ERICSSON REVIEW

SELECTION AND TESTING OF ELECTRONIC COMPONENTS
CROSS STRANDING OF TELEPHONE CABLE
NEW TELEPHONE SET
DIGITAL LINE EQUIPMENTS
OPERATION AND MAINTENANCE CHARACTERISTICS OF AKE
MAGNETO SWITCHBOARD

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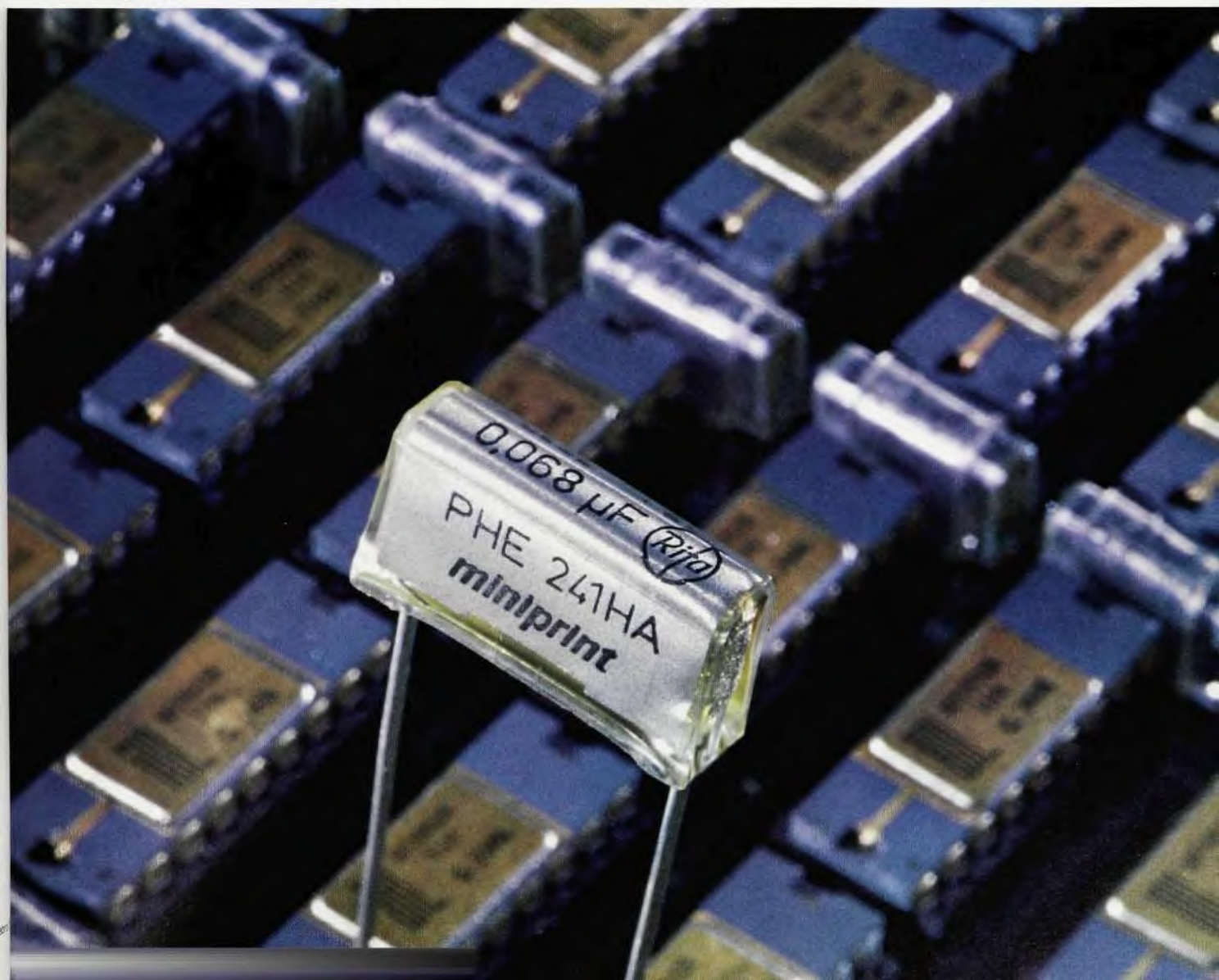

New Telephone Set

Arne Boeryd and Gunnar Wiklund

New standard telephone sets have been introduced on the market at intervals of 15–20 years. DIALOG was introduced in 1963 and soon attracted attention and appreciation because of its excellent transmission characteristics and high overall quality.
During the second half of 1974 work on developing a new telephone set was started in order to meet the demands of the future as regards for example push-button dialling and more stable long-distance characteristics. As a result of this work LM Ericsson will start production of a new table set, designated DBA 100, during the autumn of 1978.

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Telephone set DBA 100 has been developed with the aim of providing a telephone set

- that gives the best possible overall economy and which remains up-to-date for 10–15 years after its introduction
- which is suitable for both office and domestic environments and which will meet the demands of the 1980s as regards appearance and quality
- with a simple and reliable construction and which lends itself to rational production
- with an entirely modular structure that facilitates servicing
- that is suitable as the basic product for a family of telephone sets.

Work on developing and designing a new standard telephone set was started jointly by LM Ericsson and the Swedish Telecommunications Administration during the autumn of 1974, and a development assignment was placed with ELLEMTEL. The work was based on jointly prepared specifications and with active participation by specialists from the Administration and LM Ericsson.

LM Ericsson's new telephone set, DBA 100, will be put on the market during the autumn of 1978 and will gradually replace DIALOG.

Design

The requirements that are of prime importance for a telephone set relate to

- the appearance
- the design of the handset with regard to handling and transmission performance
- the design of the impulsing device and its location.

A number of industrial designers were given the task of making suggestions for the external design of the set. The resultant design models were examined from an aesthetical point of view, and at the same time the possibilities of rational construction were assessed.

In the design selected, fig. 1, the exterior of the set is built up of four units, namely the base, rear and front covers and the handset.

Fig. 1
Telephone set DBA 100

Mechanical construction

When developing the set the possibilities provided by the exterior design have been exploited in order to limit the number of coloured details. This is advantageous from the point of view of manufacture, stocking spares and maintenance, and at the same time there is considerable scope for varying the colour of the front cover.

The base, rear cover and handset are manufactured in one colour, preferably black.

The handset has been designed so that it rests easily in the hand, regardless of

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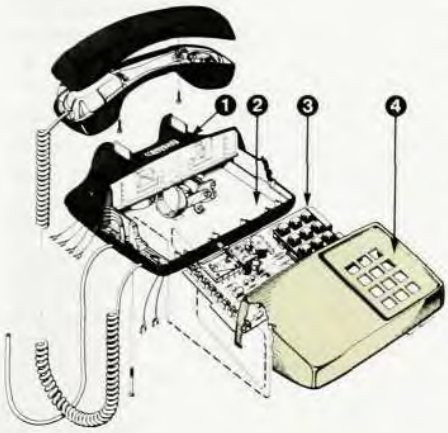

Fig. 2
Exploded view of telephone set DBA 100
1. Rear cover
2. Base
3. Printed board assembly
4. Front cover

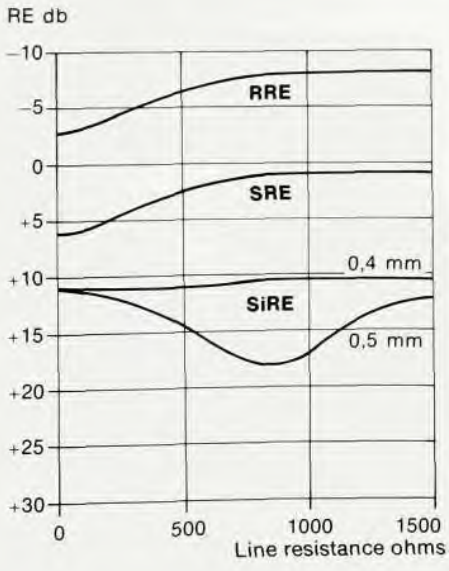

Fig. 3
Transmission properties of DBA 100 when using

whether the user grasps it in the middle or at the microphone end. The handset also rests on the body of the set in such a position that it can easily be picked up from any side of the set.

The set is designed primarily for push-button dialling.

One of the basic design aims was to create sufficient space in the set for printed boards. This means that the necessary mechanical components, primarily the push-button set and the cradle switch, have been designed for mounting on the printed board. The basic design of the set is shown in fig. 2.

A standard set holds *one* printed board assembly that contains the push-button set, cradle switch, electronic components for impulsing and current feeding, and terminals for the handset and telephone instrument cords.

The ringing device used is a conventional bell. The base has been equipped with the resonators that are required for amplifying the sound from the gongs within the frequency range 1000 – 2000 Hz.

The construction described here has the following advantages from the points of view of manufacture, installation and maintenance:

- the front cover is a simple detail without any fitting problems or special tolerance requirements
- the set can be tested, packed and transported without the front cover. The front cover can easily be fitted on site, when the customer has chosen a colour
- the weight distribution of the set is such that it is easy to carry
- the number frame is placed on top of the rear cover in front of the handset. This makes the subscriber number easy to read
- the push-button set is placed on the right-hand side of the set, with is both convenient and attractive. It is placed in an indentation in the cover. In this way the set and the printed board assembly are protected against shocks if the set should fall on to the floor.

Circuits and components

All the components are mounted on a single printed circuit board. It is therefore possible to take full advantage of component development and market requirements. This can be especially worthwhile with regard to pushbutton dialling. The design implementation of these functional elements meets applicable CCITT recommendations, CEPT specifications and any additional requirements imposed by the telecommunications administrations.

The set will be available either with a linear microphone and electronic speech circuit or with a carbon microphone and a traditional hybrid circuit.

Identical components will be used as receiver and microphone elements in the version with an electromagnetic microphone. Identical electroacoustic components for transmitting and receiving are an advantage from the point of view of maintenance and stocking spares.

The version with an electret microphone provides the maximum quality as regards sound reproduction of the speech signal.

The reference attenuation of the set relative NOSFER will be the same irrespective of whether an electromagnetic or electret microphone is used. Fig. 3 shows an example of these transmission properties when using an electronic speech circuit.

Summary

LM Ericsson's new telephone set DBA 100 will be the basic set in a range that will cover such applications as:

- loudspeaking telephone
- executive-secretary system
- office telephone systems with a various number of exchange lines being available to the set.

This range of telephone sets will be introduced successively during 1979.