



Ericsson News

MAY 1927

English edition.

Managing Editor:

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Vol. I, No. 2

Notes of interest from the L. M. Ericsson railway safety appliance division. Among the various branches of the company's activities, the one here mentioned is comparatively new. It was taken up in 1915 after the outbreak of the war originally only for the purpose of meeting domestic demands for electric railway signal material. Previously, Swedish demands for such material had for the greater part been filled by foreign manufacturers, but this source of supply was almost entirely cut off by the adverse wartime conditions. It is an interesting coincidence that the first delivery of such material effectuated by L. M. Ericsson was made in 1916 to a foreign country, i. e. to Russia.

To start with, mechanical as well as electrical devices were manufactured. The former being somewhat foreign to the general character of L. M. Ericsson's activities, however, an agreement was reached in 1921 with Aktiebolaget Växlar och Signaler (Avos) in Örebro, which took over the entire mechanical end of the work and still further increased its activities in this line by acquiring the signal departments of Svenska Maskinverken (The Swedish Machine Works) and Råå Mekaniska Verkstads Aktiebolag (The Råå Machine Shops Company, Ltd.). L. M. Ericsson and Avos together then formed Signalbolaget (The Signal Company, Ltd) to act as a sales company for their output of electrical and mechanical equipment in this line. Also, Signalbolaget works out all proposals for new interlocking plants, the interests of the railways thus being looked after in the best possible manner inasmuch that the most suitable type of plant — electric or mechanical — with regard to the existing conditions is always offered.

A glance at the table of statistical information on page 4 is sufficient to prove that the efforts laid down by L. M. Ericsson in this line have met with success. Deliveries have increased from year to year, the results achieved up to the present time being worthy of all recognition. The first modest beginning, with the intention of meeting the demands of only the domestic market, has little by little grown and expanded to such an extent that at the present time no foreign material whatsoever of this kind is imported to fill the needs of the Swedish railways, at least not directly.

The fact is that Signalbolaget has recently associated itself with The Westinghouse Brake & Saxby Signal Co., of London, which firm, in turn, coöperates with The Union Switch and Signal Co., of America, thus putting Signalbolaget in a position to furnish special English and American types of electric equipment should the customer so desire.

For instance, for the Malmö interlocking plant described in Nos 1 & 2, Vol. III of The L. M. Ericsson Review, the required interlocking machine was purchased by Signalbolaget from Westinghouse, whose type differs considerably from other types of electric interlocking machines hitherto used in Sweden. However, L. M. Ericsson is now manufacturing a new type of interlocking machine which embodies the same advantages as the Westinghouse type. As a result of this coöperation with Westinghouse, Signalbolaget is able to obtain from them certain equipment for track insulation (A. C. relays, impedance connections, etc.) which, on account of the small quantities required, cannot be manufactured to advantage by L. M. Ericsson. These apparatus are acknowledged to be the best obtainable.

Since the first of March of this year, three additional orders for electric interlocking plants according to the Ericsson system have been received, i. e. two from the Swedish Gov't Railways for the Linköping and Mjølby stations, and one from the Danish Gov't Railways for Charlottenlund, this latter having been obtained through the good offices of the Bonnesen & Danstrup Company, Copenhagen, representatives for Signalbolaget. The Linköping plant comprises one interlocking machine with thirty-seven levers for manœuvring fourteen signals, twenty points, five scotch blocks, two pairs of crossing gates, one swing bridge, one illuminated track plan with control lamps for twenty-four insulated track sections and automatic warning signal bells at two road crossings. The Mjølby plant comprises one interlocking machine with forty-three levers for manœuvring fourteen signals, thirty-three points, six scotch blocks and one illuminated track plan with control lamps for twenty-one insulated track sections. The Charlottenlund plant comprises two interlocking machines with a total of seventeen levers for the manœuvre and control of fourteen signals and thirteen points. Thus, the grand total in the following table is increased to thirty-two plants with a total of forty-one interlocking machines, one thousand one hundred and twenty levers for the control of four hundred and ninety-three signals, eight hundred and forty points, one hundred and twenty-four scotch blocks and forty-nine crossing gates.

In the table, the plants installed by the customers are denoted by an asterisk.* The name printed in italics denotes that the plant has been described in The L. M. Ericsson Review.

Inquiries and orders may be forwarded to Telefonaktiebolaget L. M. Ericsson, or to any of its branches or agencies as well as to Signalbolaget. Projects and deliveries are in all cases executed by the last mentioned company.



The Ericsson Time Control. During 1917 and 1918 investigations and experiments were carried on preparatory to the construction and manufacture of a time control system. The main reason for this was that a thorough investigation of the existing time control apparatus in use in Europe as well as in America — brought about by a decision to introduce time control in the company's own shops — showed that none of them met the requirements considered both reasonable and necessary.

These same conditions made it apparent that there ought to be an excellent market for a time control system devoid of the inherent undesirable features of the existing systems. Thus it came about that a new system was devised which, as a matter of fact, was given a detailed description in Nos. 3 & 4, Vol. I of The L. M. E. Review.

This system has since been improved upon, and it is now some time since the Stockholm works have been fully prepared to take up the manufacture and distribution of this line of material.

The table here below gives the number of Ericsson time control plants in operation and in course of manufacture up to Dec. 31, 1926.

Foreign inquiries may be adressed to all subsidiary firms as well as agencies of Telefonaktiebolaget L. M. Ericsson.

The interest for time control systems and subjects related thereto has proved to be very keen, for which reason it is our intention to take up for discussion questions of more general interest connected with this subject in the columns of the Ericsson News under the heading »Time Control». More detailed descriptions of plants installed and systems applied will, from time to time, be printed in The L. M. E. Review.

	Number	Number of time clocks	For number of workers	Secondary clocks
In operation . . .	24	105	approx. 6000	120
Under construction	10	27	» 1400	47
Total	34	132	approx 7400	167

Plants have been delivered to business houses in the following lines; machine shops, weaving mills, spinneries, rubber factories, clothing manufacturers, bakeries, linen mills, knitting mills, railway shops, printing houses, chocolate factories, etc.

Manual Telephone Exchanges. In the face of keen competition with Standard Electric Co., Siemens-Schuckert and Elektrisk Bureau of Oslo, Aktiebolaget L. M. Ericsson in Finland has been instrumental in securing for L. M. Ericsson the order for a new telephone exchange for the city of Bjoerneborg. The actual issues in this competition were the system and the quality of the material. The plant is to be built according to the Ericsson C. B. system with automatic distribution of incoming calls and will have an initial capacity of 1600 lines (the final capacity amounting to 5000 lines) with a combined rural and toll exchange for a total of 60 rural lines and 20 toll lines.

Finland is one of the countries in which telephony gained an early foothold, and stands now in a front rank as far as the development of telephone communications is concerned. Up till the outbreak of the war, L. M. Ericsson was the most important purveyor of telephone equipment. However, Finland's recuperation after the war was accompanied by a desire to expand and modernize telephone communications within the country. The Finnish telephone societies devoted their energies to a thorough study of the subject, thus inducing other firms to try their luck in Finland in competition with L. M. Ericsson. The results of these sharp competitive contests, however, only proved the supremacy of Ericsson material. During the few years which have elapsed since the war orders for eight new telephone exchanges — including the Bjoerneborg exchange — have been placed, of which L. M. Ericsson have obtained all but two. In addition to the Bjoerneborg exchanges, L. M. Ericsson have received orders for new exchanges in Tavastehus (in operation since 1919), Lahti and Uleåborg (in operation since 1920), Abo (in operation since 1923), Vasa (in operation since 1925) and Kuopio and Villmansstrand, which two last will be completed before the expiration of June 1927.

The exchanges have the following capacities:

	Number of lines	Maximum Capacity	Number of Rural Lines	Number of Toll Lines
Tavastehus	900	2800	30	—
Lahti	1050	2800	60	—
Uleåborg	1200	10000	24	20
Abo	3700	9600	100	—
Vasa	1600	4000	60	20
Kuopio	1600	5000	50	10
Villmansstrand	800	2600	20	10

The Villmanstrand exchange has been built according to the local battery system with lamp signals for incoming calls as well as for clearing; all others — including Bjoerneborg — are built according to the Ericsson C. B. system with automatic distribution of incoming calls, this last feature varying slightly in principle for the different exchanges. The Villmanstrand exchange can be transformed to C. B. without installing any additional material. During the course of this year, descriptions of these exchanges — with the exception of Abo, which was described in detail in Nos. 3 & 4, Vol. 1— will be printed in The L. M. E. Review.

Ericsson Oesterreichische Elektrizitätsaktiengesellschaft — L. M. Ericsson's subsidiary in Vienna — have received an order from the Austrian Post and Telegraph Office for a C. B. telephone exchange for the city of Loeben in Steyermark. This exchange is to have an initial capacity of 720 lines divided up among six operators' positions with fifteen pairs of cords each. The multiple will have an ultimate capacity of 3600 lines. The exceptional conditions which existed when the Vienna factory was completed in 1915 accounted for the fact that it could be used for the manufacture of telephone material only to a limited degree. The depressed conditions which prevailed right after the war prevented the factory from quickly devoting itself to the line of manufacture for which it was originally intended, but these difficulties have been removed since some years back.

The above exchange is the third ordered from the Vienna works by the Austrian government, the first one being for Sankt Pölten in Lower Austria, in operation since 1924. This exchange is built according to the L. B. system with an initial capacity of 700 lines, the ultimate capacity being 4500 lines. One hundred of these 700 lines are party lines, arranged according to a system devised by two telephone engineers, U. S. Dietl and F. Koch, and adopted by the Austrian telephone administration. These lines are for a maximum of four subscribers each which can be called up entirely independently of each other and obtain communication with each other over the exchange. The exchange comprises six operators' positions with fifteen pairs of cords each, one junction section with thirty junction lines, and two multiple fields with nine panels each and one three-panelled annex.

The other of the Austrian exchanges delivered by the Vienna subsidiary is the Wiener-Neustadt exchange in Lower Austria. This exchange is now under erection according to Ericsson's C. B. 3-wire system and will have an initial capacity of 1440 lines with an ultimate capacity of 3600 lines. The exchange comprises thirteen operators' positions with fifteen pairs of cords each, and one junction section with thirty junction lines. Every three positions are covered by a nine-panelled multiple field, the row of switchboards being terminated with one three-panelled annex at each end. Further, the exchange is equipped with sixty-five direct toll lines distributed over the thirteen positions and thirty transit lines, space having been provided to permit the increase of these numbers to 85 and 40 respectively. In addition, there is a commutation switchboard with two order and service positions, which also serves as a concentration board for the night service.

Automatic Telephone Exchanges. Our British subsidiary, Ericsson Telephones Limited, has received an order from the General Post-Office for two automatic telephone exchanges with satellites. These exchanges are for the cities of Bath and Walsall and will be built according to the Strowger system. The former plant comprises a main exchange with an ultimate capacity of 4900 lines — initial capacity 3040 lines — and satellites in Betheaston and Weston with a final capacity of 190 and 700 lines respectively, their initial capacities being 130 and 430 lines respectively. The Walsall plant comprises one main exchange with an initial capacity of 1740 subscribers' lines and an ultimate capacity of 3500 lines, and one satellite with an initial capacity of 228 lines, the ultimate capacity being 600 lines. Consequently, this order includes five exchanges with a total ultimate capacity of almost 10,000 lines, 5600 of which are to be installed at the present time.

THE L. M. ERICSSON AUTOMATIC TELEPHONE SYSTEM.

It is now four years since the first automatic telephone exchange according to the Ericsson system was put in operation. It was the »West» exchange in Rotterdam, Holland, which was then opened for service for a total of 5000 subscribers. Later on, this plant was followed by a long list of other ones over the whole world, in countries where telephone communications had already reached a very high standard and where further development quite naturally followed the principle of automatization as well as in other countries where telephony was as yet practically undeveloped.

It is with unfeigned satisfaction that Telefonaktiebolaget L. M. Ericsson can look back on its accomplishments in this line, since the results attained give ample proof of the fact that this system has won the confidence of telephone experts as well as of the general public with a rapidity unrivaled within the field of telephony, this success being founded on the certainty of action, adaptability and wonderful technical precision of this system.

Among the plants built according to this system and now in operation or in course of construction, we will permit ourselves to mention Stockholm — Sweden's largest telephone net — where 250,000 subscribers are to be given automatic service. 10,000 subscribers' lines are already equipped for this type of service, automatic equipment for an additional 35,000 lines now being under construction to be put in operation within the next two years. The telephone net in Gothenburg — Sweden's largest commercial centre — is also being equipped for automatic service, 12,000 automatic lines now being under construction.

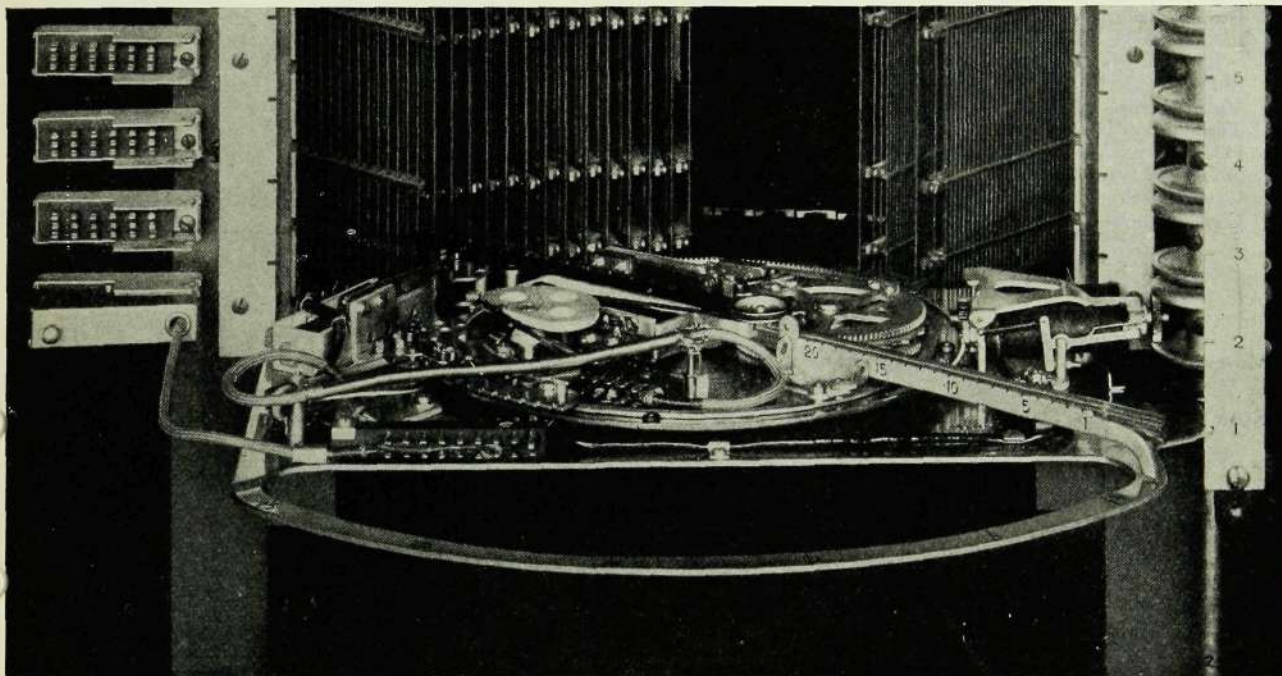
The »West» exchange in Rotterdam, Holland, has been followed in quick succession by the »Noord» and »Central» exchanges, all three together providing a total of 16,500 subscribers with automatic service. The automatic plant in this city is planned for an ultimate capacity of 80,000 lines.

In Mexico City automatic equipment will be provided for 60,000 subscribers' lines.

The Governmental Low Tension Electrotechnical Trust of the Soviet Union has contracted with the Peoples Commissariat of Posts and Telegraphs for the delivery of four Ericsson automatic exchanges for the city of Moscow and two for the seaport town of Rostoff, these exchanges having a total capacity of 10,000 lines. The execution of these installations — constituting the first step in the automatization of the telephone communications of this immense country — mean the introduction of the Ericsson automatic system in Russia.

In Italy, where all the telephone nets have been turned over to private concessionaires, the Ericsson system is being introduced not only in the Southern (fifth) zone — where the Ericsson company is directly involved in the activities of the operating company — but also in seven cities belonging to other zones. Exchanges with a total of 37,500 lines are now either in operation or under construction.

In Sept. 1926 an automatic exchange according to the Ericsson system was put in operation in Angora, capital of Turkey. This plant is soon to be followed by a second and similar one in Smyrna.



R. 572.

Detail of Selector Rack.

Nos. 1 & 2 and 7 & 8, Vol. I of The L. M. Ericsson Review contained a description of the Ericsson automatic telephone system. Since these numbers are now out of print and requests for the same are still being received in considerable numbers, Telefonaktiebolaget L. M. Ericsson has determined to publish during the current year a new, amplified edi-

tion of this description, not only in Swedish, English and Spanish but also in French and German.

This description in all the above-mentioned languages is expected to be ready for distribution during the first half of this year.

The Editor.

L I S T

of electric interlocking plants installed or in course of construction by Telefonaktiebolaget L. M. Ericsson up till March 1:st 1927.

Station	Railway	Number of		Number of				Delivered
		Inter-lock'g machines	Lever	Sig-nals	Points	Skotch Blocks	Crossing Gates	
A. Completed plants.								
1. Sweden.								
Åby	Swedish Gov't Railways	2	44	11	24	2	—	1917
Eslöv	» » »	2	101	31	60	6	—	1918
Älvsjö	» » »	2	70	17	40	4	2	1918
Norrköping	» » »	2	55	10	33	6	—	1920
» extension	» » »	—	18	2	16	—	—	1921
Södertälje South	» » »	2	66	22	36	2	—	1920
*Stockholm, Stadsgården	Stockholm Saltsjön Ry.	1	1	1	—	—	—	1921
Kumla	Swedish Gov't Railways	1	11	8	12	3	—	1923
Norsholm	» » »	1	14	6	17	4	—	1923
Kimstad	» » »	1	20	12	17	8	—	1923
Nässjö (L. M. E. Review Vol. I, Nos. 3 & 4 p. 36)	» » »	2	75	17	69	9	—	1923
D:o extension	» » »	—	4	2	4	—	—	1923
*D:o	» » »	—	5	3	2	1	—	1925
Mora	» » »	2	5	3	1	—	—	1924
Varberg	Varberg Borås Ry.	1	33	16	40	16	—	1924
Borås Lower (L. M. E. Review, Vol. II, Nos. 5 & 6, p. 65)	» » »	2	56	14	50	5	2	1924
D:o extension	» » »	—	2	1	2	—	2	1925
Flen (L. M. E. Review, Vol. III, Nos. 9 to 12, p. 2) ..	Swedish Gov't Railways	1	30	11	18	5	—	1925
Malmö (L. M. E. Review Vol. III, Nos. 1 & 2, p. 2) ..	» » »	1	74	95	66	3	—	1925
Torup	Halmstad Nässjö Ry.	1	7	3	3	—	—	1925
Hässleholm	Swedish Gov't Railways	1	57	60	52	12	—	1926
Stocksund	Stockholm Roslagen Ry.	1	5	2	4	1	—	1926
Gävle South	East Coastal Ry.	1	36	22	23	5	12	—
Gävle Central	Gävle Dala Railway Co.	1	40	19	29	1	24	—
20 plants with a total of		28	829	388	618	93	42	—
II. Foreign.								
1. Russia.								
*Moscow	Government Railways	1	65	26	54	1	—	1916
2. Denmark.								
*Farm	Danish Gov't Railways	1	1	—	1	—	—	1925
3. Norway.								
Töjen	Norwegian Gov't Railways	1	14	12	7	2	—	1921
» extension	» » »	—	3	3	—	—	—	1922
Loengen	» » »	1	1	3	—	—	—	1922
» extension	» » »	—	3	5	—	—	—	1922
4. Finland.								
Fredriksberg	Finnish Gov't Railways	1	9	6	5	—	—	1925
5 Plants with a total of		5	96	55	67	3	—	—
Sum total 25 Plants with a total of		33	925	443	685	96	42	—
B. Under Construction.								
1. Sweden.								
Herrljunga	Swedish Gov't Railways	1	20	13	15	7	—	
Skövde	» » »	1	28	9	18	8	4	
2. Denmark.								
Rungsted	Danish Gov't Railways	1	16	8	18	1	—	
Bramminge	» » »	1	34	18	38	1	—	
4 Plants with a total		4	98	48	89	17	4	—
Sum total 29 Plants with a total of		37	1023	491	774	113	46	—

* Denotes that plant has been installed by customer.