed a pocket radio receiver which they named the Raduga. The carrying case of the new radio is the same size as a cigar case. Its loudspeaker offers good audio qualities for indoor listening. A magnetic antenna is installed in its carrying case. It is supplied by small flashlight batteries or by a storage battery.

The first model of the pocket radio is being tested in the laboratory of the Moscow Krasnyy Oktyabr' Plant. It was developed by I. Andreyev, plant chief designer; I. Lasitsyn, laboratory chief; V. Savel'yev, a technician; and other specialists. (Moscow, Moskovskaya Pravda, 7 May 59)

The Minsk Radio Plant has developed the new Sel'skiy radio receiver, which can operate for 2 months using two flashlight batteries as power sources. The Sel'skiy is a transistor set with a high sensitivity and can receive many more stations than older sets could. The plant will begin its series production during the fourth quarter of 1959. (Riga, Sovetskaya Latviya, 31 Mar 59)

Festival' radio receivers are assembled on a conveyer (2) at the Riga Plant imeni Popov, (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 15 Mar 59)

(2) Photo available in source, p 2, bottom

E. Radio-Phonographs

The Riga Radio Plant imeni Popov is making a Spidola console radio-phonograph, which will be sent to the industrial exposition in New York. The plant is also making Festival' and Sakta radio-phonographs and a stereophonic sound unit for shipment to New York. (Riga, Sovetskaya Latviya, 14 Mar 59)

The Riga Radio Plant imeni Popov has produced a Teyka stereophonic radio-phonograph, which consists of two 4-watt amplifiers connected to two separate acoustical systems. The radio receiver of this set is based on printed circuits and receives seven wave bands, including an ultrashort wave band. It utilizes miniature tubes and has very high sensitivity and selectivity. (Riga, Sovetskaya Latviya, 26 Mar 59)

The experimental shop of the Riga Radio Plant imeni Popov has manufactured a new console radio-phonograph called the Laymdota. An interesting innovation embodied in this set is an automatic record changer which plays up to ten records of different sizes without interruption. The high-class radio has seven wave bands, remote control, and an automatic precision tuning device. It has a tone control consisting of three registers for "voice," "jazz," and "music." It has seven speakers: three for the higher frequencies and two each for the medium and low frequencies. (Moscow, Komsomol'skaya Pravda, 6 May 59)

Araz radio-phonographs made in Azerbaydzhan are on sale in department stores. Soon the Baku Radio Plant will begin producing Baku-58 radio-phonographs. (Baku, Bakinskiy Rabochiy. 15 Mar 59)

Ten years ago, the Baku Radio Plant began to prepare for the production of radio equipment. Its first radio receivers did not meet the requirements of radio listeners, but as the years went by, its products and operations improved. Now it can solve any complex technical problem.

At present, the plant produces Araz radio-phonographs and Kaspiy wired-radio loudspeakers, which are as good as any made by leading USSR plants. Its designers and technologists have expended great efforts in designing the Baku-58 radio-phonograph, which has been accepted by the All-Union Chamber of Commerce. These radio-phonographs have already been put into production, and soon residents of the Azerbaydzhan SSR will be able to acquire them.

The Baku-58 has an ultrashort wave band, keyboard bandswitches, and four speakers.

In the near future, the plant is to begin the mass production of television sets. -- E. Karakhanov, director of Baku Radio Plant, Ministry of Local Industry, Azerbaydzhan SSR (Baku, Bakinskiy Rabochiy, 7 May 59)

Recently, the Berdsk Radio Plant shipped a new Novosibirsk radiophonograph to New York for exhibition at the Soviet Exhibition of Science, Technology, and Culture. (Moscow, Sovetskaya Rossiya, 28 Mar 59)

F. Television

Enterprises of the Administration of Radio Engineering Industry, Leningradskiy Sovnarkhoz, have finished making an experimental model of a small mobile television station which is installed in a bus. The new station has an engineer control room, a studio room, and auxiliary facilities. Its two cameras outfitted with cables can operate up to 120 meters from the mobile station, which itself has an operating radius of 20 km from the main television station.

The new small mobile station was designed under the leadership of Engr Yu. L. Leviz, and is quite different from the currently used PTS-3 mobile television station. The new station is simpler and costs only half as much as previously made stations. Two operators, a director, a monitor man, three technicians, and one engineer are needed to run the station.

The PTS-2, which is the name of the new station, is designed for work with both large and small television centers for extrastudio broadcasts. The first PTS-2 is being sent for experimental operation to the Leningrad Television Center. (Leningradskaya Pravda, 28 Mar 59)

The PTU-OM1, PTU-2M, and PTU-4 industrial television units were designed in 1957, Over-all testing has shown them to have the qualities necessary in modern units of this type. Preparations are now being made for their industrial series production.

(Source gives descriptions of the above-mentioned equipment. (Moscow, Byulleten' Tekhniko-Ekonomicheskoy Informatsii, No 4, 1959, p 35)

The Leningrad Electrical Engineering Institute of Communications is completing assembly of equipment for transmitting color television programs from the studios of the institute's television center. (Moscow, Izvestiya, 31 Mar 59)

The Southern Mining and Ore Concentration Combine in Krivoy Rog is being outfitted with industrial television units. The first PTU-3 television unit has been installed in the "Promploshchadka" railroad dispatcher's station. It is used for keeping check on switching and train formation. (Kiev, Rabochaya Gazeta, 11 Apr 59)

During the Seven-Year Plan, the USSR radio industry will supply various radio receivers and television sets to the trade networks. It will also produce the Latviya, Ametist, and Akvamarin high-class radio receivers; Oktava, Kometa, Druzhba, Volna, and Planeta radio receivers and radio-phonographs; Kristall, Rubin, Almaz and Topaz radio-phonographs; Voskhod and Syurpriz transistor radios; and many other products, all of which were exhibited at the Brussels Fair and won grand prizes there.

At present, the basic types of television sets produced are the Znamya-58, Rubin-102, Temp-3, and L'vov-2, which have type 43LI-2B picture tubes with 270 x 360-mm screens.

The television set which will go into use on the broadest mass scale is the Zarya, which has a metal cabinet and 210 x 280-mm screen.

The production of the Moskva projection television set will continue.

The Minsk Radio Plant is producing the Belarus'-4 combination receiver, which has a 210 x 280-mm television screen, and also has a radio receiver and a record player.

Automatic adjustment of sensitivity, brightness, and line frequency; remote control; and keyboard control are being utilized more and more in contemporary models of television sets.

The Almaz-202 combination set has been put into industrial production. This set consists of a television set with a 330 x 450-mm screen, a Lyuks radio receiver, and a Yauza tape recorder-record player. The Kristall-104 combination set has also been put into industrial production.

The L'vov Television Plant expects by the end of 1959 to begin the production of the Ukraina television set, which has a smoked-glass aluminized picture tube with a deflection angle of 110 degrees.

Plants and institutes are at work developing all-transistor television sets, such as the first USSR all-transistor set that was exhibited in Brussels. Work is in progress on the development of a flat picture tube.

The current Seven-Year Plan will see the introduction of color television and a higher level of development in this field. -- G. Sincherko, Deputy Minister of Communications, Ukrainian SSR (Kiev, Rabochaya Gazeta, 7 May 59)

A group of Leningrad engineers has developed the new 14-tube Komsomolets television set, which is designed for mass consumer use. This set, which is based on the latest electronics achievements, consists of six independent functional blocks, which can be replaced quickly in case of breakdown and can be used for making other kinds of television sets. This is the first USSR television set to be fully built with printed circuits produced by the etching method out of foil-covered "getinaks" laminated plastic.

The Komsomolets has a high sensitivity equal to that of the best television sets. It has a 285 x 215-mm screen and can operate from a 127 or 220-volt circuit, utilizing only 130 watts.

The new set has two knobs, volume and brightness control, on its front panels, and four other controls on the side panels for regulating line and frame frequency, frame size, and contrast. It receives 12 channels and weighs only 16 kg.

The Council of Experts of the Pavilion of Best Models of Consumer Goods of the All-Union Chamber of Commerce has approved the Komsomolets for production. The first experimental consignment of these sets will be manufactured in 1959. (Leningradskaya Pravda, 12 May 59)

The Leningrad Plant imeni Kozitskiy has begun the production of the first consignment of USSR-made color television sets. The new sets are designed for 12 channels and have a 470 x 355-mm screen, the largest of any USSR television set. The compatible color system used in the set makes it capable of receiving either color or black-and-white broadcasts. (Minsk, Sovetskaya Belorussiya, 25 May 59)

The Leningrad Plant imeni Kozitskiy has produced nine new types of television sets for exhibition in New York. All of the sets receive 12 channels. The Simfoniya and Chempion are the most interesting sets. The Simfoniya has a screen measuring almost 0.5 meter. It is equipped with a tape recorder for stereophonic sound recording. (Leningradskaya Pravda, 3 Apr 59)

The Leningrad Plant imeni Kozitskiy has produced many original television sets for exhibition in New York: the Simfoniya, Admiral, Chempion, Astra, Signal, Volna, Salyut, Spartak, and Druzhba. (Moscow, Trud, 5 Apr 59)

The production of Rubin-102 (3), Rubin-202, Almaz-102, and Kristall-101 television sets has been organized at the Moscow Television Equipment Plant. (Moscow, Vechernyaya Moskva, 12 Mar 59)

(3) Photo showing Rubin 102 television sets on the final testing conveyer available in source, p 2, bottom.

The Moscow-Television Equipment Plant produces thousands of modern television sets, including the Rubin, Rubin-102, Rubin-201, and Almaz-102. Rubin-102 sets are assembled on a conveyer (4). (Moscow, Sovetskaya Rossiya, 15 Mar 59)

(4) Photo available in source, p 2, top

The Krasnoyarsk Television Plant produced 5,000 television sets in 1956, 30,000 in 1957, and 60,000 in 1958. The plant developed the Yenisey television set to replace the Avangard. However, the Yenisey itself is not satisfactory because it has only five channels. Consequently, plant designers have developed the new Yenisey-2 twelve-channel television set, which will have a picture tube with a deflection angle of 110 degrees.

Mikhail Rudoy is chief technologist of the plant.

In 1959, the plant is supposed to raise its output of Yenisey television sets to 100,000. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 15 Apr 59)

During 1959, the Krasnoyarsk Television Plant will produce 100,000 new Yenisey television sets. (Moscow, Trud, 15 Mar 59)

G. Tubes and Bulbs

The Moscow Electric Bulb Plant has fulfilled its first quarter 1959 plan ahead of schedule and produced several million rubles' worth of above-plan products, including a large number of television picture tubes. The plant has a conveyer for filling television picture tubes (5) in the chemical department of its television picture tube shop. (Moscow, Moskovskaya Pravda, 5 Apr 59)

(5) Photo available in source, p 2, lower right

The Moscow Electric Bulb Plant produces picture tubes for Rubin, Rekord, Start, Kristall, and other television sets. In 1959, it will begin production of new picture tubes with deflection angles of 110 degrees. The bell of the tube is more slanted, and the neck is shorter than that of presently made tubes. The new compact size will help decrease the weight and size of the television receiver. The screen size is 53-cm diagonal length.

The new picture tube will be used in type Yantar' television sets. (Moscow, Moskovskaya Pravda, 7 May 59)

The Saransk Electric Bulb Plant, which went into operation during the 20th Congress of the CPSU, has already produced 100 million small light bulbs. The 1959 output of the plant is 11 times that of 1956. By the end of the Seven-Year Plan, the plant will be producing about 200 million light bulbs per year. (Moscow, Sovetskaya Rossiya, 15 May 59)

During the last Five-Year Plan, Saransk (capital of the Mordovskaya ASSR) became a large industrial center. Electrical engineering enterprises such as the Mercury Rectifier Plant and the Electric Bulb Plant were founded.

Recently, a new line for making fluorescent lamp starters (6) was put into operation at the Saransk Electric Bulb Plant. Most of the complex processes needed for making these starters have been automated. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 15 May 59)

(6) Photo showing the exhausting and sealing section of the automatic line available in source, p 3, top

A dummy model of a new television picture tube with a 550 x 700-mm screen has been made in the laboratory of the Design Bureau of the L'vov Electric Bulb Plant. USSR industry has never before produced television sets with this size screen.

The new picture tube has an aluminized screen. This tube, the "76-LK" uses a 110-degree deflection angle, which makes it possible to reduce the size of the television set.

In 1959, the L'vov Electric Bulb Plant will produce more than 375,000 picture tubes of various types.

Workers of the laboratory are developing a flat television picture tube. They have also developed several models of picture tubes for color sets. (Kiev, Rabochaya Gazeta, 11 Apr 59)

The Moscow Daylight Lamp Plant has 290 workers and 37 engineers and technicians, not including office personnel. The plant is located in Kalininskiy Rayon, Moscow. Mirkin is plant director. (Moscow, Moskovskaya Pravda, 29 Mar 59)

Tashkent Television Workshop No 24 is purchasing burned-out 40LK1B and 43LK2B picture tubes for 12 rubles apiece. It is also purchasing all transformers and focusing-deflection systems of KVN, Avangard, Ekran, Luch, and Temp-2 television sets for 10 percent of their list price. (Tashkent, Pravda Vostoka, 3 Apr 59)

H. Semiconductors

In recent years, USSR industry has been very successful in producing semiconductors. It produces semiconductors with frequencies up to 100 mc in large series, and produces those with frequencies up to 500 mc on an experimental basis.

Formerly, semiconductors were inferior to tubes in noise level and temperature stability. Now, however, they can be used on a broad scale in radio broadcasting equipment, especially radio receivers.

The use of semiconductors with threshold frequencies exceeding the highest operating frequency in the high-frequency stages of a receiver precludes the need for measuring and selecting the semiconductors during production of the receiver.

The advantages of semiconductors are more evident in battery powered sets, especially portable ones, and are therefore most often used in these sets.

Some radio plants have already started, or are completing preparations for, series production of two-wave band sets based on semiconductors, such as the Voskhod table model for rural areas, the Progress pertable model, the Syurpriz pocket radio, and the Rodina-59 combination receiver. These sets operate in the long and medium wave bands. One of the plants of the Leningradskiy Sovnarkhoz is currently preparing for production of a new short-wave receiver based on semiconductors for use in rural wired-radio centers. Many of the above-mentioned sets were developed by the IRPA (Scientific Research Institute of Radio Broadcast Reception and Acoustics).

IRPA has also developed a low-powered wired-radio unit for use by geological expeditions, etc. in the Far North; this unit is going into production at the same plant of the Leningradskiy Sovnarkhoz.

The control figures of the Seven-Year Plan provide for priority development of ultrashort-wave FM broadcasting, and ultrashort-wave broadcasting will be introduced in many parts of the country in the immediate future. It is therefore imperative and entirely feasible to increase the mass production of inexpensive receivers with ultrashort-wave bands.

IRPA is currently developing an ultrashort-wave receiver. With the aim of more effectively utilizing the small size of the semiconductors, this receiver, which is equivalent to a first class set, is designed in the form of a single unit housed in a cabinet about the size of an average book. The second unit, which houses a two-channel low-frequency amplifier, a rectifier, and a high-quality acoustical system, is housed in a cabinet on the floor in the corner of the room. This receiver has an ordinary circuit. The long and medium wave bands employ a common

mixer and heterodyne (P403 transistors), two intermediate frequency stages based on P402 transistors, and a diode detector. A separate unit consisting of a high-frequency amplifier based on P322 transistors, a mixer, and a heterodyne (P403 and P322 transistors) is added for the ultrashort-wave channel. The intermediate frequency stage is common to all wave bands, but employ different filters (for 465 kc and 8.4 mc). The set also has an audio frequency preamplifier with a tone control, which employs two P13 transistors.

Tremendous benefits are promised for the immediate future by the extensive application of semiconductors in radio receivers. It will be possible to utilize solar energy, etc. thus solving the problem of power sources. The use of semiconductors in line-powered sets will considerably reduce power consumption. The small size and long life of semiconductors will permit the use of more advanced designs and the development of standardized interchangeable stages or even of audio-frequency and intermediate-frequency amplifier units. In combination with printed circuits, such designs will permit the earliest introduction of automation into the production of radio receivers. -- B. Semenov, chief engineer, IRPA (Moscow, Radio, May 59, pp 8-9)

I. Components

Enterprises of the Leningradskiy, Gor'kovskiy, Moscow Oblast, Kiyevskiy, and Kuybyshevskiy sovnarkhozes are engaged in the production of radio components. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 12 Apr 59)

The Pskov Radio Components Plant (Pskovskiy zavod radiodetaley) has the following components for sale on a noncash basis:

KTK GOST 7159-51, KPK NIO 46.000, KDK GOST 7159-51, and KDS UBO 460.002 TU ceramic capacitors.

GOST 2705-53 octal, UYe 4812010 TU miniature, and PLK-9 NIO 481.002 and PLK-7 NIO 481.001 ceramic tube sockets.

Inquiries should be sent to the division of sales at Ulitsa M. Gor'kogo No 1, Pskov. -- Advertisement (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 15 May 59)

In August 1958, a group of engineers and technicians met with E. Ayazyan, the director of the newly organized Yerevan Electrical Metal-Ceramics and Semiconductor Plant, which was based on former motor vehicle repair shops of the Administration of Highways. These engineers and technicians [presumably future employees of the plant], were leaving for Moscow, Leningrad, and L'vov, where they were to study powder metallurgy. When they returned to Yerevan, they could hardly recognize the plant: in place of the repair shops they saw almost finished shops in which new equipment was being installed.

The new plant has already organized the high-frequency casting of magnets and has produced its first products. It has organized sections for the production of ferrites, magnets, electrical contacts, and structural parts. Soon it will manufacture its first metal-ceramic products.

The plant is already getting orders from enterprises of the electrical industry in Armenia. (Yerevan, Kommunist, 19 Apr 59)

J. Communications Equipment

The Leningrad Krasnaya Zarya Plant of the Leningradskiy Sovnarkhoz produces basic equipment for automatic telephone exchanges. Sometimes, however, it turns out bad equipment, as evidenced by the 42 pieces of equipment received by the Moscow City Telephone Network, over half of which were defective.

The plant dispatched a brigade, which used up 357 man-days to correct the defective equipment, and an additional 157 man-days to recheck the equipment.

At the end of 1958, the Moscow City Telephone Network received new equipment. The 33 pieces of this equipment that were checked this time turned out to have 178 faults. The plant, without checking on the validity of the complaints, immediately dispatched a brigade to Moscow, which used more than 700 man-days to correct the defects.

The spare parts for step-by-step telephone exchanges produced by the Krasnaya Zarya Plant are not very satisfactory. Tests made on these parts showed them to be substandard. Instead of having a service life of 500,000 operating cycles, they withstood only 60,000-320,000 cycles.

Other enterprises, including the Riga VEF Plant of the Latvian Sovnarkhoz, also produce poor communications equipment. Three years ago this plant developed a new dial which could withstand more than one million turns. However, the telephone sets that are being series produced are equipped with dials capable of withstanding only 500,000 turns. At present, the defects in telephone sets are so bad that they cannot be used by subscribers. All 15,000 sets shipped by the VEF Plant to the Moscow City Telephone Network in January and February 1959 had to be rejected. Now the management of the VEF has to send a brigade of specialists to Moscow to correct these defects.

The production of microtelephone cord, which is produced by the Odessa Cable Plant in accordance with an All-Union Standard, is unsatisfactory. Although the standard has been in effect for 5 years, the cord is still of poor quality. Although enterprises submit experimental models of new equipment, they continue producing the old equipment.

The Krasnaya Zarya Plant, the VEF Plant, and the Odessa Cable Plant should improve the quality of equipment and materials for city telephone networks. -- A. Serikov, Chief Engineer, Administration of Moscow City Telephone Network (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 4 Mar 59)

The production laboratory of the Moscow Telephone Network has produced its first models of telephone handsets designed for persons who are hard of hearing. A special amplifier is installed in an ordinary telephone handset and is controlled by a tumbler switch. The telephone bell can be replaced by a signal light.

The amplifier is based on semiconductors. The first models of these telephones have been installed in Moscow in the homes of hard-of-hearing persons.

The laboratory is now continuing work on devising new telephones for handicapped persons. (Moscow, Izvestiya, 13 May 59)

A group of Leningrad engineers has developed the first "phototelegraphic apparatus" in the USSR for transmitting written production information from shop to shop or from division to division within a large enterprise. This apparatus, known as the "Prizma," utilizes existing telephone communication lines for transmitting images. A model of the Prizma will be on exhibit at the industrial exposition in New York. (Baku, Bakinskiy Rabochiy, 17 Apr 59)

IV. COMPUTERS

Specialists are developing electronic instruments in almost all Moscow scientific research institutes. Many industrial enterprises, such as the Moscow First State Bearing Plant and the Moscow Motor Vehicle Plant imeni Likhachev, and heat and electric power stations are putting electronic installations into operation on an ever-increasing scale. An electronic mathematical machine for the automatic control of an industrial process has already been put into operation at the Moscow Krasnyy Bogatyr' [Rubber Products] Plant. Recently, experiments on the utilization of a mathematical machine for controlling the movements of a train were carried out in the Moscow area.

Electronic computer technology is especially important in the over-all automation of production processes. Moscow radio specialists play a significant role in this field. Recently, the MN-10 computer was developed at the Moscow Scientific Research Institute of Computer Machine Building. It is designed for studying various automatic control systems and is based completely on semiconductors.

The single-design EIS electronic computer is being operated successfully at one of the Moscow scientific research institutes of the petroleum industry. This machine has made it possible to develop the most efficient methods for exploiting one of the USSR's richest oil deposits.

The EIS computer can picture an entire oil bed in several hours. This work would ordinarily take hundreds of people several years to finish. --A. Grif, senior editor of a division of the periodical Radio (Moscow, Moskovskaya Pravda, 7 May 59)

During the Seven-Year Plan, it is planned to produce computers for controlling processes in the petroleum refining and chemical industries and in ferrous and nonferrous metallurgy, for automatically controlling locomotives, for regulating power systems, and for centrally controlling production processes. Preparations are being made for the series production of machines which will perform many more operations per second than the earlier-produced Ural and Strela computers.

The successful fulfillment of these tasks requires the organized and intense work of many scientists, engineers, technicians, and workers engaged in the fields of instrument making, radioelectronics, precision machine building, and other specialized fields. Physicists working on semiconductors, solid state physics, low temperature physics, and other such fields should join in the development of new extrahigh-speed miniature machine components. New methods of designing and utilizing computers should be worked out by mathematicians in close collaboration with engineers.

Leningrad could contribute substantially to the solution of these problems. However, the actual state of affairs is pretty grim. Not a single universal electronic digital computer has been developed or produced in our city. It is true that the development and study of components of electronic machines is under way at many Leningrad institutes and design bureaus. Besides the several large organizations doing this work, many small scattered groups working along the same lines are often solving the same problems in a primitive fashion. These operations are completely uncoordinated, and there is no kind of organized mutual exchange of technical information.

The Coordinating Scientific and Technical Council for Computer Technology is no coordinator at all. Precisely speaking, it is a completely inactive organization. Unfortunately, the Leningradskiy Sovnarkhoz appears to have no interest in organizing the production of electronic machines. It is possible to organize the production of a small series of electronic machines in Leningrad without expanding production space and with minimum capital investment for re-equipment.

In our opinion, a large scientific research institute should be organized in Leningrad in which the development of scientific principles of electronic machines and their components and the programming and utilization of these machines could be concentrated. Such an institute could work in other branches of cybernetics, such as the problems of biological cybernetics. The institute should become the main center of computer technology in Leningrad and should coordinate the activities of other scientific organizations and educational institutions in this field.

In our opinion, it is necessary to begin organizing the production of a series of electronic machines at Leningrad enterprises. These machines, which are so badly needed in our country, would at first be produced in small series. At the same time, it is necessary to organize a well-staffed well-equipped design bureau capable of developing new types of electronic machines equal to the best models produced abroad. -- Docent L. Krayzmer, Chairman of Cybernetics Section of House of Scientists imeni M. Gor'kiy, (Leningradskaya Pravda, 12 Apr 59)

The new Scientific Research Institute of Instrument Making and Automation Equipment of the Georgian Sovnarkhoz is located in the center of Tbilisi, on the banks of the Kura River. Original mathematical machines are being created in its laboratories. One of these is an electronic control computer for regulating the electrical operating schedule of ferroalloy furnaces. This machine has successfully passed production testing at the Zestafoni Ferroalloys Plant.

Another computer is designed for determining the weight of individual types of raw materials used for making up charges for cupola furnaces. The same laboratory making this computer has designed another such machine for computing the most important parameters needed for stabilizing the heating schedule of a cupola furnace. The machine determines the consumption of coke and the intensity of the blast in relation to the required temperature of the metal and the composition of exhaust gases.

A computer for automating the calculation of voltage and power losses in electric power transmission lines has also been made. (Moscow, Izvestiya, 26 Mar 59)

In January 1959, the experimental model of a control computer was installed on furnace No 13 of the Zestafoni Ferroalloys Plant. The computer was developed by TNIISA (Tbilisi Scientific Research Institute of Instrument Making and Automation Equipment). The installation work was done under the supervision of Otar Chachanidze, a project leader, and scientific associate Aleksandr Gay of the TNIISA.

The computer was put into operation and then approved by a state commission headed by A. Gangiya, chief of the Technical Administration of the Georgian Sovnarkhoz. Georgiy Platonovich Zedgenidze, deputy director of the TNIISA, was present to see the computer accepted.

Plant officials state, nevertheless, that the installation of one computer is only "a drop in the bucket" as far as their needs are concerned and that they would like to see their operations completely automated.

The new computer will begin working on a permanent schedule in September 1959. The TNIISA is making another machine of the same type for installation at the Zaporozh'ye Ferroalloys Plant. (Tbilisi, Zarya Vostoka, 10 Apr 59)

Scientific associates and engineers of the TNIISA A. Shapiro, G. Kachibaya, A. Kuchava, D. Gokiyeli, I. Mtvarelidze, and M. Abramiya helped develop a new computer for calculating cupola furnace charges. This new computer calculates these furnace charges in 3-4 minutes and prints its results on a paper tape. If the desired chemical composition of iron cannot be obtained from the components selected, the machine turns on a signal light signifying: "No solution available." In such a case, the engineer has to change the charge formula.

At present, such deficiencies can be determined only after the metal is poured into molds and a chemical analysis is made. This leads to production rejects.

The computer calculates waste of certain elements, which raises the accuracy of its calculations, it also verifies the results of its calculations, in 30-40 seconds. Not only can the machine prove the correctness of its calculations, but it can also show that kinds of deviations from the required chemical composition can lead to errors occurring during the calculation process. Usually these deviations are no more than 1-2 percent.

Three models of this new computer, produced at an experimental plant, received a high rating from an interdepartmental commission of the Georgian Sovnarkhoz. These models are destined for extending testing at the Moscow Motor Vehicle Plant imeni Likhachev, the Kutaisi Motor Vehicle Plant, and the Tbilisi Tsentrolit Plant.

The institute is working on a control computer for weighing charges and loading them into cupola furnaces. It is also adjusting another computer for calculating the heating schedule of a cupola furnace. During its operating process, this machine solves complex mathematical problems and flashes the solution in the form of numbers lighted up on a panel. It keeps tabs on the amount of coke and blast needed for achieving the predetermined temperature and completeness of combustion.

Until now, there were no mathematical functions available that would make it possible to accurately calculate the heating schedule of a cupola furnace. Associates of the TNIISA, utilizing the graphic functions existing between the parameters of melting, were able to compile mathematical equations describing the entire process. By Using these equations, it was possible to calculate the parameters of melting.

The testing of the first computer for calculating the heating schedule of a cupola furnace was a success. The machine was rated high by specialists.

At the first stage, this machine will play the part of an "adviser" to foremen. The institute is already developing a new machine which will automatically stabilize the predetermined heating schedule of a cupola furnace and will exercise control over the coke apportioning device and the blast regulator. -- O. Tvaradze, engineer of TNIISA, worker correspondent for Zarya Vostoka (Tbilisi, Zarya Vostoka, 1 May 59)

A new specialized digital computer has been developed and produced by a group of scientific associates of the Institute of Electrical Communications imeni M. A. Bonch-Bruyevich in Leningrad. This computer is designed for adding trigonometric series. It can solve very complex problems in the fields of radio engineering and electrical communications very rapidly. Formerly months and even years were required to solve such problems.

The new computer consists of 500 relays and several thousand semiconductor diodes. It also has a selector board for setting up problems, a printing device, and a recording device. The solution to the problems is recorded on paper rolls in the form of five-figure numbers and graphs. The new machine uses the decimal system of coding. (Riga, Sovetskaya Latviya, 16 Apr 59)

A small electronic digital computer is being built in the Computer Laboratory of the Institute of Physics, Academy of Sciences Latvian SSR. This computer is designed for solving a broad range of mathematical problems. (Moscow, Izvestiya, 14 May 59)

A special shop for making high-precision computing machines (7) has been organized at the Kursk Computing Machine Plant. The VMM-2 multikey automatic calculating machine, which is made in this shop, can perform 600 operations per hour. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 1 Apr 59)

(7) Photo available in source, p 4

Adjustment of the first computing machines to be installed in the Kazakh SSR is being completed in the Laboratory of Machine Computing Mathematics of the Academy of Sciences Kazakh SSR (Frunze, Sovetskaya Kirgiziya, 3 Apr 59)

During the Seven-Year Plan, the Zaporozh'ye Transformer Plant is slated to develop superhigh-power transformers for new power installations of the USSR. This developmental work involves much complex computing and planning and research work. Consequently, a Ural electronic computer has been received by the plant. It will be used for calculating new series and selecting the best designs and parameters of transformers. Formerly about 3 months was required to do the calculations for a 240,000-kva power transformer. Now, with the Ural computer, the calculations can be completed in 10-15 minutes.

The plant has begun installing the Ural computer. An electronic computations laboratory is being organized for complex computation work. (Minsk, Sovetskaya Belorussiya, 3 Apr 59)

A Ural electronic computer is installed in the computing center of the Leningrad State University. This machine is 6 meters long and almost 2 meters high; it has about 2,000 semiconductor diodes, 800 vacuum tubes, and 830 self-contained units. The Ural has become a necessity in machine building, physics, and other fields and serves its purposes well. It was recently used to solve a vital problem in mechanics in 10 hours. Such a problem would have taken about 15 months with regular calculating machines.

The computing center is now being used to solve complex problems for the shipbuilding industry. Although it has been in existence only 2 years, the center has been widely used by scientists and by workers of many design bureaus of Leningrad industrial enterprises.

In 1959, the computing center made computations for the compiling of the Astronomicheskiy Yezhegodnik (Astronomical Yearbook) by request of the Institute of Theroretical Astronomy of the Academy of Sciences USSR. Much of the work is finished. In several months, it was possible with electronic machines to determine the positions of astral bodies for several years in the future. (Leningradskaya Pravda, 1 Apr 59)

A laboratory of electronic simulation has been developed at the Moscow Mining Institute imeni Stalin. Two electronic simulators have gone into operation at the laboratory, which will develop schedules for the automatic control and regulation of mining machinery, and for developing theories for the machines' dynamic stability. (Moscow, Moskovskaya Pravda, 11 Apr 59)

The installation of an automatic computer has been completed in the Institute of Physics of the Academy of Sciences Latvian SSR. This machine is designed for solving a broad range of mathematical problems. The new computing center that has been created at the institute will make it possible to conduct greater research in atomic physics, magnetism phenomena, and other important fields in the Latvian SSR. (Yerevan, Kommunist, 20 Apr 59)

The Computing Center of the Academy of Sciences Georgian SSR is devoting considerable scientific research to the development of new methods for approximate and numerical solution of mathematical problems. The center does computing at the request of a number of enterprises and scientific research institutes in the Georgian SSR and beyond its borders. It recently did some work for the Institute of Construction of the Academy of Sciences Georgian SSR on computations connected with experimental work on prestressed casings (obolochka).

During the Seven-Year Plan, the Computing Center will considerably expand its operations. Problems of mathematical physics, programming, and simulation are some of the tasks to be undertaken in 1959.

Among the latest equipment with which the center is being supplied is a Ural electronic digital computer designed to solve various mathematical problems; the center will also receive two high-speed universal electronic computers by the end of 1959. It also has a model MPT-11 electronic computer, which is used for research in processes of automatic regulation and the solution of certain nonlinear differential equations. (Tbilisi, Zarya Vostoka, 6 May 59)

V. INSTRUMENTS

A. General Industrial Instrumentation

The Moscow Fizpribor Plant has the following instruments for sale:

Type KEP-12 U electropneumatic programming instrument for regulating the time of various operations in technological and other processes according to preset schedules. This instrument has 12 electrical or pneumatic control units. The range of duration of operating cycles is from 3 minutes to 18 hours. The instrument measures 294 x 270 x 134 mm and costs 1,290 rubles.

The type ESU-1 electronic level indicator is designed for indicating deviations of the level of liquid and friable substances from a preset value. The instrument can give out sound or light signals and can turn on or off various secondary performing mechanisms. The ESU-1 measures 192 x 222 x 126 mm and costs 715 rubles.

The type UUK universal controlled Wilson chamber is designed for the study of various physical processes connected with the passing of ionizing particles through a gas medium. This instrument can be used in physical laboratories, scientific research institutes, and higher educational institutions. It can be supplied by a 220-volt ac or dc circuit, and consumes one kw for ac and up to 5 kw for dc. The UUK consists of three separate units measuring 830 x 1,270 x 1,850 mm, 580 x 770 x 1,250 mm, and 80 x 80 x 350 mm.

The types UR-4 and UR-6 radioactive level gauges are designed for the continuous remote measurement of the height of the separation line between two substances of unlike densities without coming into contact with the measured object. The UR-4 and UR-6 have a measuring range of up to 1,000 mm and cost 9,400 rubles apiece.

The type PZhR-2 radioactive liquid densitometer is designed for the continuous remote contactless measurement and registration of the density of various liquids. The PZhR-2 has a measuring range from one gram per cu cm to 1.5 grams per cu cm, and costs 12,100 rubles.

The PF-3 instrument for measuring physical quantities is designed for testing and adjusting various radio engineering circuits used for recording physical processes. This instrument can be used for visual observation of physical processes in electronic circuits. It is supplied by a 110-, 127-, or 220-volt ac circuit, and does not consume more than 400 watts. It costs 10,500 rubles.

Orders or inquiries should be sent to the Fizpribor Plant at Ulitsa Bakuninskaya 14, Moscow B-5. -- Advertisement (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 10 Apr 59)

The new DM-7 and DM-8 diaphragm differential manometers have been developed at the Moscow Manometr Plant. They can be used at power stations, chemical plants, and metallurgical plants for measuring flow, level, pressure, and pressure head of liquids and gases, The DM-7 is designed for a pressure up to 64 atmospheres and weighs 15 kg, which is one third the weight of old manometers.

Formerly, differential manometers could be used only for measuring pressures up to 250 atmospheres. The new DM-8 can measure pressure up to 600 atmospheres. (Moscow, Moskovskaya Pravda, 29 Mar 59)

The Kirovakan Independent Design Bureau has designed two new automatic general industrial instruments. The first is the ME K-125, which is an electrical performing mechanism designed for moving regulating organs in automatic and remote control systems. The second is a variable-speed performing mechanism with a magnetic amplifier. Both mechanisms have undergone testing at the experimental base of the design bureau and have been rated high by specialists of the industrial enterprises where they will be used. (Yerevan, Kommunist, 6 May 59)

M. Sedrakayats is chief engineer of the "Avtomatika" Independent Design Bureau, which has developed a single series of performing mechanisms for the automation and remote control of various production processes in the chemical industry, the metallurgical industry, at state regional electric power stations, and at heat and electric power stations. The bureau has already made experimental models of three type-sizes of mechanisms which are being sent to the Cheboksary [Electrical Performing Mechanisms] and Sevan [Performing Mechanisms] plants for series production.

In 1959, the bureau developed an induction-type linear potentiometer for contactless automatic systems. It is now developing contactless electrical performing mechanisms for variable speeds. The first experimental models of these will be submitted for production in 1959. (Yerevan, Kommunist, 14 May 59)

Yesterday [5 March 1959?] laboratory tests of the latest telemechanical apparatus for the remote control of electric power systems were made at the Leningrad Elektropul't Plant. The apparatus includes the GChB-3 telemetering transmitter, the ChNT-3 receiver, and the UPT-1 direct-current amplifier, all of which are based on semiconductor devices and because of this are half the size and weight of earlier apparatus.

The plant has finished producing an experimental consignment of PMK-2 milliammeters with round scales measuring more than one square meter in surface area, and of totalizers. Both of these new types of instruments are used for determining the summary power of electric power stations and can be used more than 20 meters away from the station. This is the first time such equipment has been produced in the USSR. Its series production will begin in 1959.

Products of the Elektropul't Plant are in great demand in the USSR and abroad. New equipment made in 1959 has been shipped to China, Mongolia, Poland, Bulgaria, Rumania, and other friendly countries.

At present, the plant is producing electrical equipment for the Stalingradskaya GES (Hydroelectric Power Station) and for the tanker Pekin, which is being built in Leningrad. (Leningradskaya Pravda, 6 Mar 59)

Designers at the Moscow Energopribor Plant, in collaboration with workers of the All-Union Heat Engineering Institute, have developed a new instrument: a magnetic oxygen gauge for the detection of free oxygen in furnace gases of electric power stations and for the automatic regulation of the fuel-burning process. (Tashkent, Pravda Vostoka, 16 Apr 59)

B. Instruments for the Petroleum, Gas, and Chemical Industries

During recent years, the Khar'kov Branch of the All-Union Experimental Design Bureau for Automatics has developed and produced in its workshops 86 type-designations of instruments and automation equipment for the chemical industry. An experimental model of the PGF-T explosion-proof portable gas analyzer was made there recently for determining the presence of combustible gases and fumes of methane, coke gas, hydrogen, gasoline, divinyl, etc. This is a smaller and more convenient instrument than previous models, and operates dependably in tropical climates. Series production of the new instruments has been started. (Riga, Sovetskaya Latviya, 18 Apr 59)

The Leningrad Branch of the Design Bureau for Automatics of the Ministry of Construction RSFSR has developed a new instrument which checks changes in the color of petroleum products. When this instrument detects a deviation from the norm, it immediately corrects errors in the production process.

The instrument underwent successful testing at the Groznyy Petroleum Refinery.

The Leningrad Branch has finished developing the first USSR-made automatic device for determining the viscosity of petroleum products by utilizing ultrasonics. (Leningradskaya Pravda, 5 Mar 59)

Groznyy petroleum processing plants will soon receive a new instrument, an automatic electronic viscosimeter developed by the Chair of Thermotechnics of the Groznyy Petroleum Institute in close cooperation with production personnel. This new instrument will give precise indications of the viscosity of a product in flux and will automatically regulate all changes in the process. It will no longer be necessary for the operator to consult the laboratory each hour for the results of a test sample. (Moscow, Sovetskaya Rossiya, 27 Mar 59)

In 1959, the Moscow Control and Measuring Instrument Plant will expand its production of equipment for the over-all automation and mechanization of the petroleum and chemical industries.

The plant has pledged to produce an industrial chromatograph before 1 May. This instrument is used for the continuous automatic control of the composition of hydrocarbon gases and operates as part of an automatic line in oil refineries or petrochemical plants.

The plant is producing the first models of high-precision quartz gravimeters which are designed for the use of geophysical exploration parties. (Moscow, Vechernyaya Moskva, 18 Mar 59)

It now takes up to 48 hours to make a laboratory analysis of gases at chemical and petroleum refining enterprises. The Mosneftekip Plant [location not given], in collaboration with a design bureau for the automation of industrial processes of the Moscow Oblast Sovnarkhoz, has developed a new instrument for the automatic analysis of gases (8) during the course of industrial processes. The entire analysis takes 6 minutes. (Moscow, Leninskoye Znamya, 9 Apr 59)

(8) Photo showing the instrument for the analysis of gases being checked available in source, p 2, middle

C. Electrical Instruments

Until recently, oscillographs utilized photographic paper or film for recording purposes, and such paper or film then required developing. In 1959, for the first time in Soviet practice, the Leningrad Vibrator Plant will produce an experimental model of a new oscillograph which will produce oscillograms not requiring any photochemical processing; instead they will develop themselves under light in one minute.

It is intended to develop a unified series of similar instruments for various purposes on the basis of this oscillograph. One instrument will be developed in collaboration with designers of the Leningrad Krasnogvardeyets Plant. It is a single-design mechanocardiograph, which is used for diagnosing cardiovascular ailments.

Recently, new galvanometric amplifiers developed by the Vibrator Plant underwent testing with highly successful results. The sensitivity of the new instruments is much higher than that of the best mirror galvanometer. Their series production is being contemplated for 1959.

The Vibrator Plant is preparing to produce instruments for measuring ac currents from 0.5 to 1.5 cycles per second. These instruments, which have never been produced in the USSR before, are designed for checking the operations of metallurgical furnaces.

The Leningrad-2 photoelectric exposure meter developed by the Vibrator Plant is superior in reliability and sensitivity to its predicessors.

In 1959, the plant will begin the production of 30 new types of instruments. (Leningradskaya Pravda, 15 Mar 59)

The [Leningrad] Vibrator Plant developed the F17 photoelectric amplifier, which is designed to be built into various types of apparatus. The plant began the production of the F17 in 1957. This instrument consists of a galvanometer, a light source, and a photoresistor.

(Source gives additional information on the F17.) (Moscow, Izmeritel'naya Tekhnika, May 59, p 35)

An exhibit of radio engineering and electronics has opened in the Tallin House of Scientific and Technical Propaganda. The Tallin Punane RET Plant has many new measuring instruments on display there. Among these is an original instrument, based on the principle of a memory device, for measuring electrical resistance. (Tallin, Sovetskaya Estoniya, 31 Mar 59)

The Tallin Punane RET Plant produces electrical measuring instruments. Its products are shipped to scientific institutes and industrial enterprises in the entire USSR. Its instruments can also be found in South America, Morocco, and India.

The plant has already begun the production of dozens of new electronic measuring instruments. It produces vacuum tube voltmeters and electronic direct-reading ohmmeters. During the Seven-Year Plan, its over-all output will rise to 2.3 times the 1958 level and its output of instruments will rise to 3.1 times the 1958 level.

The plant has 70 persons employed in its design bureau. (Tallin, Sovetskaya Estoniya, 19 Apr 59)

Every 15 seconds, a finished electric meter rolls off the conveyer of the Mytishchi Electric Meter Plant. The plant is preparing to produce new miniature household meters which will be cheaper than currently produced types. It is installing a unit for the automatic checking of instruments. When this unit goes into operation, up to one third of the personnel of the Division of Technical Control will be released for other work. (Moscow, Izvestiya, 3 Apr 59)

D. Geophysical Instruments

Today the Riga Hydrometeorological Instrument Plant shipped crates of its products to the Taldy-Kurgan base of Glavsel'khozsnab [Main Administration of Material and Technical Supply for Agriculture?], to Sakhalin, and to Arkhangel'sk. The plant ships its products to Peiping, Murmansk, Finland, Kazakhstan, Afghanistan, and Yakutiya. It sends its hydrometeorological instruments to all parts of the USSR and to various foreign countries, making a total of 670 consignees.

Radiosondes made by the Riga plant are used by scientists at the pole of inaccesibility in the Antarctic. These instruments determine the pressure, humidity, and temperatures of the upper atmospheric layers. The plant's high-precision recording instruments, hydrographs, barographs, hygrographs, and soil thermometers are used in storehouses, production shops, kolkhozes, sovkhozes, and any other place where it is necessary to determine the humidity, temperature, and pressure of the atmosphere. The plant produces about 30,000 combination hygrometer-thermomometer-barometer units per year.

Plant designers are developing new instruments based on the use of radioactive isotopes. The plant has been producing clock mechanisms for aircraft meteorographs, instruments for determining atmospheric pressure, temperature, and humidity and wind velocity at different layers under vertical sounding conditions. At the suggestion of a scientific research institute of hydrometerorological instruments, the plant has modernized the mechanism for low temperature operations.

Until recently a woman's hair was used as a sensitive element for determining humidity on hygrographs, hygrometers, and radiosondes. Plant personnel did a great deal of work in replacing this hair with animal skin membrane, which has raised the sensitivity and reliability of the instruments.

The plant also makes an instrument for determining the amount of precipitation. However, this instrument does not always work accurately during fine freezing rains. Plant designers and workers of the State Hydrological Institute are now developing a "forced pouring device so that the instruments can operate unfailingly under any intensity of rainfall. -- T. Abolina, chief designer of Riga Hydrometeorological Instrument Plant (Riga, Sovetskaya Latviya, 14 Mar 59)

The Riga Hydrometeorological Instrument Plant is giving serious attention to automating its control and measuring operations. Recently, a rotary-type unit for checking A-22 radiosondes was put into operation at the plant. The radiosonde signals are checked on a special recorder. Formerly, checking had to be done by ear. (Riga, Sovetskaya Latviya, 17 May 59)

The Leningrad Gidrometpribor Plant has built a wave graph, the first such instrument ever produced in the USSR. It is used for determining the height and length of ocean waves and can make it possible to calculate tides more accurately.

The first experimental model of a wave graph has successfully undergone testing in the Atlantic aboard the exploratory ship Lomonosov. The tests were made by V. N. Samorodnitskiy, chief designer of the plant.

The second wave graph has been sent to New York for the exhibit there.

In 1959, the Gidrometpribor Plant will begin series production of wave graphs. (Leningradskaya Pravda, 14 May 59)

Workers of the Leningrad Geologorazvedka Plant have developed a new instrument, an electronic compensator, which makes it possible to determine ore, oil, and gold deposits at depths of up to 500 meters. It can also find minerals under great depths of water.

The compensator was developed by plant designers in collaboration with the Institute of Machine Studies and Automatics of the Academy of Sciences Ukrainian SSR. It has successfully passed plant testing and will soon be shipped out to geologists of the Crimean expedition. (Leningradskaya Pravda, 20 Mar 59)

A new strong simple instrument for measuring soil vibration and vibration in engineering installations when blasting operations are taking place has been developed in the Institute of Physics of the Earth of the Academy of Sciences USSR. This instrument, called the "vibrograph of large displacements," despite its small size, can measure displacement occurring during vibration down to tenths of a centimeter. It can be used for studying the effects of explosions at close ranges that were previously inaccessible. It will be used on a large scale for blasting work, the construction of hydraulic structures, and other activities. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 13 May 59)

The DFS-14 spectrometer, a new instrument for investigating the physical and optical properties of the atmosphere by spectral analysis, has been developed by request of the Institute of Physics of the Atmosphere of the Academy of Sciences USSR. (Riga, Sovetskaya Latviya, 28 Apr 59)

Delektorskiy is chief technologist of the Frunze Physical Instruments Plant. (Frunze, Sovetskaya Kirgiziya, 18 Apr 59)

E. Other Instruments

The Institute of Electronics, Automatics, and Telemechanics of the Academy of Sciences Georgian SSR, which has been in existence for 2 years, is located in a large building on the right bank of the Kura River in Tbilisi.

According to V. Chichinadze, deputy director of the institute, it is developing moisture meters for determining moisture content of tea leaves and is finishing research on automating the irrigation installations of the Gardaban irrigation system. The institute, is also making a programming device for the model 163 lathe produced by the Tbilisi Machine Tool Building Plant imeni Kirov.

By mingling the professions of instrument makers and linguists, the institute has discovered algorythms for the machine translation of Russian texts into Georgian.

The institute has also developed a miniature radio weighing only 360 grams. (Tbilisi, Zarya Vostoka, 29 Mar 59)

A group of engineers and designers, headed by Engr I. Tsitsuashvili, at the Gori "Avtomatprom" Scientific Research Institute have developed a new instrument for determining the fat content of milk. This new instrument uses a photoelectric method of determining fat content, based on the fact that the more fat there is in the milk, the less transparent it is, and vice versa.

The new instrument has been tested by the All-Union Scientific Research Dairy Institute and the All-Union Scientific Research Institute of Livestock Raising.

By order of Gosplan USSR, in 1959, instrument making plants of the Georgian SSR are to produce 2,000 of these instruments in an experimental consignment. If tests at sovkhozes and milk reception points prove their merit, the instruments will go into mass production in 1960. (Tbilisi, Zarya Vostoka, 14 May 59)

The type AKSD-57 automatic marine smoke gauge, which is used to warn of shipboard fire, has been developed by the Independent Design Bureau of Instruments and Automation Equipment in Tbilisi. Automatic smoke gauges have been shipped to Nikolayev and Kherson, where they have been installed on ships of the Black Sea fleet. Yesterday [4 April 1959?] technical documents on these instruments were sent to China.

The bureau had designed soil testing instruments, which are in wide use in agriculture. It was first in the USSR to develop an automatic high-frequency instrument for determining the concentration of acid, salt, and alkali in solutions. (Tbilisi, Zarya Vostoka, 5 Apr 59)

In 1952-1957, the laboratory of hydromechanization of the TsNIIS (Central Scientific Research Institute of Transport Construction) in collaboration with the LFTI (Leningrad Physicotechnical Institute) worked on the development and production of a gamma-ray consistency meter. During the same time, the TsNIIS also worked on consistency meters based on other principles but none of these proved itself as efficient in operation as the gamma ray meter.

The gamma-ray consistency meter is designed for the continuous measurement of the consistency of pulp in pump-driven pulp pipelines, and is designed for long-range operation under normal dredging conditions.

(Source gives additional information on the gamma-ray consistency meter.) (Moscow, Transportnoye Stroitel'stvo, Feb 59, p 29)

F. Plant Information

The Lenteplopribor Plant has organized the production of a new instrument (9) for regulating the temperature at 12 points simultaneously. (Leningradskaya Pravda, 27 Mar 59)

(9) Photo available in source, p 2, bottom

The Leningrad Lenteplopribor Plant is having a new electronic automatic balancing bridge assembled at the industrial exposition in Moscow. Yesterday [11 May 1959?] it shipped an EPP electronic potentiometer to the Soviet exhibit in New York. (Leningradskaya Pravda, 12 May 59)

The Leninakan Instrument Making Plant, which is derived from the former Pokhpat Artel, receives orders from many USSR cities, including Moscow, Leningrad, Sverdlovsk, Kaliningrad, Kiev, and Vladivostok. In 1960, more than 18 million rubles will be spent for the construction of new shops and for acquiring new equipment. By the end of the Seven-Year Plan, the number of employees at the plant will be 15 times the present number. (Yerevan, Kommunist, 19 Mar 59)

A conveyer is in operation in assembly section No 9 (10) of the Yerevan Instrument Making Plant. (Yerevan, Kommunist, 14 May 59)

(10) Photo available in source, p 1

VI. PRECISION EQUIPMENT

A. Cameras

The Kiyev-Vega camera, or "Malyutka" as it is known in the shops of the producing plant, was developed in the design bureau of the Kiev Arsenal Plant imeni Lenin. Shutter speeds of the Kiyev-Vega are 1/3, 1/60, and 1/200 sec. Tens of thousands of these cameras will be made available to purchasers by the end of 1959. (Stalinabad, Kommunist Tadzhikistana, 19 May 59)

Six designers from Kiev have created the new Kiyev-Vega (Kyiv-Veha) camera (11). It is designed to take 20 exposures per cassette of 16-mm film with or without perforations, and the frame size is 10 x 14 mm. The camera measures 80 x 43 mm and contains 105 parts.

There are two filters for the Industar f:3.5/23-mm lens, which stops down to f:11. The shutter speeds are 1/3, 1/60 and 1/200 sec.

This camera is known as "Malyutka" in the design bureau and shops of the producing plant. Tens of thousands of these cameras will be available by the end of 1959. (Kiev, Rabochaya Gazeta, 7 Apr 59)

[Comment: The "designers" of this camera appear to have "created" a nearly exact duplicate of the Japanese-made Minolta-16 camera. If the duplication is as close as appearance and description would indicate, the shutter speeds are probably 1/30, 1/60, and 1/200 (they are 1/25, 1/50, and 1/200 for the Minolta-16).]

(11) Photo available in source, p 4, upper center

The new Kiyev-Vega camera developed by Ukrainian designers weighs only 150 grams. The short focal length of its lens permits this camera to obtain sharp pictures from a distance of 2 meters to infinity. (Tallin, Sovetskaya Estoniya, 11 Apr 59)

The two filters for the new Kiyev-Vega 16-mm camera are designated the MS-17 and the OF-12. (Moscow, Ogonek, No 23, May 59, p 28)

The Council of Experts of the Pavilion for Better Models of Consumer Goods under the All-Union Chamber of Commerce has approved the new Iskra folding camera for production.

This new camera, which uses the 6 x 6-cm format, has an f:3.5/75-mm Industar-58 lens and a between-the-lens shutter with speeds from 1 to 1/500 sec. It is equipped with a coupled rangefinder — viewfinder, a self-timer, flash synchronization, depth-of-field scale, and light-value scale. It is also equipped with a double-exposure prevention device coupled with an automatic exposure counter showing the number of frames already exposed. (Moscow, Sovetskoya Foto, May 59, p 58)

The new Iskra folding camera is produced by the Krasnogorsk Machinery Plant. Mass production of this camera is planned to begin in 1960. (Moscow, Novyye Tovary, No 5, 1959, p 1)

The Rostov Branch of Posyltorg will ship the following items by mail order:

	Price in Rubles
Start camera with f:2 lens	2,419
Kiyev-4 camera with f:2 lens	2,319
Kiyev-3A camera with f:2 lens	2,218
Leningrad camera with f:2 lens	2,017
Zenit-S camera with f:3.5 lens	811
Zorkiy-4 camera with f:2 lens	1,515
Zorkiy-5 camera with f:3.5 lens	660
Zorkiy-S camera with f:3.5 lens	610
Moskva-5 camera with f:3.5 lens	530
Sputnik camera with f:4.5 lens	309
Smena camera with f:4.5 lens	148
Lyubitel'-2 camera with f:4.5 lens	158
Yupiter-9 lens for Kiyev camera	476
Yupiter-12 lens for Kiyev camera	455
Yupiter-3 lens for Zorkiy camera	455

	Price in Rubles
Yupiter-9 lens for Zorkiy camera	476
Yupiter-11 lens for Zorkiy camera	370
Yupiter-12 lens for Zorkiy camera	455
Industar-23U lens for 6-cm enlarger	135
Industar-50U lens for 35-mm enlarger	66

Prices quoted above include costs of shipping. -- Advertisement (Yerevan, Kommunist, 14 Apr 59)

B. Watchmaking

The production of so-called "talking" clocks has begun in the Sverdlovsk economic region. These clocks were designed in the USSR and are much superior to foreign-made types, since they have been built according to a magnetic principle instead of an optical principle.

These automatic clocks have a magnetic drum on which hours and minutes have been recorded. Each hour and minute has its own magnetic channel. The drum rotates and electromagnetic sound pickup heads move along the channels, which number 83 in all.

In using these clocks for automatic time telling over the telephone, 30 sets of relays and lines for connecting them to the subscriber are installed. When the subscriber dials the proper number, he hears the proper hour and minute. The first two sets of automatic talking clocks have been produced and will soon be installed in Tashkent and Baku. In 1959, such apparatus will be sent to Kiev, Alma-Ata, Tallin, Gor'kiy, and Kuybyshev. They are already in operation in Moscow and Leningrad.

In the future, production will begin of equipment which will not only give time information, but will also inform the subscriber of the programs at movie theaters, the weather, advertising, and news. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 29 Mar 59)

The Leningrad Electric Timepiece Plant has already produced its 400th printer chronograph. These printer chronographs record time with precision up to one-hundreth of a second on a special tape. The plant is developing a new printer chronograph, which would be small enough to fit in a single carrying case. (Riga, Sovetskaya Latviya, 7 Mar 59)

Moscow Timepiece Plant No 1 imeni Kirov has finished assembling an experimental consignment of the new Signal men's wrist watches. These new watches have independent clockwork and alarm mechanisms.

The plant is getting ready to series produce the new watches. (Moscow, Moskovskaya Pravda, 20 Mar 59)

By the end of the Seven-Year Plan, the Uglich Timepiece Plant will be producing a large quantity of ladies' wristwatches. Recently, a shop (12) where Volga wristwatches are series-produced was put into operation at the plant. (Moscow; Sovetskaya Rossiya, 29 Mar 59)

(12) Photo available in source, p 2, bottom

The Chistapol' Timepiece Plant is famous for its Kama, Volna, and Vostok wristwatches. The plant has stopped producing the Kama watches, and has begun making Sputnik wristwatches, Saturn watches that tell the time of day and the day of the week, miniature Uran watches, and Raduga watches. The new watches will soon appear in stores. A large consignment of them was recently sent to the Soviet Exposition in New York. (Moscow, Izvestiya, 29 Mar 59)

The Petrodvorets Timepiece Plant has begun the production of diamond cutting tools for the watchmaking and instrument making industries. The diamonds used in these cutting tools comes from Yakutia. (Moscow, Izvestiya, 16 May 59)

An automatic line for machining men's wristwatch cases has been built in the machine tool building shop of the Moscow Timepiece Plant No 2. The line has been given the name of "ZL." (Moscow, Izvestiya, 23 May 59)

C. Other Equipment

Recently, the Orekhovo-Zuyevo Respirator Plant began the series production of the new DKP-1 medical apparatus (13) which is designed for individual oxygen therapy for victims of pulmonary and cardiovascular deficiencies, in cases where oxygen or oxygen-enriched air is needed. (Moscow, Leninskoye Znamya, 11 Mar 59)

(13) Photo showing the assembly of a DKP-1 apparatus in the plant's assembly shop available in source, p 2, bottom

The Tula Branch of Posyltorg will ship the following 16-gauge shotguns to consumers in the Uzbek SSR:

"BM" Model, custom made, mass produced	856 rubles
"BM" Model, with ornamental engraving	632 rubles
"BM" Model, standard	464 rubles

The prices quoted include costs of shipping to the Uzbek SSR. -- Advertisement (Tashkent, Pravda Vostoka, 18 Apr 59)

The Armavir Armalit Plant has on sale in unlimited quantities type A-10 GOST 7862-56 10-ton-capacity truck scales. The plant's address is Armavir, Krasnodarskiy Kray. -- Advertisement (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 15 May 59)

VII. ELECTRICAL PRODUCTS

A. Wire and Cable

In 1958, the Moscow Moskabel' Plant chronically failed to fulfill its products-list plan, particularly with regard to the supply of lead conduits, special installation wires, cord cable, fixtures, and other products. It has failed to do any better in 1959, and it has been overwhelmed with complaints.

Mukhutdinov, deputy director of the plant, and Zaugol'nikov, chief of the plant's division of sales, take these complaints in a-matter-of-fact mood as an everyday occurrence.

Despite rush work and a state of continuous frenzy in the power cable shop, it fails to fulfill its plan. Operations in the plant as a whole are unsatisfactory. (Moscow, Vechernyaya Moskva, 18 May 59)

Recently, new production buildings with more than 22,500 sq of floor-space have been constructed at the Podol'sk Cable Plant, and 260 units of new industrial and metal-cutting equipment have been installed. The plant has mastered the production of more than 50 new types of products.

A unit for preparing drawing emulsion by ultrasonic methods has been designed, produced, and put into operation at the plant. The plant also has a new tinning department (14) in its drawing shop. (Moscow, Leninskoye Znamya, 6 Mar 59)

(14) Photo available in source, p 2, top

The personnel office of the Podol'sk Mikroprovod Plant is located at Domodedovskoye Shosse 2, Podol'sk, Moskovskaya Oblast. (Moscow, Leninskoye Znamya, 4 Apr 59)

The Podol'sk Mikroprovod Plant draws a 3-km strand of wire out of a drop of molten metal weighing only 1.5-2 grams. It uses LGZ-10 high-frequency units for drawing microwire 6 microns in gauge out of manganin wire. The manganin wire, enclosed in glass tubing, is melted in a magnetic field. The molten drop that forms at the end of the wire is drawn and wound upon a cylinder, and is turned into glass-insulated microwire.

The mass utilization of LGZ-10 high-frequency units will make it possible to simplify the process of making microwire, and to accelerate it and make it less costly. Wire made of copper, silver, and iron is now being made this way in Leningrad. (Moscow, Znaniye-Sila, May 59, p 31)

The Kiev Ukrkabel' Plant has pledged that it will produce its third unit for applying polyvinyl chloride insulation on installation wire in 1959. It has also pledged to equip six modernized furnaces for varnishing installation wire with fiber insulation. (Kiev, Pravda Ukrainy, 17 Mar 59)

Two cable plants, the Zestafoni Gruzkabel' Plant and the Staliniri Emal'provod Plant are under construction in the Georgian SSR.

The Gruzkabel' Plant will make wire and cable with rubber and plastic insulation. The Emal'provod Plant will produce enameled wire needed by electrical engineering and instrument making plants.

Both plants are readying themselves for the manufacture of these new products.

Because of the organization of a cable industry in the Georgian SSR, a Division of Cable Technology and Electrical Insulation Materials along with the laboratories it needs, is being organized under the Scientific Research Electrical Engineering Institute of the Georgian Sovnarkhoz. The institute will cooperate with plants in improving production and the quality of wire and cable. -- K. Gubiyev, Chief of the Division of Cable Technology and Electrical Insulation Materials of the Scientific Research Electrical Engineering Institute of the Georgian Sovnarkhoz (Tbilisi, Zarya Vostoka, 16 Apr 59)

During the Seven-Year Plan, 30 million rubles in state funds will be used by the Bendery Moldavkabel' Plant for reconstruction of its facilities, for the construction of new production and residential facilities, and for the acquisition of equipment. In 1958-1959, the plant will install 5 million rubles' worth of equipment. In 1959, the foundation of the main production building with a 12,000-sq-m floorspace will be laid. The plant grounds will encompass 20 hectares, or more than four times as much land as now. (Kishinev, Sovetskaya Moldaviya, 31 Mar 59)

The Panevezhis Cable Products Plant is being built by members of the Komsomol. Construction of the enameling and wire drawing shops is nearing completion. Equipment will be tested in these shops in May, and then the largest cable plant in the Baltic region will be put into operation. (Vil'nyus, Sovetskaya Litva, 14 Apr 59)

B. Rotating Machinery

The Khar'kov Control and Measuring Instrument Plant has developed new miniature electric motors, which can be used in automatic recording instruments. Five such motors can fit in the palm of a man's hand. While such a motor weighs only 140 grams, it can be used to lift a 5-kg load.

The new motors are extremly simple in design and in manufacture. They utilize little metal and are based mainly on cheap new materials. The rotor has no steel core or copper windings. Instead, a ring of pressed and baked ferric oxide, barium oxide, and a binding substance is installed on a thin axis with a capron bushing. The ring undergoes magnetization.

The other parts of the motor are just as simple. The motor itself weighs only half as much as its predecessor produced at the plant; in addition, it develops seven times as much power, and is considerably more wear-resistant.

The plant has produced the first consignment of the new motors. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 11 Mar 59)

The VPCh-150 contactless rotating frequency converter has been developed by the [Konotop?] Krasnyy Metallist Plant in collaboration with the Moscow Power Engineering Institute. The new contactless frequency converter will enable the plant to convert to the production of SVCh-2 drills, which have a weight of 8.7 kg per unit of power, while SER-D drills now in series production have 16.25 kg per unit of power. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 15 May 59)

C. Control Apparatus

The Khar'kov Electrical Machinery Plant imeni Stalin has started production of a new type of station for automatically controlling various production processes. These stations do not have the heavy, bulky, and difficult-to-produce asbestos-cement insulating shields found on previously produced models. The frames of these stations now consist of fine latticework to which the electric relays, contacts, automatic circuit breakers, and instruments are attached. The stations are 25 percent lighter than previous models, and labor consumption in their assembly is 15 percent less. They are easier to service after installation.

The first industrial consignment of this new type of control station has been produced and shipped out to the Donbass Uglepererabotka Trust for installation at coal-processing plants. (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 27 Mar 59)

The Kiev Relay and Automatics Plant will soon begin the production of relay units for the automatic control of hydraulic presses used in pressing plastics. The unit, developed by a group of plant designers, can control temperature and time in an industrial process. (Moscow, Izvestiya, 27 May 59)

The Kemerovo Kuzbasselektromotor Plant produces the following types of explosion-proof equipment:

PMV1331, PMVR1441, PMVR1441/1, PMV1357-A, PMVR 1451, PMV1365-A, PMVI1365-A, and PRV1031 explosion-proof starters, which have magnetic and manual voltages up to 660 volts, 50 cycles, and are designed for running squirrel-cage motors.

It also produces the series PM700 and PR700 high-reliability explosion-proof starters, which have oil-filled elements and are used for stationary installations with voltages up to 500 volts. They can also be made in versions suitable for tropical operation, in which case the letter "T" is added to their type-designation. They are not suitable for frequent switching, because their contacts wear out too quickly in the oil. The plant does not supply the oil for filling the starters.

(Source gives additional information on these magnetic starters.) (Moscow, Promyshlennaya Energetika, May 59, pp 62-63)

D. Ultrasonic Equipment

The Leningrad High-Frequency Installations Plant has produced a new series of machines for the ultrasonic processing of materials; for cleaning and degreasing parts, and for improving electroplating processes. These machines can process hard and brittle materials, porcelain, glass, and various ceramic products. During 1959, the plant will begin the production of five more new types of high-frequency machines. (Tashkent, Pravda Vostoka, 24 Apr 59)

The Leningrad Electrical Machinery Plant has produced its first ten ultrasonic units for preventing crust formation in boilers. (Leningradskaya Pravda, 12 Apr 59)

E. Welding Machines

The ShKM-3 universal capacitor seam-welding machine has been developed by the Laboratory of Electrothermy of the Institute of Electrical Engineering, Academy of Sciences USSR, and the Chair of Electron and Ion Devices of the Kiev Polytechnic Institute. Machines such as this one have never before been industrially produced. The ShKM-3 welds, crosswise, lengthwise, and circular seams in ferrous and nonferrous metals, nickel, nichrome, tantalum, various alloys, and stainless steel from .05 to .7 mm in thickness. The wide ranges of thicknesses and the variety of metals it can weld give it a considerable advantage for use in instrument making, vacuum tube manufacture, and other branches of industry.

Several of these machines are already in operation at instrument-making plants.

The Laboratory of Electrothermy has also developed the first TKM-8 semiautomatic capacitor machine for the spot welding of metal from .05 to .6 mm thick. (Kiev, Pravda Ukrainy, 15 May 59)

The Scientific Research Institute of Electric Welding Equipment has produced five new machines for exhibition at the 1959 All-Union Industrial Exposition. One of these is the MShK-3-2 (15), the first miniature electric welding machine, which has a power of 3 kva and is used for the seam welding of extra-thin steel and brass sheets from .03 to .2 mm in thickness. (Leningradskaya Pravda, 17 May 59)

(15) Photo available in source, p 2

F. Other Products

The Yoshkar-Ola Electrical Instrument Plant is selling type ATS-30/0.5 natural air-cooled, three-phase, star-connected autotransformers with powers from 57.5 to 112 kw. The transformers are plugged in a 380-volt 50-cycle circuit.

Inquiries should be sent to the plant in Yoshkar-Ola, Mariyskaya ASSR. -- Advertisement (Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 15 Apr 59)

The new Ust'-Kamenogorsk Capacitor Plant has manufactured its first consignment of electrical capacitors. Yesterday [21 April 1959?] it shipped them to enterprises in Rudnyy Altay. (Moscow, Izvestiya, 22 Apr 59)

The [Baku] Kishlinskiy Machine Building Plant of the Azerbaydzhan Sovnarkhoz is the first USSR plant to begin the series production of room air conditioners. It is producing the Azerbaydzhan room air conditioner which can cool a room to plus 20 degrees Centigrade when the outdoor temperature is 40 degrees. It uses freon gas as a coolant, and consumes a maximum of .9 kwh of power.

The new air conditioner, which weighs 85 kg, will soon go on sale. (Baku, Bakinskiy Rabochiy, 13 May 59)

Recently, a universal intermittent conveyer line (16) for the simultaneous assembly of several different types of electrical equipment for automatic lines and unit-type machine tools has been put into operation at the Moscow Low-Voltage Equipment Plant. This line is 164 meters long. (Moscow, Izvestiya, 16 May 59)

(16) Photo showing the testing of a magnetic starter assembled on the line available in source, p 2, top

The expansion of city and highway construction has brought about an increased demand for automatic signal switching devices for traffic signal lights. The Voronezhskiy Sovnarkhoz has organized a section for the production of automatic traffic light switches at the [Voronezh?] Electrical Repair Plant. (Moscow, Za Rulem, Mar 59, p 4)

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