

# The Ericsson Bulletin

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## South Africa House



South Africa House, London



ON the 22nd June, 1933, Their Majesties The King and Queen, attended by Lieut.-General the Right Honourable J. C. Smuts and other notable personages, were received at the entrance to South Africa House by Mr. Charles te Water, High Commissioner for the Union of South Africa. The occasion was the official opening, by the King, of this imposing building. Sir Herbert Baker, K.C.I.E., R.A., F.R.I.B.A., the architect of the building, handed to the King a gold key which, after unlocking the door, was delivered to the High Commissioner, His Majesty thereafter declaring the Building open.

The view of South Africa House which is reproduced above is as seen from the top

of Whitehall. The exterior design blends with the architecture of the neighbouring buildings of Trafalgar Square, inasmuch as its main features, the two colonnades and the great cornice, are practically identical with those of the National Gallery, and similar to those of the Church of St. Martin in the Fields, seen on the left.

The romance and history, fauna and flora, and the dominant national features of South Africa, are expressed in the decorations both outside and inside through the skill of artists and craftsmen, in the medium of stone, marble, metal, wood and plaster. The beautiful rooms, for instance, owe much of their magnificent appearance to the coloured marbles cut in the quarries of the Transvaal and South West Africa,



whilst the ceilings, walls, friezes and floors depict the earlier phases of South African history, her decorative flowers, the Springbok her national symbol, and many other characteristics in symbolic form.

Round the second dome of the Central Hall is inscribed the Union motto :—

“Eendragt maakt Magt”—“Unity is Strength”,  
and round the first dome is inscribed :—

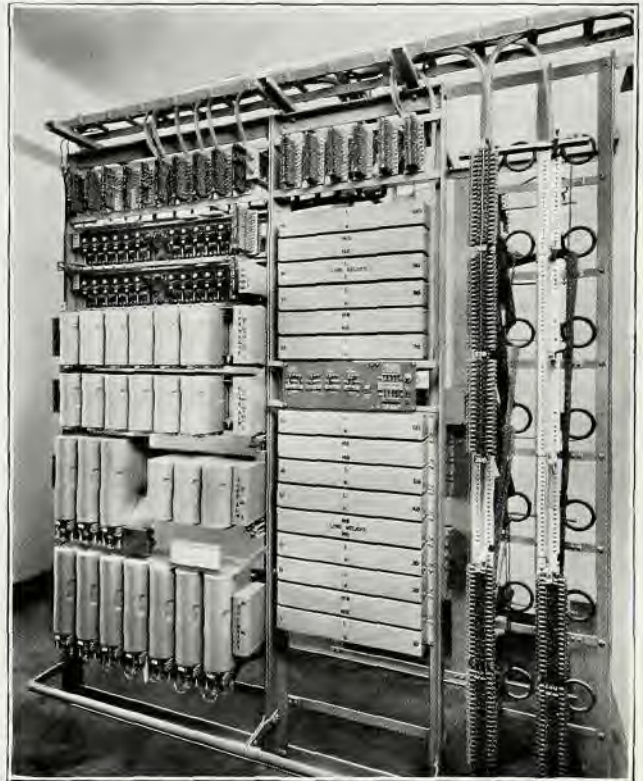
“Florenti fama atque opibus Africae meridionalis civitati vel maius incrementum det Deus”—

“To this State of South Africa, flourishing in reputation and its resources, may God give even greater increase.”

This stately building is a symbol of the Union's endeavour to attain the ideals portrayed by these two inscriptions. Hence the beauty of the surrounding art must be intermingled with modern commercial appliances, prominent amongst which is an efficient telephone system. The Ericsson Company was honoured with the contract for this work.

The Private Automatic Branch Exchange (P.A.B.X.) installed is initially equipped to serve 100 extension lines and 12 exchange lines, and employs a three digit numbering scheme, viz. 200-299. The extensions can obtain direct access to the Whitehall Automatic Public Exchange by dialling “9” or, on the other hand, can call the P.A.B.X. manual operator by dialling “0.” Thus, outward calls to subscribers on the public exchange service can be made with or without the intervention of the local operator. All incoming calls are handled by the operator, who extends the call to the required extension via the multiple jacks on the manual board.

A view of the front of the automatic equipment, together with a small main frame adjacent, is shown. This unit consists of a single sided type rack 5' 5" wide and 8' 0" high, utilising channel type shelves for mounting the necessary switching apparatus. Fifty-point single-motion type switches are employed as line finders, necessitating the division of the equipment into two groups of fifty lines, six switches being fitted per group. Directly connected



South Africa House—Automatic Equipment and Main Frame

to each finder is a group selector, consisting of a single-motion switch and a relay set. The group selectors have access to ten final selectors which are of the two-motion 100-line type. Summing up therefore, the switching equipment comprises twelve line finders, twelve group selectors and ten final selectors.



The whole of this equipment, excepting single-motion switches, is "jacked-in", thus facilitating the addition of extra equipment or the localization of faults, etc. All relay groups are provided with individual covers as a protection against dust, and twin contacts are fitted on all relays to minimize still further any trouble which might arise from this source. A cross-connecting field for jumpering between the line relays and the final selector multiple is incorporated at the top of the rack to provide a means of equalizing the traffic load over the two groups mentioned above.

enabling these extensions to receive incoming calls from the public exchange. Such extensions are provided with duplicate lines to the P.A.B.X., so that when one is connected to an exchange line the other may be used for local calls.

All exchange lines are provided with visual engaged signals so that the operator can see at a glance those that are being used by extensions for direct outgoing calls, *i.e.* level "9" calls. A hand-generator is fitted on the board as a precautionary measure against the ringing machine failing.

Briefly the switching operations for the various types of calls which can be made are as follows:—

#### *Local Call.*

Immediately a micro-telephone is lifted, a line finder searches for the calling line. When the latter is found, dial tone is transmitted to the calling party from the group selector associated with the line finder in use, and the manual board jack is rendered busy.

When the calling party dials the first train of impulses, the group selector is stepped to the desired set of outlets, and, at the end of the impulse train, searches for and seizes a free final selector in that group; (if all final selectors in the group are engaged, busy tone is connected to the calling party). The final selector, when seized, steps vertically on receipt of the second impulse train, and is rotated to the desired line under the influence of the third impulse train.

The required party's bell is then rung and ringing tone transmitted back to the caller unless the line is already engaged, in which case the caller receives busy tone.

The one position manual board, as may be seen from the illustration, is of the floor pattern employing lamps as the calling

signals and Ericsson "flap" indicators for supervision. Each of the 100 extension lines is represented on the front panel by a jack and a lamp, and the other terminations are twenty manual extension lines, three private lines and twelve bothway exchange lines.



**South Africa House—Manual Switchboard**

The board has twelve cord circuits arranged for negative supervision and "through" clearing. Night extension keys are incorporated in the cord circuits enabling them to be easily converted into "straight through" cords. At night time, when the manual board is not staffed, the jacks of certain extensions are plugged through to exchange lines, thus



The first party to replace a receiver releases the connection.

#### *Call to Manual Operator.*

The calling party is connected to a group selector and receives dialling tone as described for a local call. The digit 'O' is now dialled and this causes the selector to send back a signal to the line equipment, which responds, releases the automatic equipment, and lights the calling lamp on the manual board. The calling party receives ringing tone until the operator answers.

#### *Calls to Public Exchange.*

The calling party, on receiving dial tone, dials the digit "9," thus stepping the group selector seized to a group of outlets to the public exchange. At the end of the impulse train the selector searches for a free line in the group. When all lines to the public exchange are engaged, busy tone is connected to the calling party, but if a free line is available it is seized and the associated jack on the manual board is rendered busy.

The calling party now listens for dial tone from the main public exchange and when this is received dials the required number. Release of the connection is dependent upon the calling party.

Alternatively, the calling party can dial "O" and obtain the operator, who, on receiving a demand for a subscriber on the public exchange system, completes the connection via one of the outgoing exchange jacks.

#### *Incoming Call from Public Exchange.*

When the final selector at the public exchange seizes a free line, the calling lamp glows on the P.A.B.X. manual board and the circuit is rendered busy for outgoing calls.

The operator answers the call and makes the connection in the usual manual way. A trunk call can be offered without breaking down a local connection.

To prevent the switching equipment being held unnecessarily by permanent loops, due to receivers being left off, etc., the group selector seized releases after a period of between 30-60 seconds if no dial impulses have been received, and the calling signal on the manual board is operated. When the operator answers the call and does not receive a demand, she knows that the line is faulty and can take the necessary steps to have the receiver replaced or the fault cleared.

Visual and audible alarms are provided to indicate blown fuses or the failure of switches to release after the termination of a call. These alarms can be extended to the manual board as desired.

The Ericsson Company has made a special study of Private Automatic Branch Exchanges and is in a position to manufacture and install equipments incorporating all the latest refinements. It has already provided installations for many prominent modern buildings as well as for most of the large railway companies.

Enquiries are welcomed, customers' requirements are carefully studied and complete particulars submitted.