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### Mathematical representation of progressive tests

L. Praz, Berne

Often it is not possible to examine the behaviour of all components of an installation. One then has to test a certain number of samples, and infer from them the behaviour of the entire plant. This can be done by progressive testing, the duration of which depends on the number of faults observed. The data necessary for working out two test diagrams is explained and illustrated by examples.

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### Voice frequency transmission system TUS-35

F. Müller, Berne

A system is presented which, over existing telephone lines, transmits signals and messages superimposed upon the voice channel. The system is based on the frequency-shift procedure and uses the 4.25 and 4.5 kHz frequencies lying outside the telephony speech band. The system is fully electronic, modern integrated circuits being used, and its overall conception is highly flexible. Transmission systems ranging from one single channel linking two points to large-capacity plants comprising more than 1000 transmitting and several receiving points can be realized. Within the confines of the Swiss telecommunication network the TUS-35 system is made use of for the transmission of alarms (burglary, robbery, fire and plant supervision). This article describes the basic principles of the system and its fields of application.

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### Modern telecommunications and the monopoly

P.-A. Schlunegger, Berne

This article deals with the basic principles governing telecommunication licensing practices. The historical origins of the monopoly are outlined and examples of its application given. The second part briefly examines the problems of determining the charge for a modern means of remote signalling.

## News Items

### Telephone

In the 2nd quarter of 1972 a **net total of 45,000 subscriber's connection facilities** were provided in 13 new and 29 enlarged exchanges.

On 1 June the **Davos fault complaint office** was closed. While subscribers' calls from this region are now routed to Chur, maintenance staff is still available at Davos.

In the 2nd quarter of 1972, **ISD facilities** were made available to 162,000 subscribers in 67 exchanges, among them La Chaux-de-Fonds, Freiburg, Schaffhausen and Olten.

In March and April Swiss subscribers used **ISD facilities** for 73% of their **international calls**. In the main regions the percentages were as follows: Basle 87.7, Lugano 85.2, Berne 81.0, Lausanne 79.7, Lucerne 79.4, Zurich 73.1, St. Gall 70.9.

At the beginning of June **automatic frontier service** with German towns Freiburg/Breisgau (060), Donaueschingen (059) and Ravensburg (078) was made available to Swiss subscribers in areas Frauenfeld, Stein am Rhein, Müllheim, Stammheim, Schaffhausen, Diessenhofen and Thayngen.

Since 20 June the outgoing and bidirectional **intercontinental lines** to the USA, Canada and Brazil have been **operated from Zurich**, instead of from Berne. The automatic lines also terminate in Zurich.

### Radio, Television

On 30 June **Swiss TV chain 1** was extended by 4 **transposers** for the German-spoken, 1 for the French-spoken, and 2 for the Italian-spoken programme.

At the **new Zurich-Seebach TV studio**, the PTT have handed over to the Swiss Broadcasting Corporation the main switching centre and a production control room, complete with announcer's camera, three magnetic-tape video recorders, two 35 mm/16 mm telefilm facilities, titling equipment and a transparency pick-up. The SBC will be using these programme sources, as well as the 300 m<sup>2</sup> studio already at their disposal, from November of this year.

In June **representatives of Swiss PTT and French Radio and Television (ORTF)** discussed the **coordination of TV network planning** in the frontier regions. At this meeting agreement was reached on the frequencies and other technical characteristics of 72 planned TV transmitters and transposers.

### Miscellaneous

**Greece (P + TT) and Italy** have joined the **CEPT Clearing**, bringing the total of participating European PTT organizations up to 20. This service is administered by Swiss PTT.

**The Brig (Valais) PTT garage** now under construction will be the first to have a special **water purification plant** cleaning waste water and reinjecting it into the car-washing system, thus **reducing fresh-water consumption to about one tenth**.

In June two **jointing courses for telephone licensees** were held, during which 41 engineers from 33 firms were trained in the splicing of telephone cables for domestic installations.

The PTT Research and Development Department has cooperated with Berne Alpine Railways (BLS) and the manufacturers in the development of an **improved thyristor-operated conduction-angle control system for railway engines**. While retaining the advantages of its predecessor, this system **reduces interference with telecommunication plant to a minimum**.

From January to May the total number of **leased telecommunication lines** increased by **24 to 993**, while **data circuits** rose by **15 to 179**. There are now 673 Inland lines (data 131), 216 European (data 38) and 104 Overseas circuits (data 10).