

**.....new TSPS speeds
operator assisted calls
---soon to go nationwide**

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TEL

PUBLISHED MONTHLY

To those of you who are now readers, let it be known that we welcome your correspondence! Truly newsworthy information about telephones and telephone companies across the nation is hard to come by. Therefore, any information that you, our reader, can supply will help to increase the scope of the Telephone Electronics Newsletter immensley. If you have seen any interesting newspaper or magazine articles concerning recent events in the telephone industry, please bring them to our attention. Even first hand discoveries or information you have come by through word of mouth may prove to be of value to other T. E. L. readers.

In addition to printing letters containing news sent in by readers, we will also answer questions written in by those interested in more information. We hope that two-way correspondence will be maintained with those interested in following the Telephone industry with us.

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TSPS . . . TRAFFIC SERVICE POSITION SYSTEMS

TSPS, short for Traffic Service Position System is one of the most recent innovations to be incurred on the telephone systems of many major cities. Much of the Los Angeles area has recently converted to TSPS, and the network of TSPS offices is rapidly expanding in all parts of the country.

Basically, TSPS provides for direct dialing of operator assisted calls by the subscriber. In other words, the subscriber dials the telephone number of the party to whom he wishes to place a collect or person-to-person call. The operator performs just those functions which only a human being can do, such as asking if a specific party will accept a toll charge, etc.

A typical call through the TSPS system would proceed as follows. Let us say a party in Los Angeles wishes to place a person-to-person or collect call to a number in New York. He then lifts the handset of his telephone, waits for dial tone, and dials "0" plus the ten digit number. The operator comes on the line to ask what type of call is being placed. If the calling party wishes a collect call, he replies, "collect from (calling parties name)". If the call is person-to-person, he replies, "person-to-person to (called parties name)". When the called party answers, the operator will ask if they accept the collect call, or whether they are the correct party in the case of a person-to-person call.

Whenever an operator is handling a call, the telephone number of the calling party is displayed on a nixie-tube readout. This is accomplished with ANI (Automatic Number Identification), a facility provided on TSPS trunking.

Along with the number to be called, the number of the calling party is transmitted to the operator.

For billing purposes the operator requires an easy reference to the time, and a way of timing calls when it is necessary. Nixie readouts provide the operator with the charge, minutes, rate, and time of the call. These designations are not visible unless significant as much of the billing responsibilities previously belonging to the operator are handled by automatic equipment making some information unnecessary.

In the process of billing a person-to-person, collect, or station call the operator need never write anything. Instead, the operator controls automatic message accounting systems by the push of a button. Only with credit card, third party billing, and other special cases where information and numbers are given verbally, is it necessary for the operator to make a memo for billing purposes.

Most TSPS offices are controlled by an electronic system similar to ESS. At the TSPS office the incoming information transmitted by the central office is stored in an electronic memory. Then the system looks for an unoccupied operator to handle the call. Once found, the call is connected to her switchboard, and the operator hears a short tone burst to indicate an incoming call. She then processes the call by acquiring all necessary information from the calling and called parties and drops off the circuit, allowing the two parties to hold a conversation. Meanwhile, the electronic system keeps an account of the call in order to produce a billing record. When the parties hang up, the call disconnects automatically, a duty which previously had to be performed by the operator on cord type switchboards.

A diagram of the TSPS switchboard appears here to illustrate what the operator sees and does

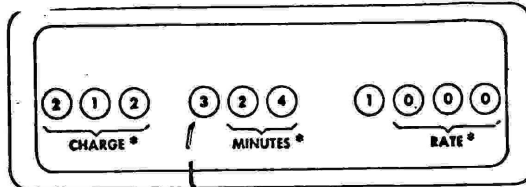
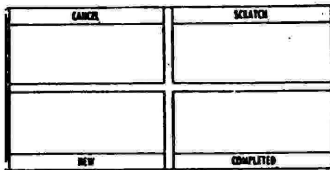
when processing calls. This switchboard is the Bell System's standard design and is used uniformly throughout all Bell System TSPS systems. Some private telephone companies have systems similar in operation to TSPS which are manufactured by such companies as International Telephone and Telegraph Inc., Stromberg-Carlson, Automatic Electric, and GTE Lenkurt. Though they differ physically from Bell System TSPS as in the design of their switchboard, the theory behind their operation is the same.

The physical operation of TSPS is an interesting process which involves some of the most advanced electronic systems and switching principles used in today's telecommunications field. Originally developed by the Bell System, TSPS can be adapted to serve all types of central office equipment. The most prevalent central office types are the step-by-step system, the crossbar 5 system, and ESS (electronic switching system).

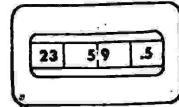
When a person in a step-by-step system served by TSPS lifts his telephone handset and dials "0" plus a 7 or 10 digit number, the call is transferred to a register in the office. This register is associated with a TSPS trunk and is equipped with ANI (automatic number identification) which finds the calling parties number for billing purposes. Both the number to be called and the called number are pulsed to a nearby TSPS office through a TSPS trunk.

In a crossbar 5 system, when a party wishes to place a similar call and dials "0" followed by a telephone number, all digits are stored in a piece of equipment called an originating register. When it receives all of the digits the register transfers them to a piece of equipment called the completing marker. The completing marker employs ANI to locate the calling parties number, and connects a TSPS trunk to the calling parties line. The marker then connects a multi-frequency pulser to the TSPS

4 COMPARTMENT TICKET BOX

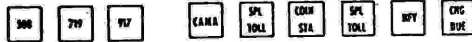


24-HOUR CLOCK



CALLING AREA CODE

DDD



-DIAL "0"-



OUTGOING TRUNKS



-RING-



-RELEASE-



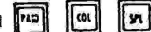
-POS TRFR-



STATION



PERSON



-COIN-



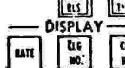
STATION



PERSON



DISPLAY



SINGLE COMPARTMENT TICKET BOXES

MULTI-LEAF BULLETIN TRAY

LEGEND

□ Non-Illuminated Key

□ Illuminated Key

□ Lamp

* These designations are not visible unless significant.

Trunks to rate and route, intercept, information, cord switchboard, etc, as required.

trunk and transmits both called and calling party numbers to the nearby TSPS office.

In an electronic switching system, the call is handled by a computer. When the calling party dials, the number is recorded and memorized in the computer memory. After dialing is complete the computer selects the appropriate TSPS trunk and transmits both called and calling party numbers. The process is governed by a computer program. Unlike the other central office systems which required hard wired changes in circuitry, ESS offices merely required a new computer program to be written to instruct the computer on TSPS operations.



THE OLD AND NEW — Cord board operators June Wilson (left) and Joyce Phillips recall their careers at Hollywood toll while operators Marianne Weichsel (foreground) and Betty Coggins typify the 115 operators who are handling the consoles in the new TSPS office.

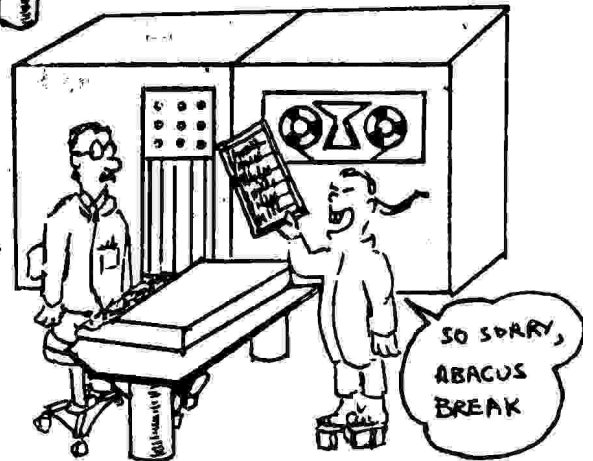
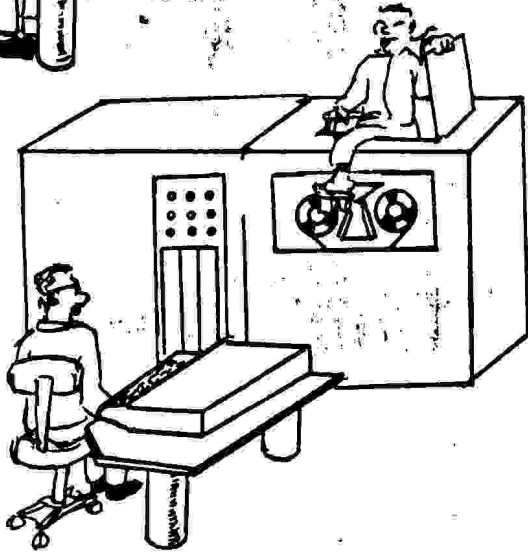
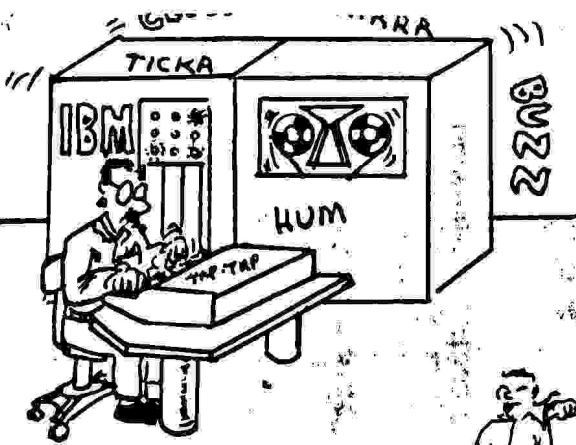
NEW PRODUCTS



DIALER—This pushbutton device dials 7-digit numbers in less than a second. Its memory has a capacity of 16 telephone numbers of 15 digits each, 32 7-digit numbers or a combination of the two. To make a call, user moves a pointer to the name of the person to be called, lifts handset and presses the dial key. *Memtel Corp.*

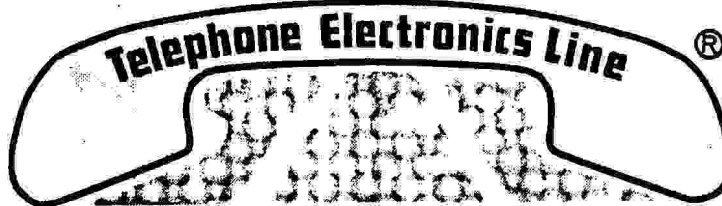


ENCODING PAD—Model ME-47P Touch-Tone encoder is designed primarily for use with hand-held portable radios. With the encoder, user can place calls or access repeater stations from a hand-held radio. The standard LED equipped model provides a visual feedback of the tone transmission. Operating temperature range is from -20° C to $+45^{\circ}$ C. *Bramco Controls Division*



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