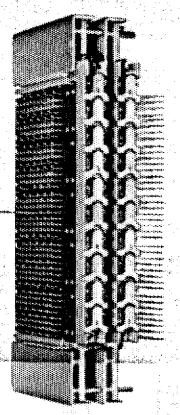
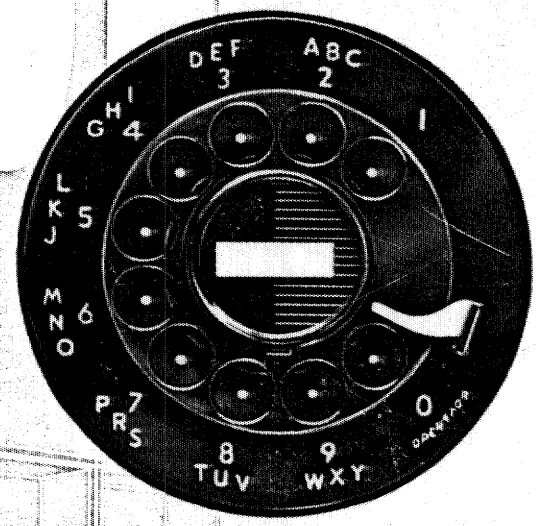
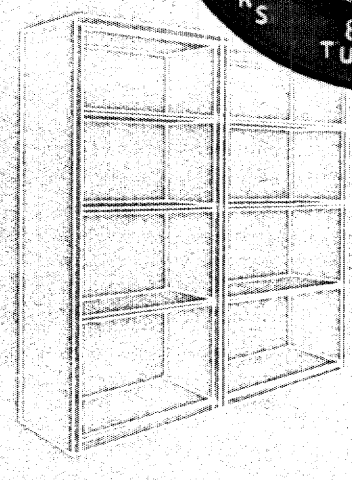


THE LEICH DIAL SYSTEM

LEICH





the Leich Dial System

For the finest in dial service . . . with the greatest profit to the telephone company

The Leich Dial System is designed to give the finest dial service, with economies of operation and maintenance that promise the telephone company the greatest possible return on their investment.

It was the first dial switchboard to combine the dependability of all-relay operation with the advantage of jack-in equipment for quick, inexpensive expansion.

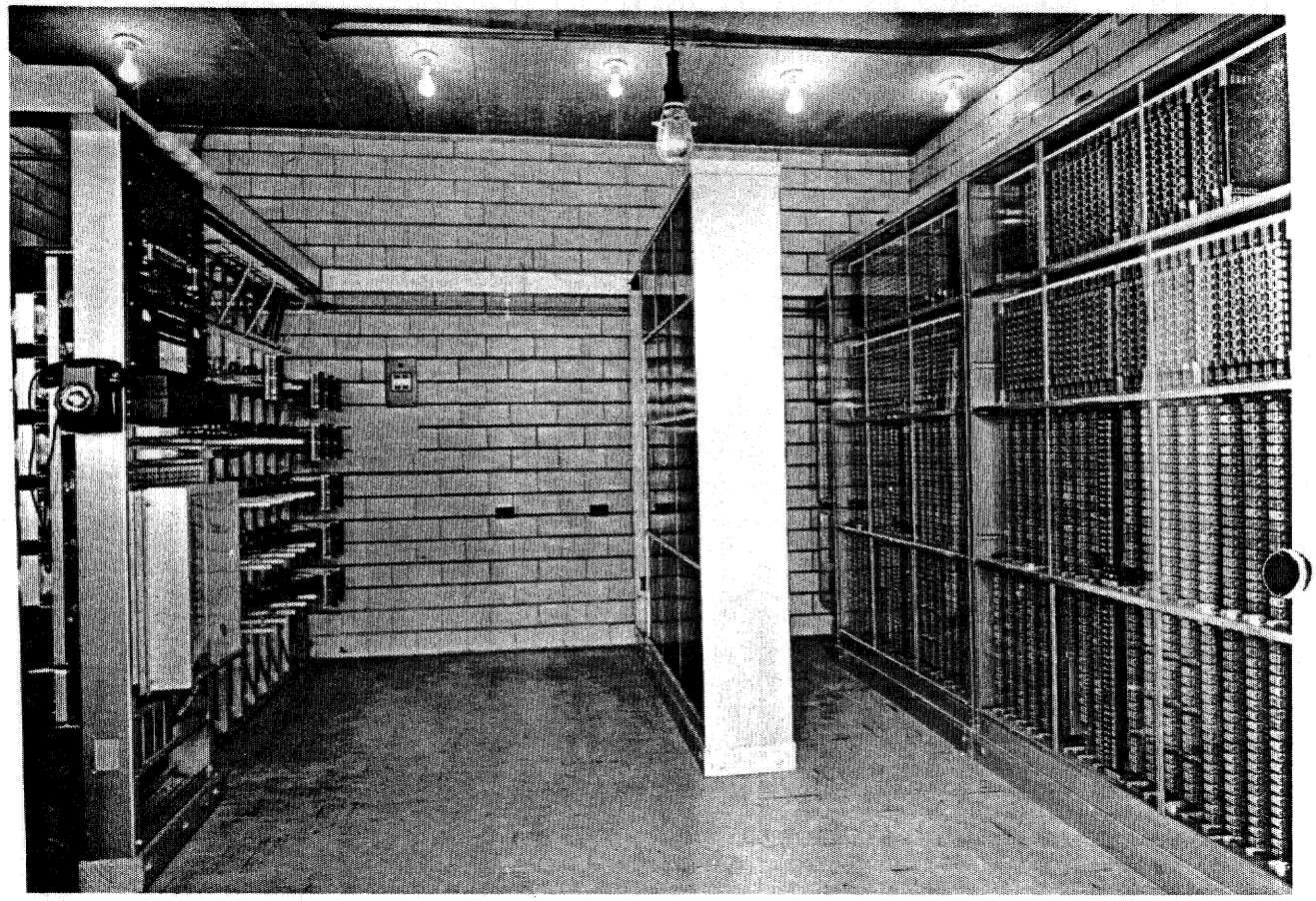
So apparent were the basic advantages of the Leich Dial System that hundreds have been installed in the few years it has been available.

This catalog describes more fully the features that have made the Leich Dial System so popular and tells of the many new service and operating features that have been incorporated into it.

If you have operated dial equipment before, you will readily understand the practical features described in the following pages. If dial switching is new to you, we will be only too glad to furnish any more information you may need.

LEICH ELECTRIC COMPANY 427 W. Randolph — Chicago 6, Illinois

All these advantages are yours



The Leich Dial System is an all-relay dial switchboard. Relay operation is well known for its reliability of operation and long life. It eliminates elaborate mechanical switching mechanisms which are apt to wear and require maintenance or adjustment. In addition to providing dependable service, a further advantage of the Leich relay system is the fact that the telephone company's switchboard man can learn the basic maintenance more quickly because he is more familiar with relays than with mechanical parts.

The Leich Dial System was the first all-relay switchboard to offer the jack-in flexibility previously available only in some switch systems. All the equipment, lines, links, selectors, is jacked-in onto steel frame bays, which have a capacity of 100 lines each. This jack-in feature eliminates the necessity for factory installers in adding lines and links, or in regrouping for changing traffic conditions. It also prevents the possibility of wrong or poorly soldered connections in doing this work. Combined with the dependable all-relay operation, this jack-in feature makes the Leich Dial System a very economical dial switchboard from the standpoint of additions and maintenance.

. . . *with the* LEICH DIAL SYSTEM

There's less to go wrong on a Leich Dial System. Thousands of soldered connections are eliminated by a unique arrangement wherein all the lines in the multiple are connected to the relay switches by stainless steel bars. Line and cut-off relays for groups of ten lines are mounted together on jack-in relay bars. All parts are tested and wired at the factory, ready to be jacked-in on the switchboard.

Every desirable service feature is available with the Leich Dial System. It can be arranged with trunks terminating on lines or on individual trunk switches for nationwide toll dialing. The same equipment can be used for multi-frequency, super-imposed or code ringing. A complete listing of the service features can be found on pages 12 and 13 of this catalog.

In designing the Leich Dial System, the job of the maintenance man was carefully considered. The result is that the average switchboard man will find it easier to understand and operate. Plexiglas doors make the operation plainly visible, there is no back to back arrangement of equipment, all the wiring is accessible without taking the board out of service. Mechanical movements are reduced to the point where there are no parts to wear and require adjustment. Parts in trouble may be replaced by jacking-in spare parts and repairing or having the parts repaired when there is time.

You have no worries about additional subscribers necessitating expensive additions when you have a Leich Dial System. Ten lines can be added in ten minutes by your own switchboard man, who simply jacks-in a 10-line relay bar on the switchboard. Line finder switches, connector switches and selector switches are also jacked-in. No expense for factory installers, no wiring, no soldering. This inexpensive jack-in expansion is true regardless of the size of the installation. Additional 100-line bays may be added and they also have the same economical jack-in feature.

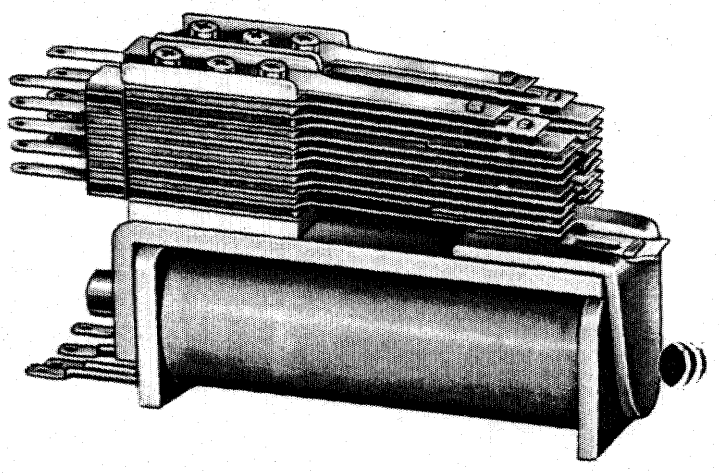
Installation is no longer a major expense. A Leich Dial System can be installed at the rate of 80 man hours per 100 lines. The switchboard bays are shipped wired for their capacity of 100-lines and 15 links. Two men can carry a 100-line bay before the parts are jacked-in. All the parts come in small packages, factory tested, ready to be jacked-in.

When it is necessary to erect a building the Leich Dial System will prove economical because it requires less floor space than other boards of similar capacity. Check the floor plans shown on pages 14 and 15.

Leich Dial Systems accommodate 15 links per 100 lines. This is ample for practically all present day traffic conditions.

In contrast to step-by-step systems, the selector bank outlets for any connector or trunk group are not limited to ten and need not be consecutive. Any group may be as large or as small as traffic conditions require. Thus, no outlet need be wasted because of inflexible mechanical designs. Grading of the selector bank multiple may be used when necessary to reach more than 100 outlets.

two main elements perform all operations

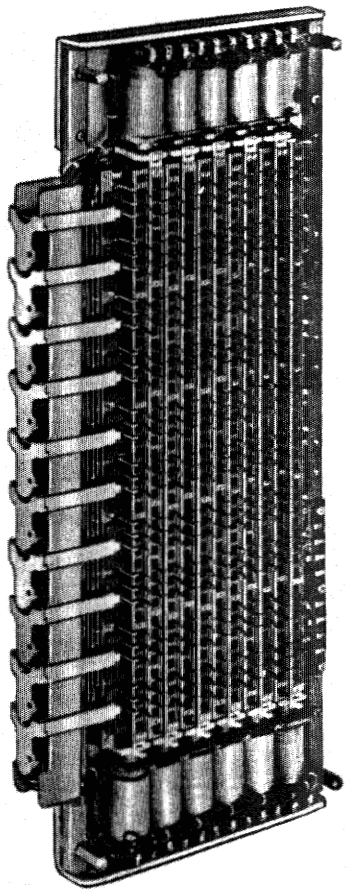


This 900 type relay is used for all relay bars. It was made to operate for unusually long periods without requiring maintenance or adjustment. The make and break springs are preformed to give correct contact pressure and are positioned near the contact points by spring supports. The armature cannot bind or clog, always strikes flat against the core. It can be removed and replaced without tools and without disturbing the adjustment. Chances of failure are reduced to the lowest possible limit by bar type twin contacts of precious metal — with ample tension and wiping action. Adjustment for current flow requirements is by means of separate tension springs on top of spring piles. The lever springs of each spring pile are actuated by a removable lift piece which reduces friction and wear in operation. The large size coil has ample winding space and heat dissipating area, can be removed without taking the relay out.

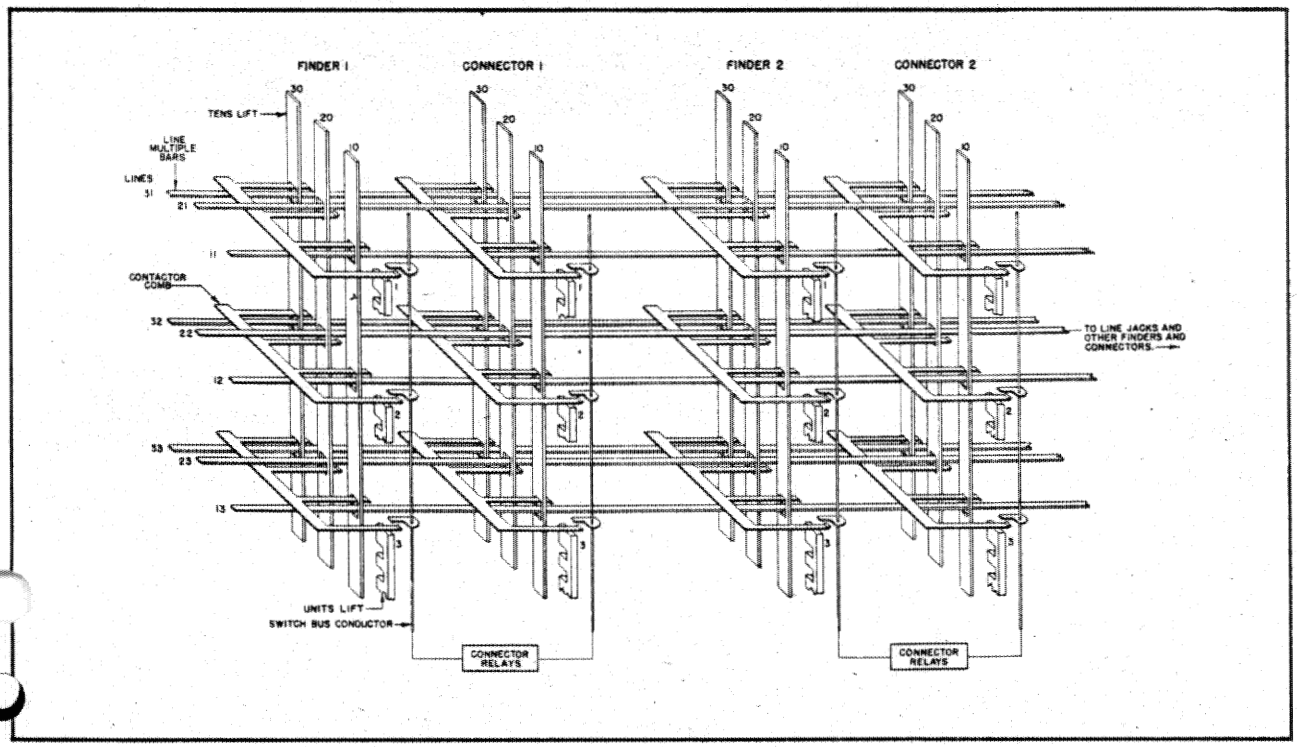
All-relay type switching systems have long been preferred for their dependability of operation and the fact that all operations are performed by relays instead of intricate mechanical devices which are apt to wear or require adjustment. The Leich Dial System is the first all-relay dial switchboard to combine complete jack-in flexibility with this dependable all-relay performance. The unique design utilizes relays to their fullest extent, provides a switchboard that is comparatively easy to understand and operate. Leich relays have been tested for many million operations with no failures. Leich relay-switches have withstood millions of test operations without readjustment, replacement or signs of wear.

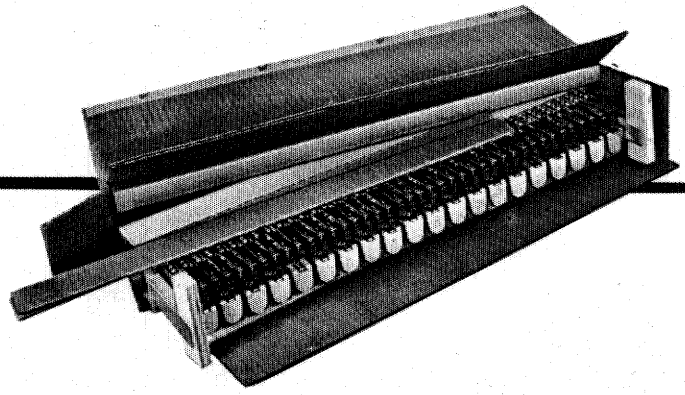
Operation

LEICH RELAY-SWITCH



This unique Leich relay-switch is used as a finder, connector, or as a selector. Stainless steel bars, only 25 inches long, connect these switches to all the lines in the multiple and take the place of many thousands of soldered connections. This eliminates the possibility of poor joints, solder shorts, opens or transpositions in the multiple. In order to make a line selection, one of the tens relay lifts is operated to actuate a vertical row of springs in the contractor combs, causing them to make contact with the line multiple bars. This establishes connection of ten lines out of the 100 in the bank multiple to the units selection relays. To pick one of the ten lines, a units lift relay is then operated, which connects its associated contactor combs to the link bus wires; thus, a line is connected to the link over the line multiple bars at the point where the contactor combs connected to the link bus wires and the vertical row of contactors actuated by the tens lift relay intersect. These relay-switches have been tested for many million operations without failure, readjustment or noticeable wear. They insure a good connection, fast operation and, because they are jacked-in, make this an economically flexible relay type switchboard.



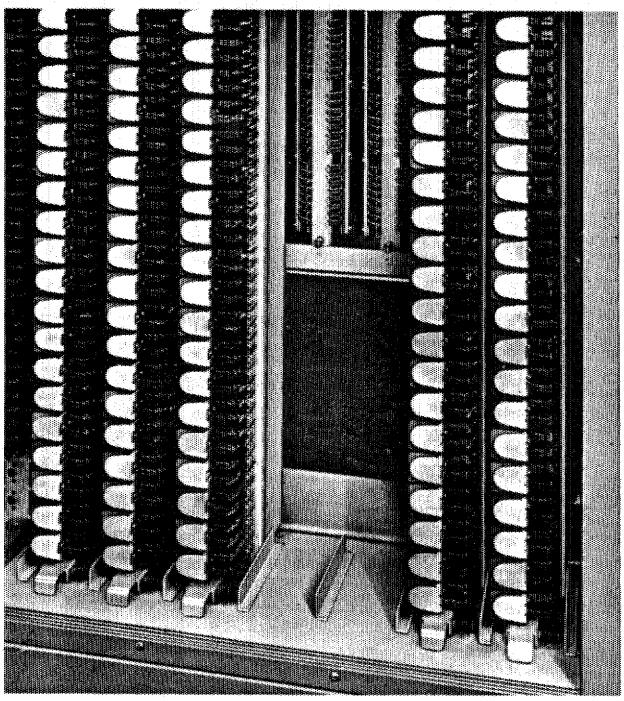


All Equipment

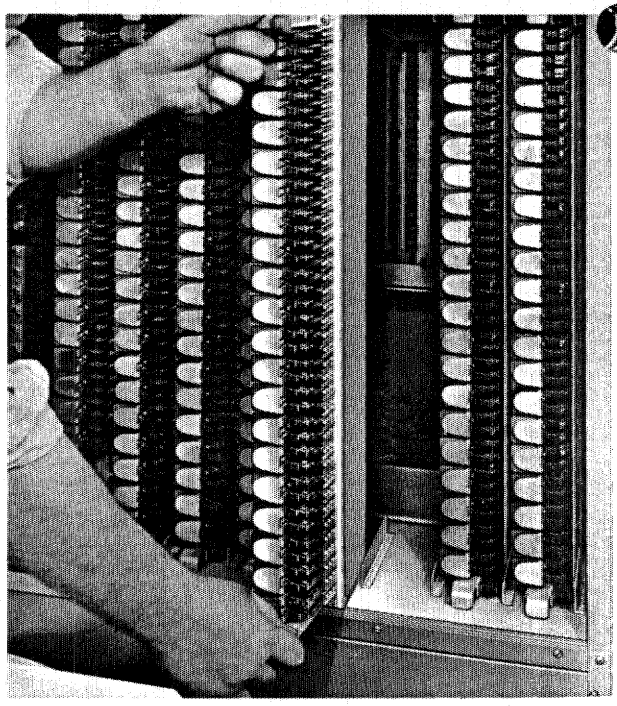
QUICK, INEXPENSIVE EXPANSION WHENEVER NECESSARY

With some dial switchboards, adding equipment is so complicated and costly that it is almost prohibitive. The Leich Dial System offers quick, inexpensive additions whenever necessary. Lines and links can be jacked-in by your own people. There's no need for factory installers, no soldering, no wiring. Your only expense is the modest price of the equipment to be added. In this way, your Leich Dial System frees you from worries about future needs, assures you your equipment will not become obsoleted by station growth or increased traffic. This jack-in feature is also valuable when regrouping equipment for changing traffic needs.

YOU CAN ADD 10 LINES IN 10 MINUTES!



1 Single, jack-in relay bars contain the line and cut-off relays for a group of ten lines. These come from the factory, wired, tested, ready to be installed. The photo above shows where two of these relay bars may be added. Every bay is fully wired and contains the jacks for plugging in these 10-line relay bars up to its full 100-line capacity.



2 Simply jacking in this relay bar as shown above adds 10 lines to your Leich Dial System. That's *all* there's to it. The specially formed jack contact springs assure a perfect, lasting connection.

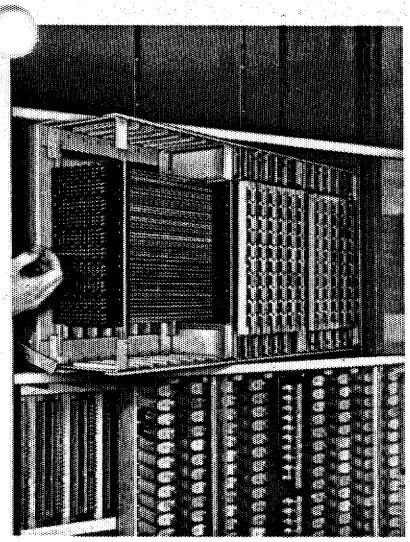
Jacks In

Finders, connectors, selectors, can be added in an hour or two — no soldering, no factory installers.

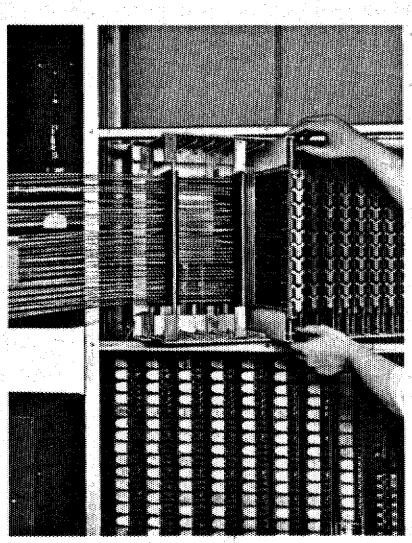
Whether the Leich Dial System is 50 lines or 500 lines, new conversation paths may be quickly added by jacking-in the required equipment.

To add one complete conversation path to a Leich Dial System you use three jack-in units. They are: a line finder switch, a connector switch and a relay bar, and these can be installed by your own people in the simple steps shown below.

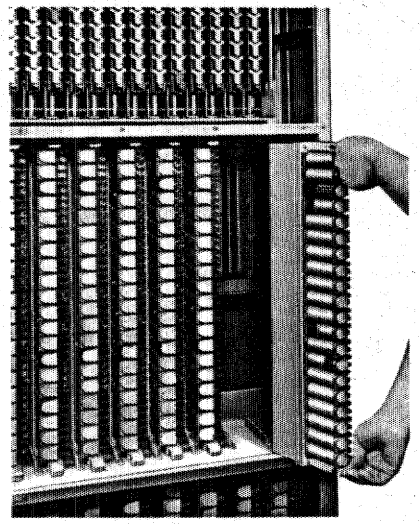
To add a complete conversation path to the Leich Dial System that has selectors, you add these same three units plus a local selector switch and, if necessary, a connector relay bar. The selector switch is a relay type switch, similar in construction to the line finder switch and connector switch and is jacked-in on the switchboard in the same manner. One connector relay bar is needed for every four connector switches. This relay bar is also jacked in as shown in Figure 3 below.



1 Finder switches, connector switches and selector switches are all jacked-in in the same manner. First, the switch shelf is swung out as shown above. The stainless steel bars which connect the switches to all the lines in the multiple are then pulled out just far enough to permit jacking-in the switches to be added. The switch shelf is divided into two sections. Thus, new switches can be added while half the connecting circuits are still in service and the board can remain in operation.



2 The finder, connector or selector switches are then jacked-in as shown above. The jacks in the switchboard are factory wired so any number of switches, up to the capacity of the board, may be added at any time. The line multiple bars are then pushed back into place, thereby connecting all the switches to all the lines in the multiple. Bakelite guide blocks make it impossible to insert them wrong, eliminate the possibility of transposed wires in the multiple.

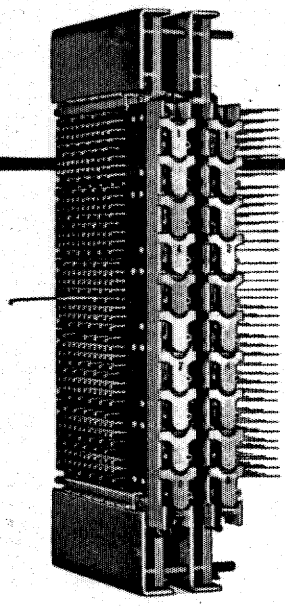


3 The control relays for the finder and connector switches are mounted on a single relay bar which is jacked-in as shown above. The connector relay bar, used with selectors, is also jacked-in in the same manner and will control four connector switches.

Dependable Service-

IDEAL FOR UNATTENDED EXCHANGES

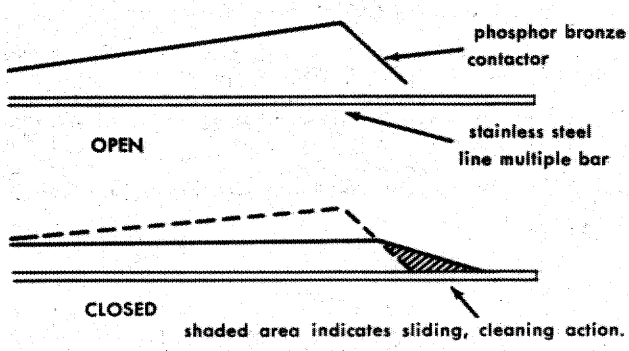
You don't need a large tool kit for the Leich Dial System. So many of the things that normally can cause switchboard trouble have been eliminated, that the Leich Dial System is perfect for unattended exchanges where a maintenance man may not see it for several weeks at a time. In some cases selenium rectifiers replace relay contacts, provide non-marginal circuit operation. Leich Dial Systems have been proved to operate dependably in both cold and warm climates. In unheated buildings, as long as the electrolyte in the batteries doesn't freeze, the Leich Dial Switchboard will function perfectly.



The Leich relay-switch, tested for 100 years of service

NO INTRICATE MOVING PARTS — LESS TO WEAR

All the operations of the Leich Dial System are performed by relays. There are no motions greater than that of a relay armature. The Leich relay-switch is a fundamentally simple structure, with the multiple built in. It has been tested for millions of operations, without adjustment or signs of wear. There are no rachets, pawls or clutches to wear, to require oiling, maintenance and adjustment. Failure to routine check the Leich Dial System is not recommended, but should it occur, it is less likely to result in service failures than with other types of dial switching units.



ADEQUATE CONTACT PRESSURES

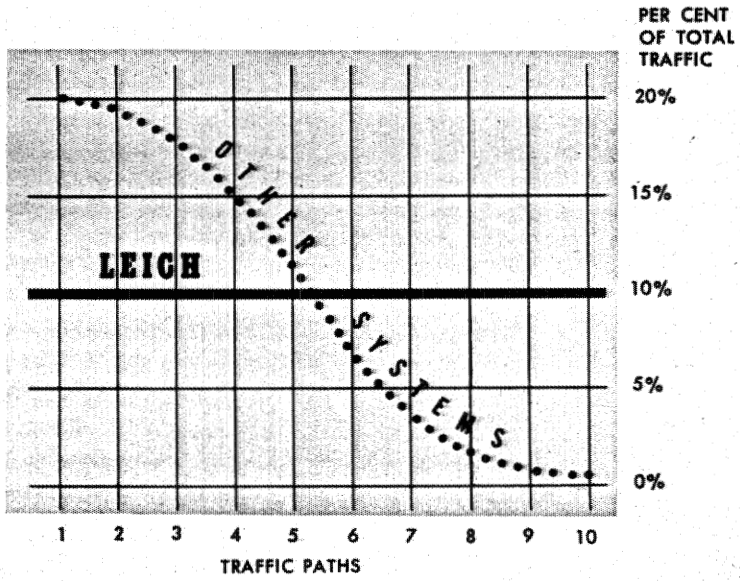
quiet, reliable conversation channels

The phosphor bronze contactors on the relay switches make contact with the line multiple bars by a downward, then forward sliding action. There is a decided spring tension which assures a positive contact. Every time a tens relay is operated, it closes all ten lines. In this way, *all* contacts on the lift of the relay switches are automatically cleaned.

LESS TO GO WRONG -- LESS ROUTINE MAINTENANCE

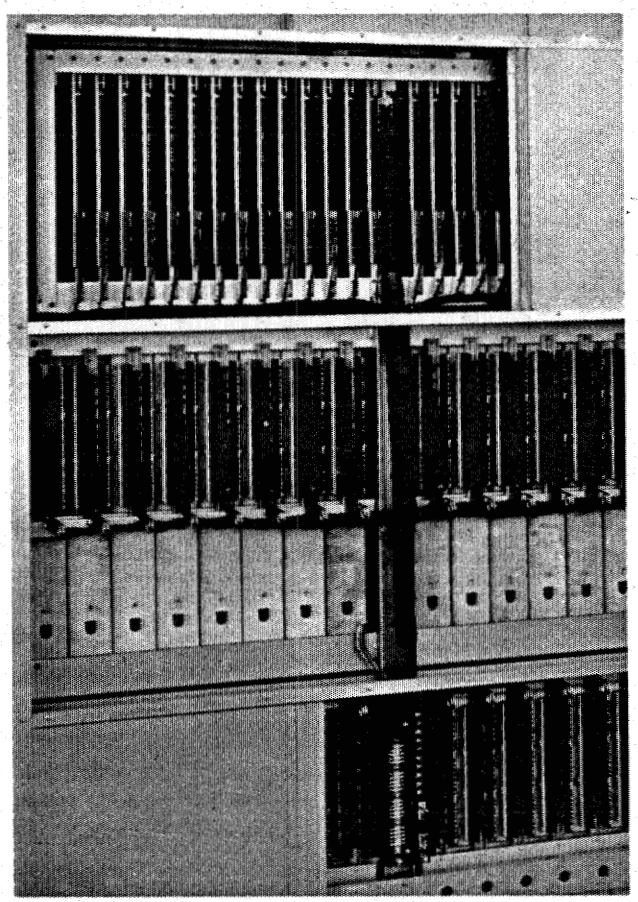
EQUAL USE OF ALL EQUIPMENT

Another factor that makes for dependable operation in the Leich Dial System is the way in which ALL the switching equipment receives equal use. The Leich selection scheme provides for pre-selection of switching paths, which means that different switching equipment is assigned to each succeeding call. In other words, if you have ten traffic paths, the No. 10 path will handle as much traffic as the No. 1 path. Thus the No. 1 path will not tend to need replacement or cause trouble because it has carried most of the traffic. This Leich feature is illustrated in the chart at the right. This pre-selection of switching paths insures assignment of calls in a minimum of time and without unnecessary searching motions.

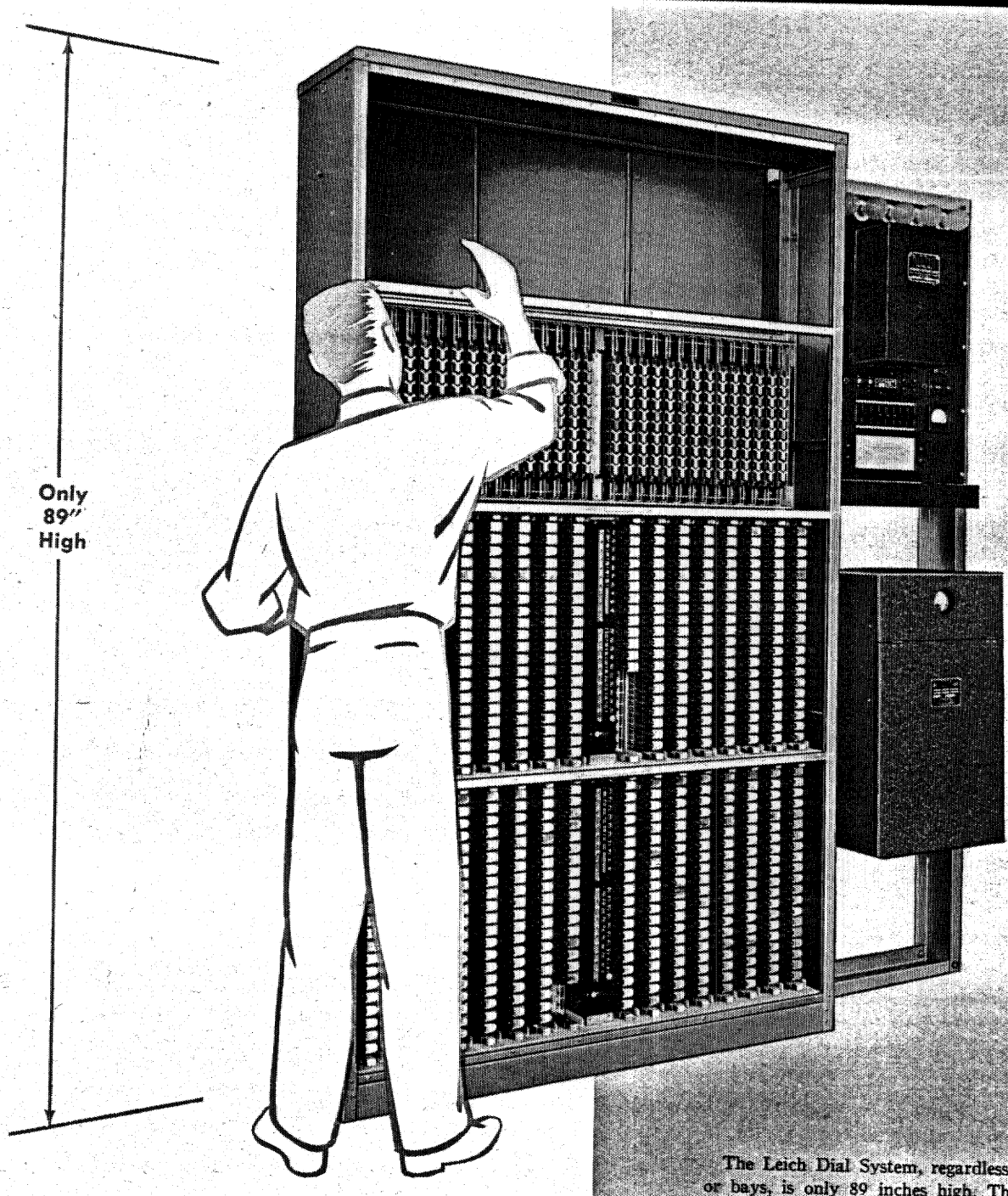


THOUSANDS OF SOLDERED CONNECTIONS ARE ELIMINATED

Stainless steel bars connect the relay switches to every line in the multiple and take the place of many thousands of soldered connections. This eliminates the possibility of poor joints, solder shorts, opens or transpositions in the multiple. These stainless steel connecting bars are slid in through Bakelite guide blocks, cannot be crossed or transposed. There are no moving wires in switches to wear out and become brittle. The photograph at the right shows the simplicity and neatness of the back of a Leich Dial System. No confusing maze of wires here.



Simplified Maintenance



NO STEPLADDERS

The Leich Dial System, regardless of how many lines or bays, is only 89 inches high. Thus all equipment is accessible to the maintenance man without the use of a ladder.

EVERYTHING POSSIBLE HAS BEEN DONE TO MAKE IT EASIER FOR THOSE WHO MAINTAIN IT

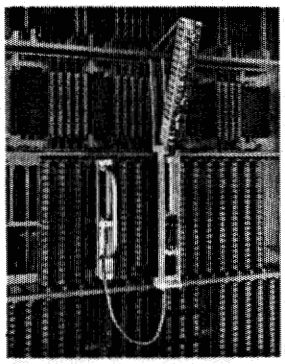
The average switchboard man can easily learn to maintain the Leich Dial System. If he has worked on other dial switchboards, he will readily appreciate the many ways in which the Leich Dial System simplifies his job.

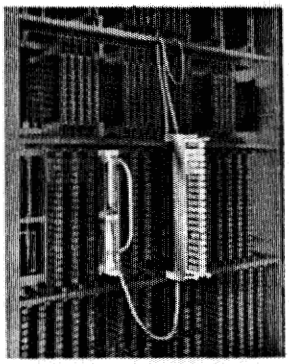
First, there's *less* to go wrong. The absence of intricate parts to wear and require adjustment eliminates many sources where trouble could develop and cuts down on the amount of routine testing and maintenance.

The dependable relays which perform all operations have been tested for millions of operations. Should trouble occur, their simple construction and instant accessibility makes it easy to adjust them, to replace coils, spring piles, etc.

The jack-in feature permits your own man to add or change equipment in a jiffy.

Everything is accessible, everything is out in the open. All dial switchboards require some degrees of maintenance. The average switchboard man will find that — not only is the Leich Dial System easier to maintain, but it has fewer things to go wrong and require his services. All equipment is plainly identified by designations on the switchboard bay.



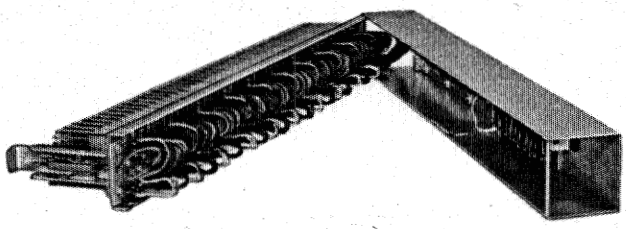


SPECIAL TEST RACK PERMITS TESTING AND ADJUSTING RELAY BARS WHILE BOARD IS IN OPERATION

Here's a feature your maintenance man will appreciate. The Leich Dial System has a special testing rack which can be hung on any bay. This rack has an extension cable so he can jack-in any relay bar for testing or adjustment. In this way the relay bar is still in service, yet is completely accessible from either the front relay side or rear wiring side, as shown above.

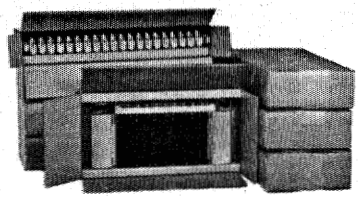
NO BACK-TO-BACK ARRANGEMENTS

You don't have to spend hours removing one part to get at another. All the parts are arranged so that each is visible and accessible. Note the relay bar below. It can be slid out from its jack and in a minute or two the cover opened up to expose the relays *and* the wiring.



EASY REPLACEMENT OF PARTS

Each switchboard bay of the Leich Dial System is completely wired for its capacity of 100 lines and 15 links. Additional lines and links may be jacked-in up to this capacity. There's no soldering, no wiring necessary. Ten lines can be added in ten minutes and an extra link in an hour or two. No factory installers are needed. Leich's inexpensive flexibility is the same whether it's a small 50-line installation or a 400 or 500 line job. This jack-in flexibility makes it possible for your own man to remove switching equipment from one board and put it in another when traffiic conditions warrant such a change.



LAMPS FACILITATE TRACING CALLS

To facilitate tracing calls, indicating lamps are used on the relay bars to show which switches are in use. It is not necessary to open any doors to watch the board in operation as the entire front is protected by sliding Plexiglas doors.

PARTS IN TROUBLE CAN BE REPLACED BY JACK-IN SPARE PARTS AND MAY BE RETURNED TO THE FACTORY FOR EXPERT SERVICE

If trouble should develop in a relay-switch or a relay bar and no expert help is available, it's no great worry. A spare part can be jacked-in and the part in trouble returned to the shop for expert servicing. This is real service protection for your customers.

Every Service

With a Leich Dial System you can be sure of offering your customers the finest, most modern dial service available. Practically every desirable service feature has been incorporated into the Leich Dial System. Those not included in the standard circuits may be added by the use of simple adapter circuits.

EXCHANGE VOLTAGE —

The Leich Dial System will operate satisfactorily on any battery voltage within the limits of 44 to 54 volts.

DIALS —

The Leich Dial System will operate with any standard make of dial. (8 to 12 pulses per second).

STANDARD FEATURES

Main or party line service on any line on a terminal per line basis.

Dial tone — tells subscriber to start dialing.

On the Leich Dial System, directed line finder selection provides dial tone faster by eliminating unnecessary searching over other lines.

Ring back tone — indicates that called party's bell is ringing.

120 I.P.M. busy tone indicates all paths busy. 60 I.P.M. busy tone indicates line is busy. Tick tone indicates a reverting call.

Preliminary impulse absorption.

Digit absorption without reuse of digit for universal numbering.

Four digit numbers for subscribers, single digit numbers and switch-through service for calling other exchanges.

Reverting calls on party lines by directory number.

Reverting call engages only individual line circuit after call is answered.

Automatic ringing.

Instantaneous trip of ringing when call is answered.

Full rotation of connecting equipment on successive calls.

Dialing first number of PBX trunk group automatically selects the first available idle trunk without searching over busy trunks.

For night service, PBX trunks can be dialed individually, except first trunk in group.

With the Leich Dial System, a fourth conductor is not required to control PBX trunk selections. Therefore, PBX trunk equipment need not be provided until it is actually required. It may be added to any one hundred line bay at any time by means of a simple adaptor circuit which can be jacked-in.

All line circuits arranged for automatic "permanent" line lockout with tell-tale lamp for each 10 line group.

The Leich Dial System is arranged so that faults in a line circuit or line group cannot block calls from other lines.

Busy lamp indicators on link and trunk relay bars.

Feature

OPERATING RANGE

SUBSCRIBER LINES —

Wire loop resistance of subscribers lines can be up to 1200 ohms. Long line adaptors of the jack-in type can be furnished for lines in excess of 1200 ohms.

INSULATION RESISTANCE —

Minimum insulation resistance for subscriber lines should not be less than 15,000 ohms between conductors or between either or both conductors and ground. For trunk lines the insulation resistance shall not be less than 30,000 ohms.

RINGER LOAD —

Ringer load per line should not exceed 10 high-impedence bridged ringers unless special consideration is given.

ADDITIONAL SERVICE FEATURES

Multi-frequency, Harmonic, Synchromonic or Decimonic Ringing

5 party	fully selective	bridged
10 party	fully selective	divided
10 party	1 and 2 ring	bridged or divided*

Superimposed or Pulsating Ringing

4 party	fully selective	divided
8 party	1 and 2 ring	divided
10 party	1, 2 and 3 ring	divided

Code Ringing

10 party	10 code	bridged or divided*

**Divided ringing can be used on those lines that do not have inductive power interference to provide fully selective service on multi-frequency ringing or ringing only 5 bells on code ringing.*

Peg count and overflow traffic meters.

Conversation timing with automatic disconnect after 6 minutes for local and or free service calls.

"All link busy" overflow busy tone.

Post pay coin station lines with identifying tone to toll operator.

Pre-pay coin station lines with automatic control of coins and tone identification to the toll operator and with options for requiring the coin deposit initially or after the first, second or third digit.

Adapters for single wire ground return lines.

Adapters for long lines exceeding 1200 ohm loop resistance.

Adapters for subscriber lines with over 10 parties per line.

Trunks to magneto, common battery, dial or toll switchboards for loop, simplex, composite, carrier or radio facilities.

Trunks terminating on individual trunk switches handling both incoming and outgoing trunk calls, arranged for nationwide toll dialing requirements, including:

- Switch hook supervision and through dialing.
- Operator holding of connection.
- Busy flash for busy lines (60 I.P.M.) and all trunks busy (120 I.P.M.).
- Transmission of exchange alarms over trunks.
- Verification service — by dialing prefix or suffix digit.

Blocking of trunk-to-trunk calls on any or all trunk groups.

Restricted service on any subscriber's line with busy tone when denied trunk group is dialed.

Dual function or combination toll and free service trunks.

Intercepting service per line or per station with distinctive tone or a recorded announcement.

"No tone" signal on calls to unassigned lines or levels.

PBX trunk selection.

Dial back or revertive calling on trunks.

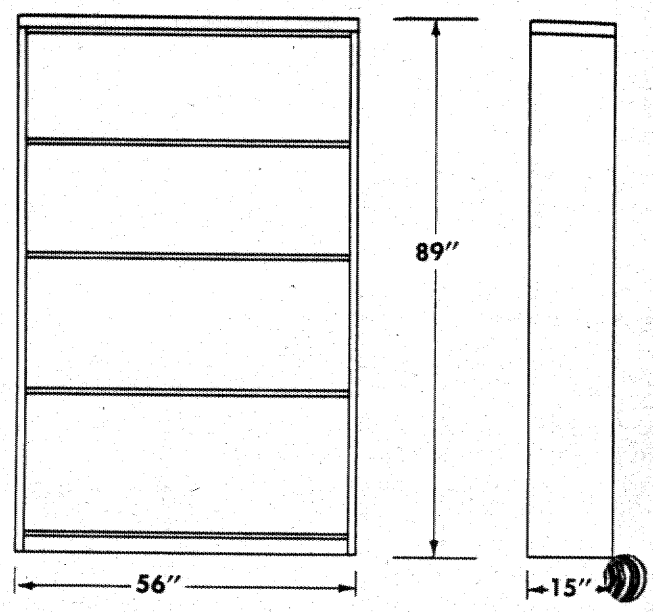
Requires Less Space.

The Leich Dial System is designed to occupy a minimum of floor space. Size for size, it will require less space than practically all other types of dial switching equipment. Some dial switchboards require high ceilings. The Leich Dial System has a uniform height of 89 inches, which makes an 8-foot ceiling adequate for this equipment regardless of the size of the installation.

Further space is saved by the practical arrangement of the equipment. There are no hinged doors — instead there are sliding Plexiglas doors which make it possible for switchboard bays to be close together yet provide plenty of space for working and walking around the equipment.

To expand a Leich Dial System from 200 to 300 lines it is necessary to add only one switchboard bay. This is a self-contained unit which includes selectors as well as line finders and connectors.

Even though it requires small space, the arrangement of the equipment makes every part of the Leich Dial System easily and quickly accessible.

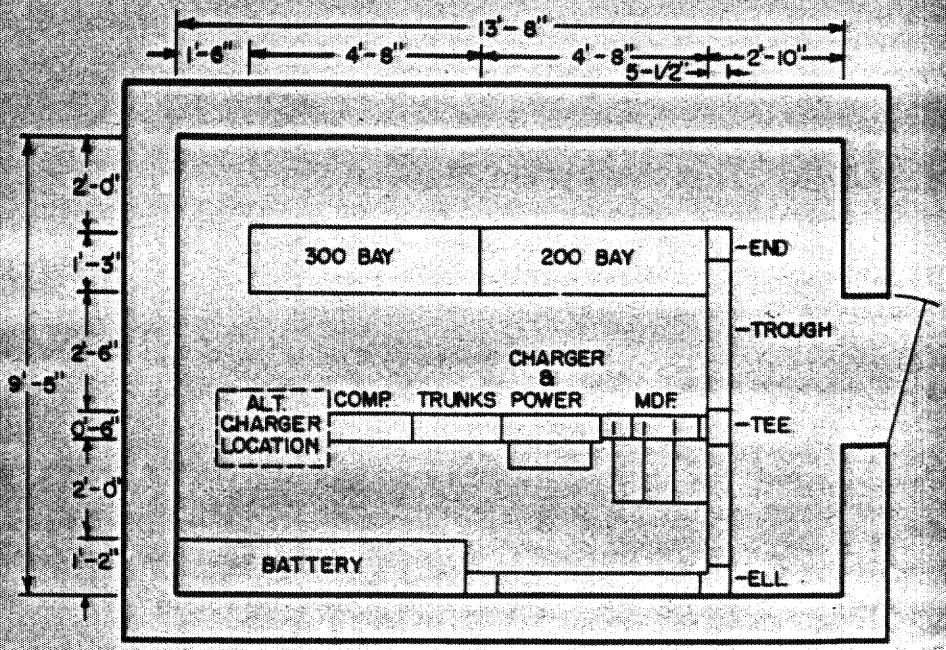


FLOOR PLAN FOR

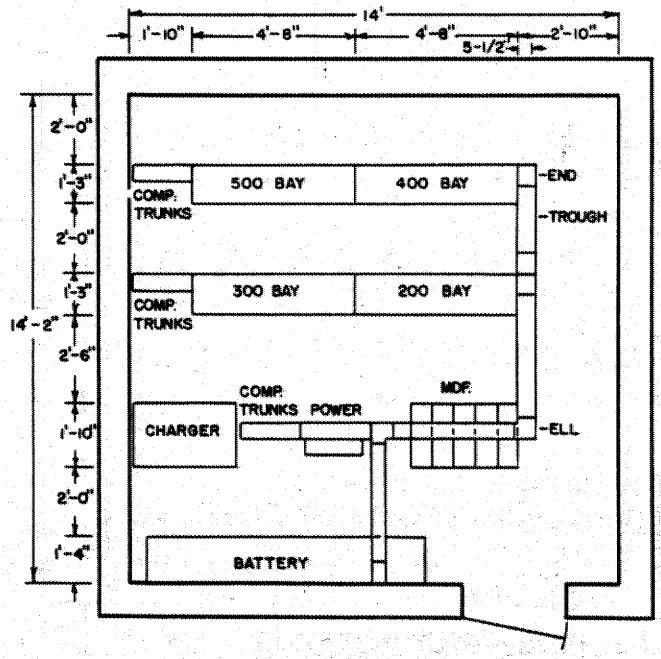
200 LINE ULTIMATE

LEICH DIAL SYSTEM

MINIMUM CEILING HEIGHT — 8 FEET



SAVES ON BUILDING COSTS

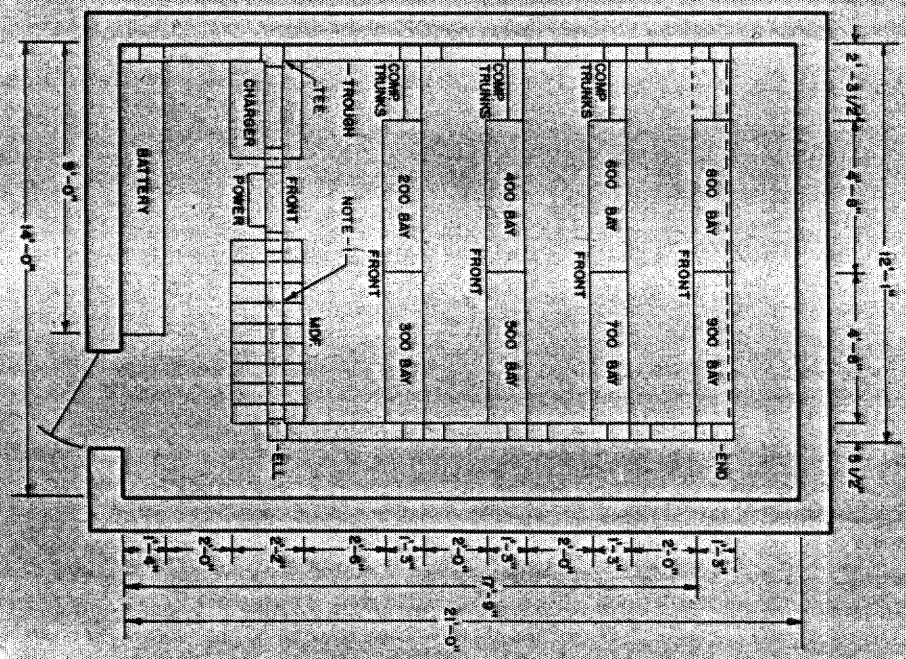


FLOOR PLAN FOR LEICH DIAL SYSTEM 400 LINES ULTIMATE CAPACITY

MINIMUM CEILING HEIGHT — 8 FEET

Observe in this suggested floor plan the small space requirements for 400 lines of switching equipment. Notice the easy access to all basic equipment, both front and back.

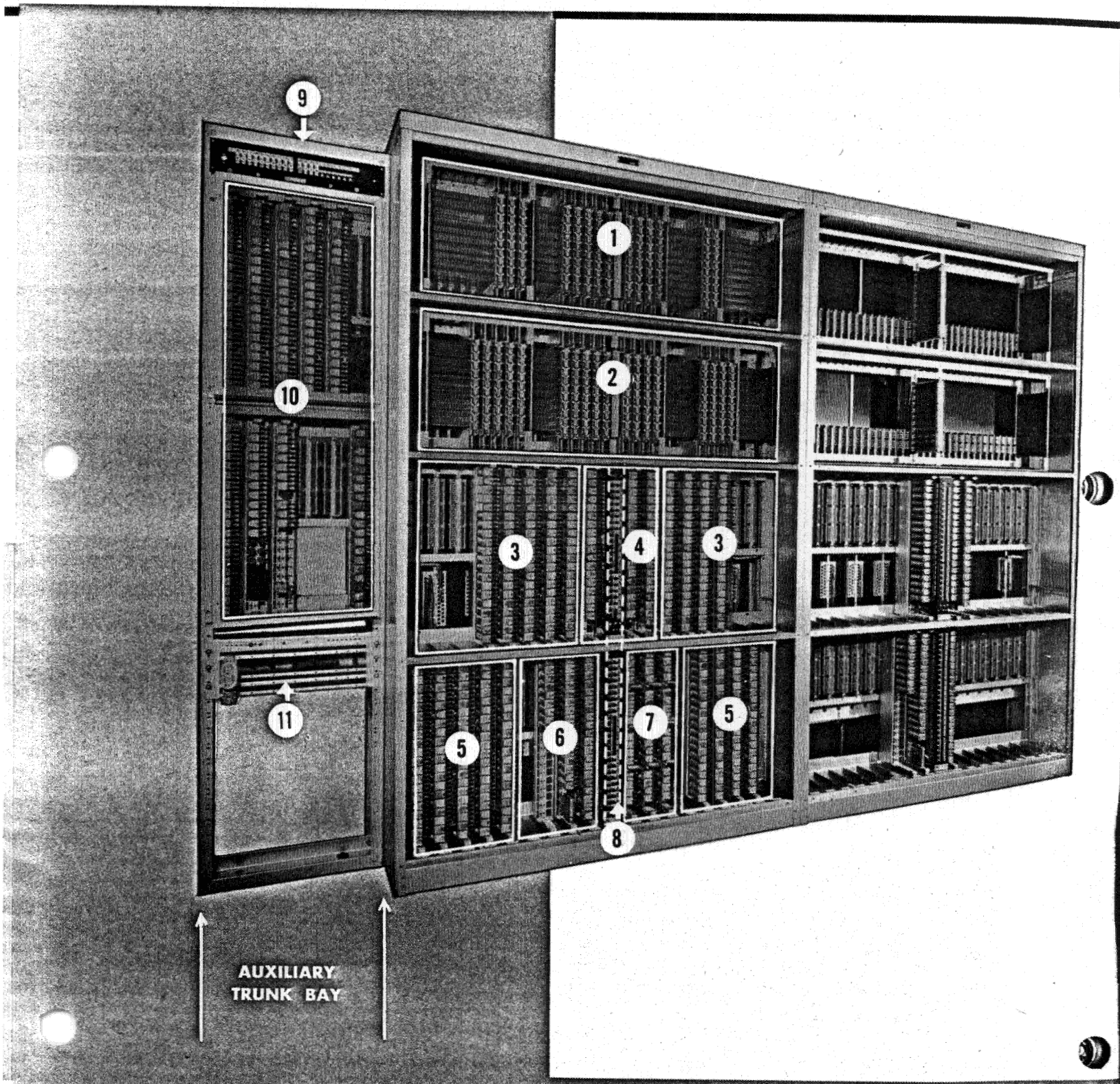
Line testing equipment is on the power panel adjacent to the main frame for ease in testing line equipment.



FLOOR PLAN FOR 600-800 LINE LEICH DIAL SYSTEMS

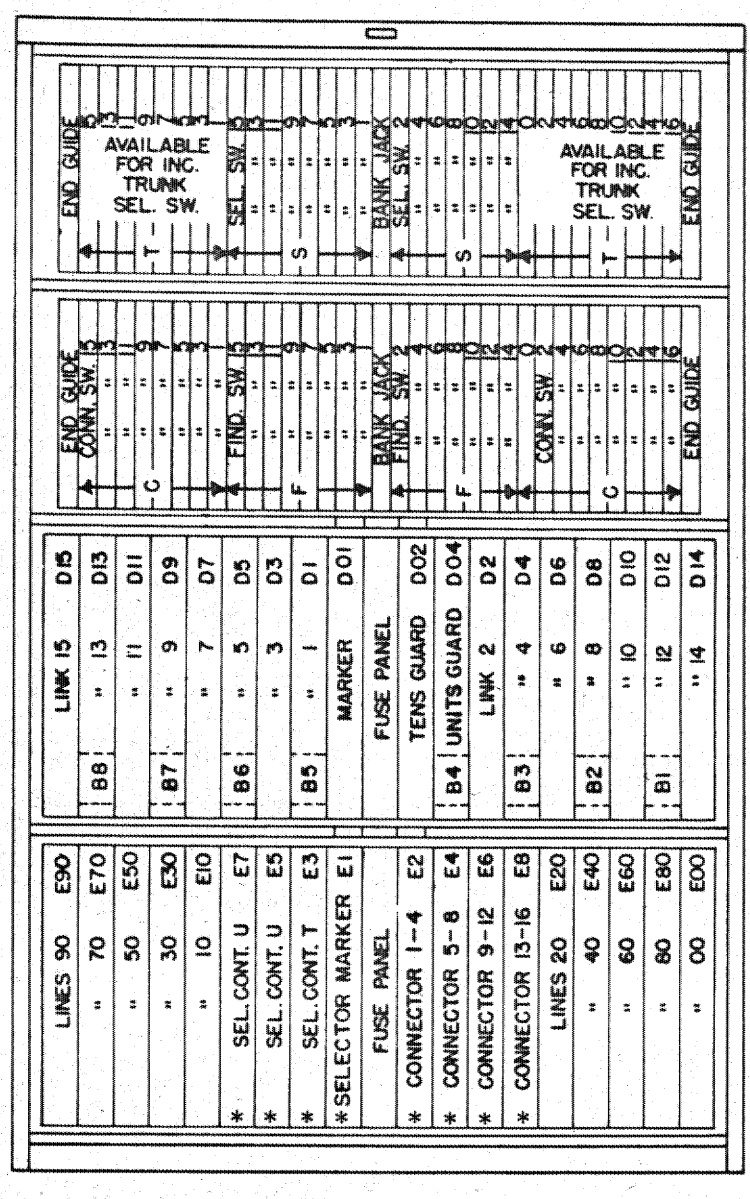
MINIMUM CEILING HEIGHT — 8 FEET

Arrangement of



Equipment

1. Local or incoming trunk selectors.
2. Line finder and connector switches.
3. Link relay bars.
4. Common control circuits.
5. Line relay bars.
6. Selector marker and control.
7. Connector relay bars.
8. Fuse panels.
9. Fuse panel for trunk bay.
10. Trunk or miscellaneous relay bars jack-in here.
11. Trunk repeat coils.



CROSS SECTION
Leich Dial System Switchboard Bay

* When an installation is not expected to exceed 100 lines, the jack positions marked with a star may be used for trunk equipment.

Method of Operation

The Leich Dial System is made up of equipment bays or units of 100 lines each. Equipment in these bays also serves the trunks, which may be terminated either on line equipment or individual switches. The link relays and the relays associated with the trunk switches have complete control of all connections. They accept all digits that are dialed, control the progressive selections, test the line and signal the called party. They also give split-second supervision.

The same switches, link relay bars and trunk relay bars, with minor jumpering changes, are used regardless of the size of the installation. Therefore special connector groups to provide toll features, trunk hunting or multi-party signalling are not required.

WITHOUT SELECTORS

For Installations of Less Than 100 Lines

When your subscriber lifts his handset the finder switch of the first available link finds his line and link relays send him dial tone. On a local to local call the first digit dialed prepares the link for extending the call. The second and third digits cause the connector switch to connect to the called line. Thus, a connection is established from the calling subscriber through the finder switch over the line multiple bars through the connector switch to the called line. The fourth digit then selects the ringing frequency or code and tests the line. If the called line is idle the link signals the called party and gives ring-back tone to the caller. Answering the call cuts off the ringing and completes the transmission path. In case the called line is busy an interruption is prevented and the caller receives busy tone.

In the case of a call to a trunk, the first digit selects a path for an outward call and marks the calling line so that it may be identified. A trunk terminated on line is reached through the regular local link, when the single trunk digit is dialed. Over trunks terminated on switches, incoming calls are extended independent of the local link — its functions being performed by the trunk switch. On an outward call this switch serves as a finder. Consequently, the local link is released for other calls as soon as the single trunk digit has been dialed.

WITH SELECTORS

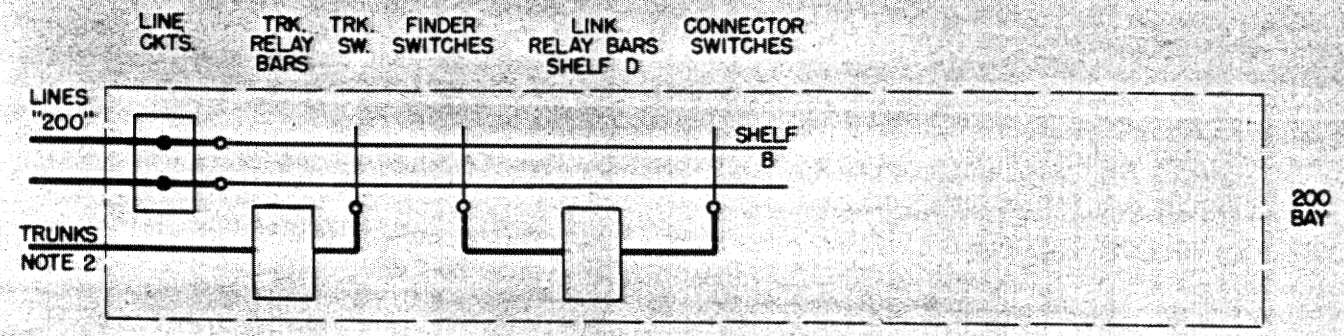
For Installations Over 100 Lines

The first available finder locates the calling line and link relays send dial tone to the subscriber. The first digit causes the selector switch to connect to a path through the selector multiple to the desired hundreds group. Since all such paths are preselected, there is no need for a searching action over busy paths. The second and third digits are extended over this path to the connector relays through the connector switch to the called line. The fourth digit causes the link relays to control the signalling, test the line and give supervision in the same manner as described for the system without selectors.

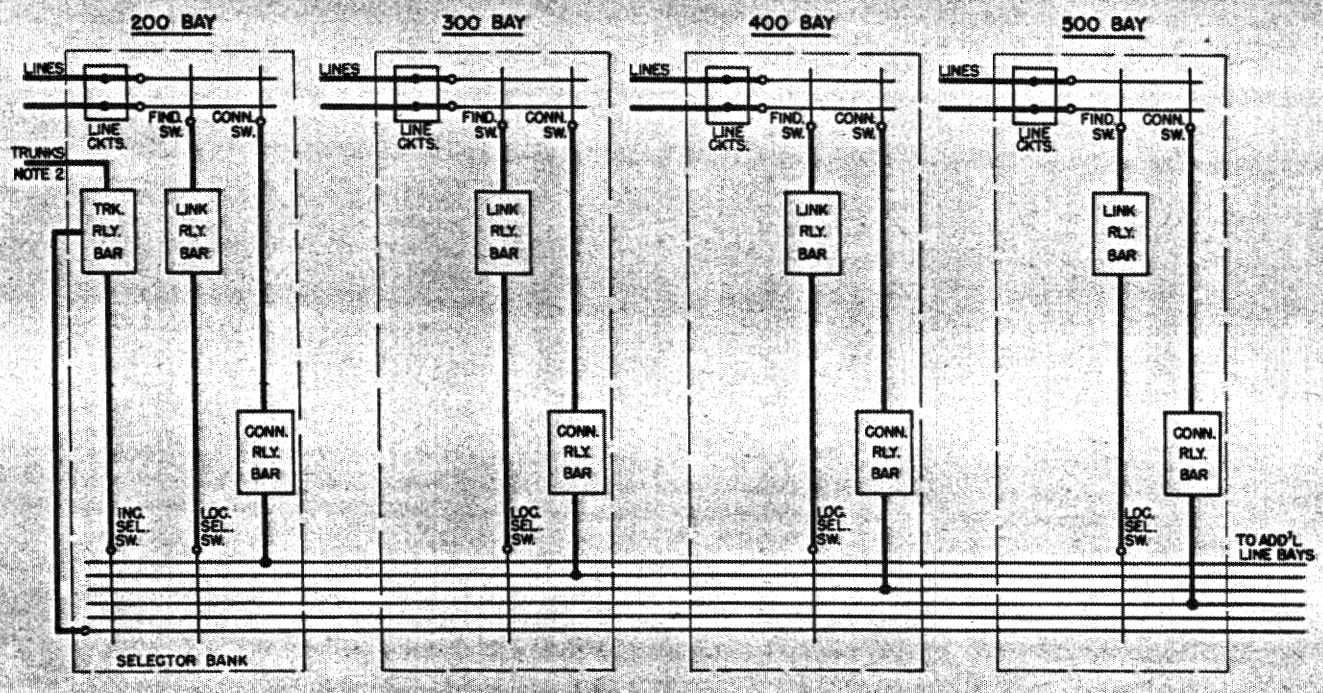
For trunks terminated on incoming selectors, an incoming trunk call causes the trunk relays to function as a link, the first digit establishing a path to the desired hundreds group and subsequent digits causing the connector switch to signal the called party. The finder locates the line making an outgoing trunk call, extends it through the link relays directly to the selector switch and then over the selector bank multiple to the trunk relays. Subsequent dial signals, if used, do not affect the link but are transmitted to the distant office.

Incoming calls over trunks terminated on lines follow the same path as local to local calls. Outward trunk calls are extended from the finder through the link relays and a connector or selector switch to the trunk by dialing a single digit.

THE LEICH DIAL SYSTEM



ANY TRUNK MAY BE TERMINATED EITHER ON A REGULAR LINE CIRCUIT OR ON AN INDIVIDUAL TRUNK SWITCH WHICH HANDLES BOTH INCOMING AND OUTGOING TRUNK CALLS, THE LATTER BEING TRANSFERRED TO THE TRUNK SWITCH FROM THE LOCAL LINK WHICH IS RELEASED AFTER DIALING THE TRUNK SELECTION NUMBER.



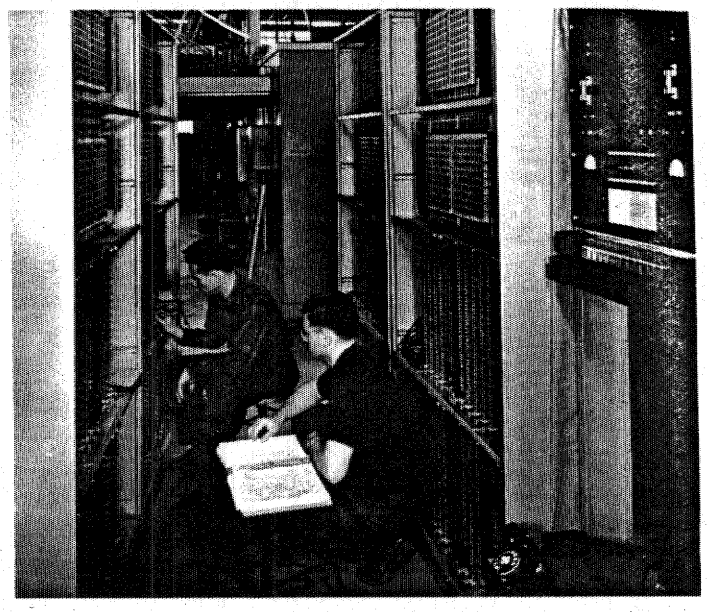
NOTES:

1. SELECTOR BANK CAN PROVIDE ACCESS FROM EVERY SELECTOR TO 15 CONNECTORS IN EACH 100-LINE GROUP WITHOUT GRADING MULTIPLE.
2. ANY TRUNK MAY BE TERMINATED EITHER ON A REGULAR LINE OR AS SHOWN ON AN INDIVIDUAL INCOMING SELECTOR SWITCH. TRUNK RELAY BARS MAY BE MOUNTED IN ANY OF THE LINE BAYS IF SPACE IS AVAILABLE OR ON A SEPARATE RACK.

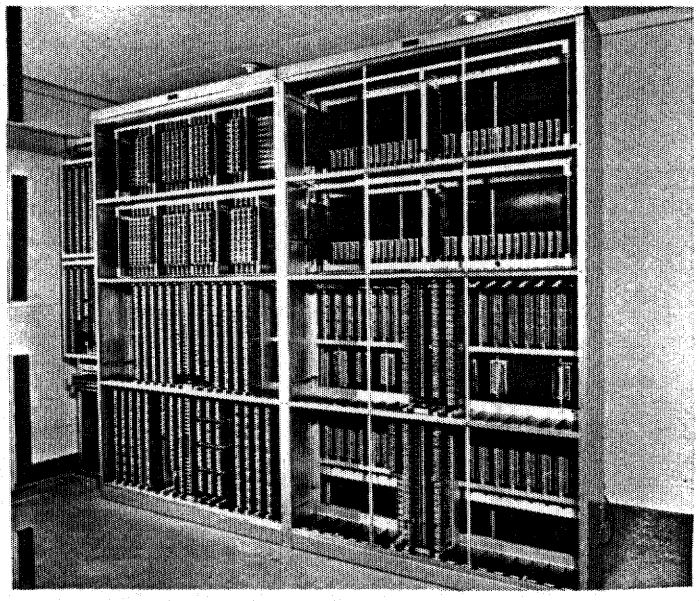
Leich Dial System

The Leich Dial System comes in units or switchboard bays of 100 lines each. No matter how many lines are equipped initially, each bay is factory wired and equipped with jacks for its ultimate capacity of 100 lines and 15 links. When expansion over the capacity of the initially installed bays is required, more 100-line bays may be added. This provision for future growth saves the telephone company considerable money whenever it is necessary to add to the capacity of the switchboard.

The Leich Dial System is available with or without selectors. Selectors are regular Leich relay switches used to connect from one 100-line group to another. If the exchange is not expected to exceed 100 lines, selectors need not be initially installed. They may, however, be added in case unanticipated growth makes it necessary to add another 100-line bay. All the basic equipment, line equipment, trunks, bays, etc., is the same whether or not the board is equipped with selectors.



Leich Dial Systems are thoroughly tested before they leave the factory



Close-up of a 2 bay Leich Dial System with selectors. In this case selectors were installed initially as the number of subscribers was expected to increase in a short time. The auxiliary trunk bay is at the left.

Capacities

LEICH DIAL SYSTEM WITHOUT SELECTORS

Capacity per bay:

100 lines
15 finder-connector links
Trunks terminated on lines
2 trunks per relay bar
Trunks terminated on individual switches
One trunk per relay bar and one trunk switch.
Each trunk switch takes the space of one finder or connector switch.
Trunk relay bars are normally mounted in an auxilliary trunk bay as shown in the picture at the left below.
Up to 8 trunk relay bars may be mounted in the switchboard bay, provided growth beyond 100 lines is not anticipated.

LEICH DIAL SYSTEM WITH SELECTORS

Capacity per bay:

100 lines
15 finders
15 local selectors
16 connectors
17 trunk switches
Trunks terminated on lines
2 trunks per relay bar
Trunks terminated on individual switches
1 trunk relay bar and 1 trunk switch
Trunk relay bars are mounted in a trunk bay or bays. Leich Dial Systems may be expanded from 100 to 800 lines by addition of 100-line bays.
"Grading" of the selector bank multiple will be required only when the total number of connectors plus the trunks exceeds the 100 available selector bank outlets.

POWER EQUIPMENT

POWER PANEL

The power panel for the Leich Dial System is designed for the utmost in efficiency. It is adaptable for various types of service. On small installations it is usually mounted alongside the switchboard bays, but it may be placed alongside the main frame or wherever it is convenient.

RINGING EQUIPMENT

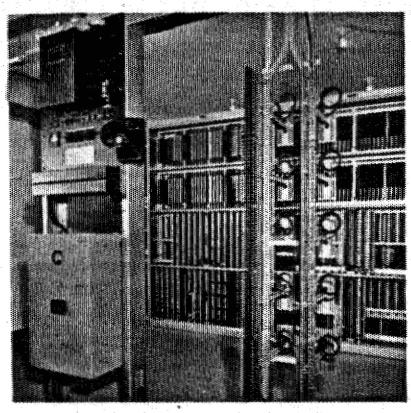
For single frequency code, pulsating or superimposed ringing a static type ringing machine is mounted on the power panel. With this is used a battery driven Leich standby converter which takes over in case of commercial power failure. For harmonic, synchromonic or decimonic ringing, a Leich vibrator type converter with twin vibrators is recommended. Decimonic ringing can also be furnished with a set of static converters operated by commercial power with Leich standby battery driven converters.

CHARGING EQUIPMENT

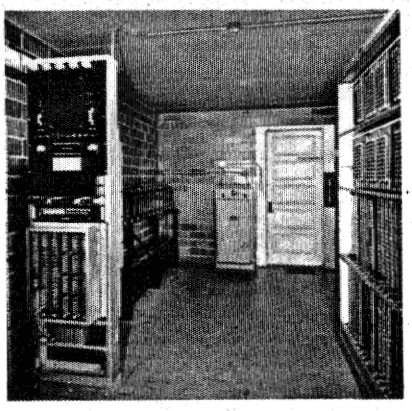
A battery charger of the constant voltage type is recommended. Any one of ample capacity can be fitted onto the power panel, or on a separate mounting rack if adequate space is not available on the power panel.

BATTERY

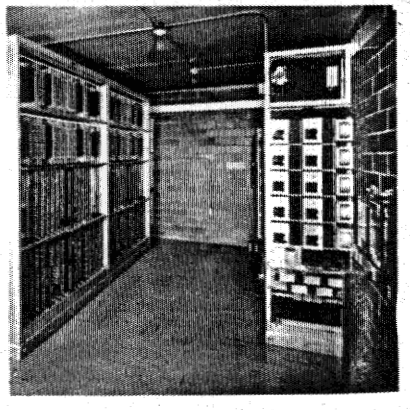
The standby source of power normally used for operation of the Leich Dial System is a 24 cell, 48 volt DC lead-acid type battery, although lead-calcium type using 24 cells, or nickel-cadmium alkaline type may also be employed using approximately 38 cells. The capacity of the battery is calculated for each installation so as to have sufficient capacity to provide DC current on the basis of an 8 hour reserve unless otherwise specified by the customer. Either the lead-acid, lead-calcium or nickel-cadmium type batteries have a low internal resistance and close voltage regulation characteristics which make them ideal for dial system power supply. The battery requirements of each Leich Dial System is individually engineered in order to insure an adequate source of standby power in case of commercial power failure.



The above photo shows the Leich power panel with a static type ringing machine and a battery charger mounted on the face of the power panel.

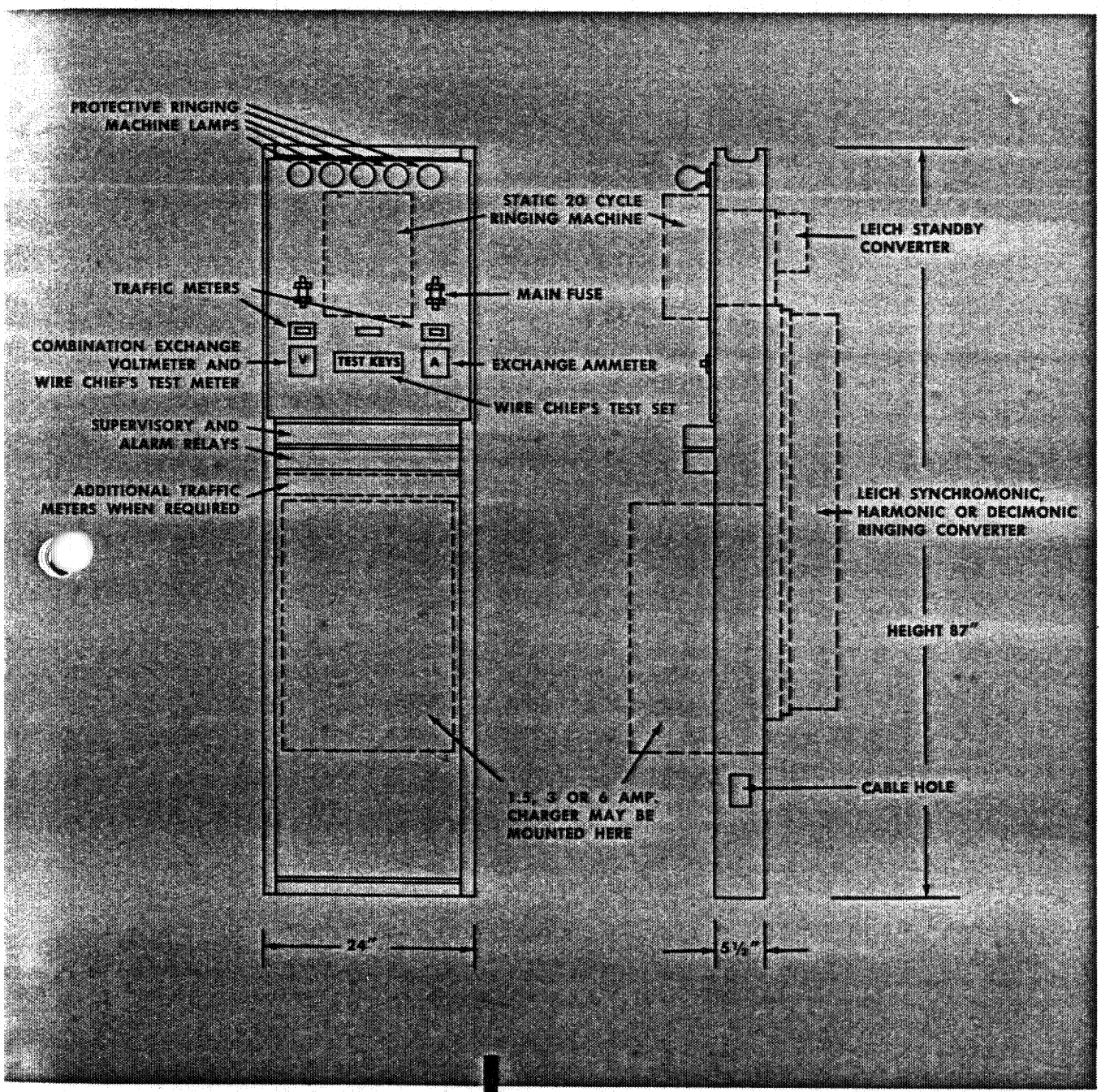


In this case the power panel is mounted alongside the main frame. A Leich vibrator type ringing converter is mounted on the back of the panel. A battery charger, floor mounted is near the door. At the bottom of the power panel is an auxiliary relay bar frame for mounting miscellaneous relay bars.



Here the power panel is positioned between the main frame and the battery rack. This photo shows the back of the power panel wherein is mounted a twin vibrator Leich harmonic ringing converter.

for the LEICH DIAL SYSTEM

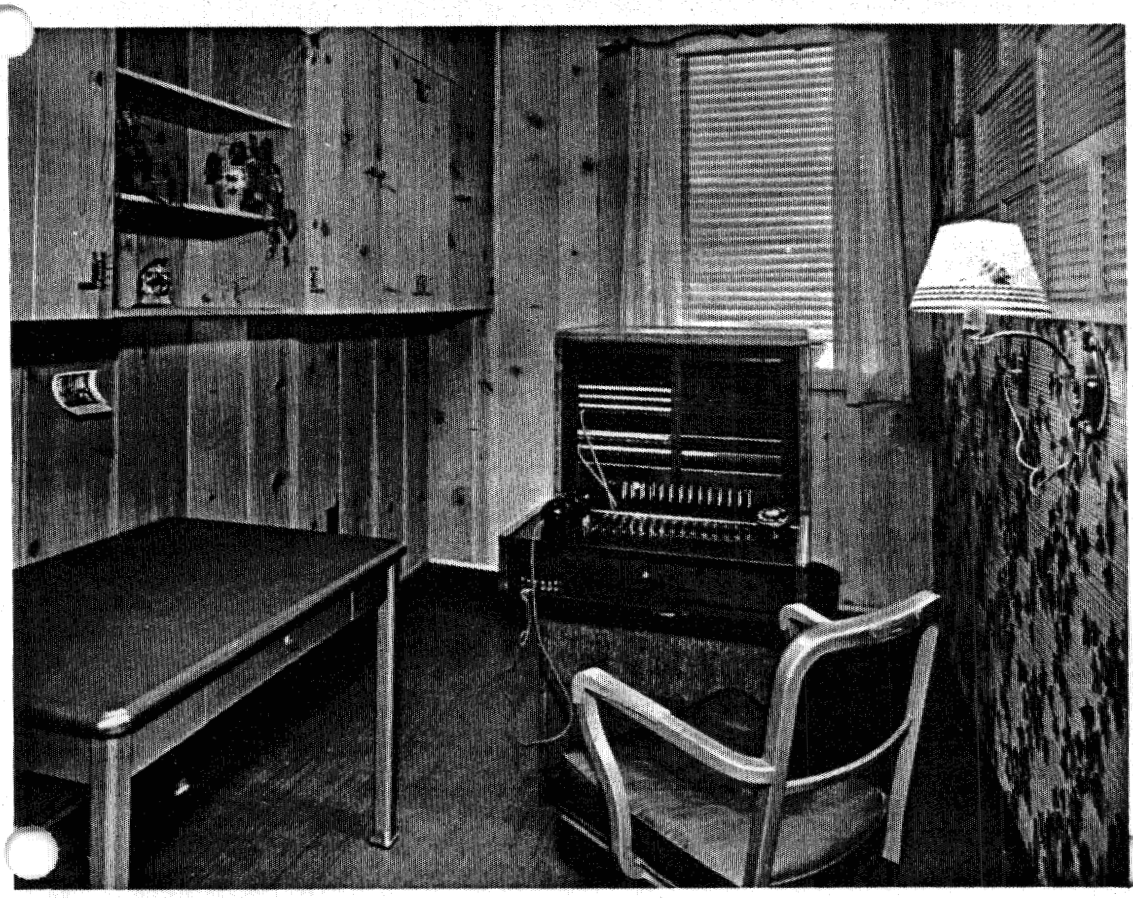


LEICH DIAL SYSTEM POWER PANEL

Ringing supply uses either static machine with Leich standby converter or Leich synchromonic (harmonic) converter furnished with single or twin vibrators. Chargers may be floor or wall mounted and space on power panel used for relay bar adaptors.

Ideal for PABX

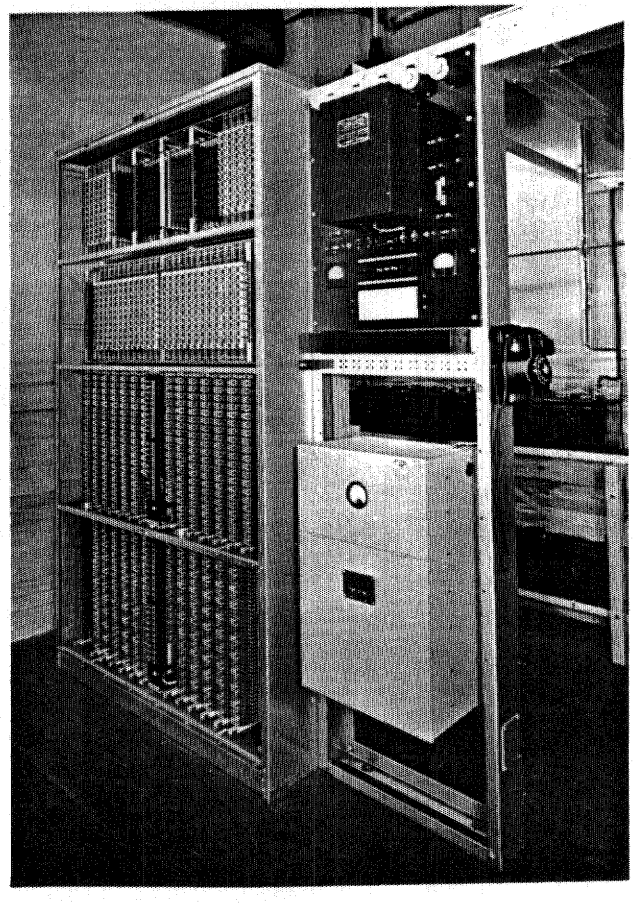
● More and more telephone companies are using Leich Dial Systems for PABX service. The dependable operation, minimum maintenance requirements, service features, inexpensive expansion and minimum space requirements make the Leich Dial System well suited for PABX installations.

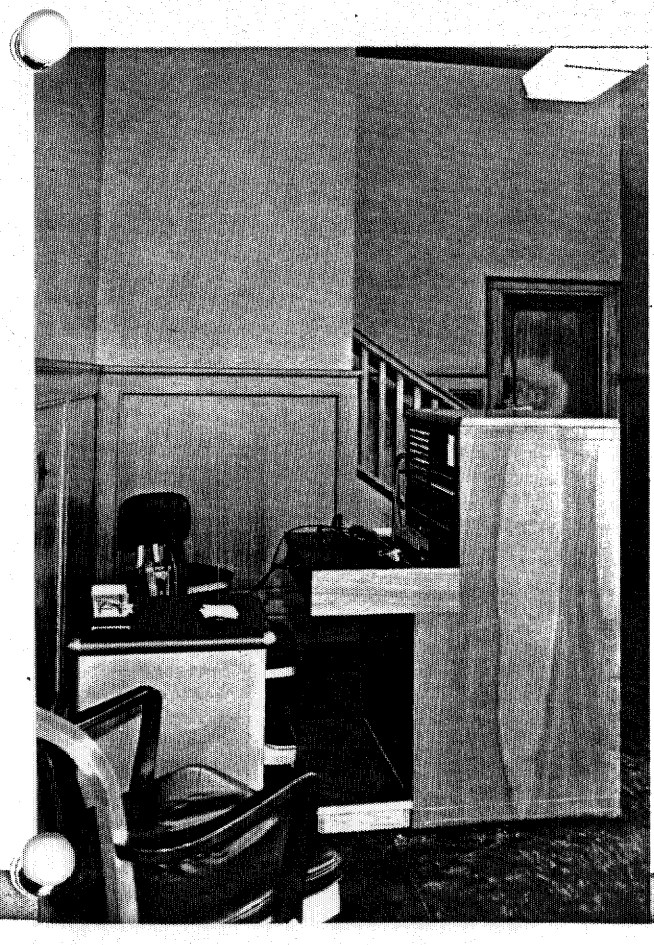


Leich attendant's cabinet for Leich Dial System PABX at the Michigan Consolidated Gas Company in Muskegon.

Service

This Leich Dial System is being used for PABX service at the Shaw-Walker Company in Muskegon, Michigan.





This is the attendant's cabinet for the Leich Dial System at the Shaw-Walker plant.

Leich Dial Systems

When you make as important a purchase as a dial switchboard, you want to be sure you're right. If you know that hundreds of other exchanges are using a certain kind of dial system, you can buy that kind of system with complete confidence. The list of Leich Dial System installations below is evidence of the acceptance and approval of the Leich System by the Independent telephone industry. We have included in this list some switchboards that are not shipped yet, inasmuch as they probably will be when you receive this catalog.

Cherry Valley, Illinois
Dexter, Kansas
Lewellen, Nebraska
Lake City, Arkansas
Marble Rock, Iowa
Venago, Nebraska
Fairfax, So. Car.
Harpersfield, Ohio
Ehrhardt, S. C.
McClellanville, S. C.
Robbins, North Carolina
Broadwater, Nebraska
Angier, N. Carolina
Dunning, Nebraska
Lingle, Wyoming
Ft. Calhoun, Nebraska
Willow Hill, Illinois
Rose Hill, Illinois
Yale, Illinois
Ava, Illinois
Elkville-Dowell, Illinois
*Mt. Vernon, Ohio
Smithville, Ohio
Fredricksburg, Ohio
Reedsville, Wisconsin
Holland, Missouri
Rosharon, Texas
Medora, Indiana
Vallonia, Indiana
Mont Belview, Texas
Stafford, Texas
Meadow, Texas
Ropesville, Texas
Petersburg, Texas
Hurlwood, Texas
Sudan, Texas
Earth, Texas
Mason, Ohio
*Apple Creek, Ohio
Apple Creek, Ohio
Tribune, Kansas
Blanca, Colorado
*Lima, Ohio
Prattsburg, New York
Andover, New Jersey
Geneva-on-the-Lake, Ohio
Urbana, New York
Emeline-Iron Hill, Iowa
Estelline, So. Dakota
*Ottawa, Ohio
Hampton, So. Carolina
Jourdanton, Texas
Morton, Texas
Pageland, So. Carolina
Estill, So. Carolina
Jefferson, So. Carolina
Carthage, No. Carolina
Whiteface, Texas
Magnolia, Illinois
La Rose, Illinois
La Place, Illinois
Westminister, Ohio
Glyndon, Minnesota
Holgate, Ohio
Spurgeon, Indiana
Belmore, Ohio
North Benton, Ohio
Brimfield, Illinois
Neponset, Illinois
Millhousen, Indiana
Franklin, New Jersey
Lerdal, Minnesota
Clarks Grove, Minnesota
*Lima, Ohio
Woodlawn, Illinois
*Wooster, Ohio

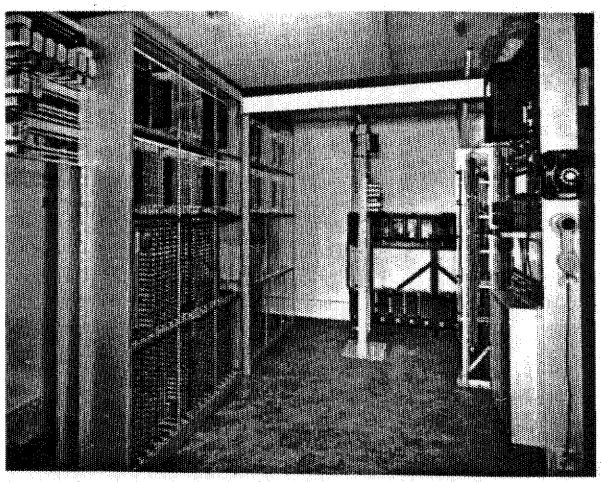
Young America, Indiana
*Lima, Ohio
Keams Canyon, Ariz.
Glouster, Ohio
Brownsville, Indiana
Foreston, Minnesota
*Lima, Ohio
Bristolville, Ohio
Warrensburg, Illinois
Argenta, Illinois
Pleasant Hill, Illinois
Cabery, Illinois
La Crosse, Indiana
Roaring Gap, No. Carolina
Kennard, Nebraska
Freedom, Wyoming
Kandiyohi, Minnesota
Little Fork, Minnesota
Kouts, Indiana
Hamilton, Indiana
Galveston, Indiana
New Holland, Illinois
Thompsonville, Illinois
Elwin, Illinois
Milton, Illinois
Armington, Illinois
Ogdensburg, New Jersey
Towner, North Dakota
Bayard, Iowa
*Van Wert, Ohio
Bennett, Iowa
Lisbon, Iowa
*Connersville, Ind.
Branchville, New Jersey
Hamburg, New Jersey
Thorsby, Alabama
Camp Grove, Illinois
Ewing, Illinois
*Lafayette, Indiana
*Muskegon, Michigan
*Muskegon, Mich.
Wayne City, Illinois
Castelton, Illinois
Loda, Illinois
Stonefort, Illinois
Buckley, Illinois
Carrier Mills, Illinois
Palmyra, Illinois
*Lima, Ohio
Fritchton, Indiana
Elkhart, Illinois
Atlanta, Illinois
Biggsville, Illinois
Coulterville, Illinois
Sheridan, Illinois
Johnsville, Ohio
*Galesburg, Ill.
*Milford, Michigan
Chatham, Illinois
Creal Springs, Illinois
Campus, Illinois
Big Falls, Minnesota
Crivitz, Wisconsin
Wausaukee, Wisconsin
Emmington, Illinois
Goshen, Alabama
Harmony, N. Car.
Ionia, Iowa
Elsie, Nebraska
Cisco, Illinois
Clay City, Illinois
*Galesburg, Illinois
Tilden, Illinois
Greenville, Florida
Crawfordville, Florida
*Galesburg, Illinois

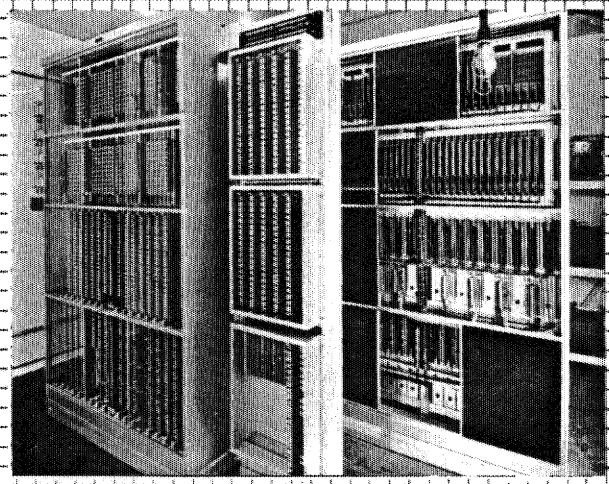
North Madison, Indiana
Stillman Valley, Illinois
Kirkwood, Illinois
*Herrin, Illinois
Bryantsville, Kentucky
Sharpsburg, Kentucky
*Lima, Ohio
Hanover, Indiana
*Bucyrus, Ohio
*Luckey, Ohio
Louise, Texas
Smiley, Texas
Orange Grove, Texas
Estelline, Texas
Ridgeland, S. C.
Granite Falls, Wash.
Waterville, Ohio
Lac du Flambeau, Wis.
New Lothrop, Michigan
Le Claire, Iowa
*Connersville, Indiana
Roscoe, Illinois
Wheatland, Indiana
Burr Oak, Michigan
Avoca, Michigan
Smiths Creek, Michigan
*Marion, Ohio
Sayner, Wisconsin
*Muskegon, Michigan
Ida, La.
Hosston, La.
Gilliam, La.
Smyer, Texas
Belcher, La.
Logansport, Indiana
Marshallville, Ohio
Pulteney, New York
*Muskegon, Michigan
*Luckey, Ohio
*Bellefontaine, Ohio
Cascade, Wisconsin
*Bryan, Ohio
Herman, Minnesota
Ellis Grove, Illinois
Bath, Michigan
Primrose, Iowa
Argyle, Iowa
Ventura, Iowa
Twin Lakes, Michigan
Rankin, Michigan
Laingsburg, Michigan
Bonduel, Wisconsin
Joy, Illinois
Glouster, Ohio
Compton, Illinois
Sidney, Illinois
Crothersville, Indiana
*Erie, Mich.
Fox Creek, Wisconsin
*Muskegon, Mich.
Shiprock, New Mexico
Somonauk, Ill.
Chadwick, Illinois
*Coldwater, Mich.
New Douglas, Illinois
Perry, Illinois
Arthur, Nebraska
*Lima, Ohio
Blooming Grove, Texas
Knox City, Texas
Buda, Illinois
Trevor, Wisconsin
Cairo, Ohio
Funk, Nebraska
Comstock, Nebraska
Dunkirk, Ohio

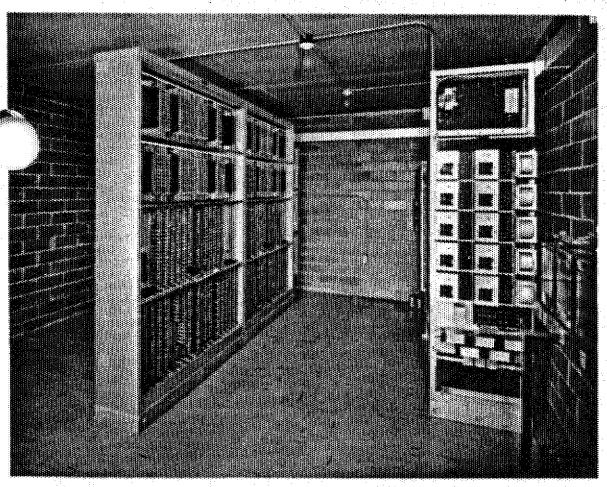
Friona, Texas
Groom, Texas
Gregory, Texas
Avinger, Texas
Hebron, Illinois
Charlotte, Texas
Benjamin, Texas
Shepherd, Texas
Portland, Texas
Dodson, Texas
Racine, Ohio
Piketon, Ohio
Rawson, Ohio
Decatur, Ohio
Warsaw, Ohio
Wharton, Ohio
Idaho, Ohio
Harpster, Ohio
Letart Falls, Ohio
*Ordill, Illinois
Ganado, Arizona
Pickett, Wisconsin
Pembine, Wisconsin
Goodman, Wisconsin
Jim Falls, Wisconsin
Tuba City, Arizona
Crown Point, New Mexico
Lyndon Station, Wisconsin
Hillsboro, Iowa
Montrose, Iowa
*Bettsville, Ohio
*Lexington, Kentucky
*Robinson, Illinois
Stephen, Minnesota
Castle Dale, Utah
Ferron, Utah
Emery, Utah
Cleveland, Utah
Russells Point, Ohio
Waynesfield, Ohio
Stanton, N. Dak.
North Creek, N. Y.
Columbus, N. D.
Neche, N. D.
Hanna, Indiana
Mechanicsburg, Indiana
Raleigh, Indiana
*Lexington, Kentucky
Pine Knot, Kentucky
La Grange, Wyoming
Burket, Indiana
Broxton, Georgia
Liberty, Kentucky
Owingsville, Kentucky
Mouat, Montana
*La Porte, Indiana
*Shelby, Ohio
Waynesville, Ohio
*Shelby, Ohio
*Bucyrus, Ohio
Jenera, Ohio
Beckville, Texas
Lyford, Texas
Claude, Texas
Roma, Texas
Naples, Texas
Supply, Oklahoma
Cooperdale, Ohio
Laura, Ohio
Hanoverton, Ohio
N. Georgetown, Ohio
Wallis, Texas
Wheeler, Texas
Happy, Texas

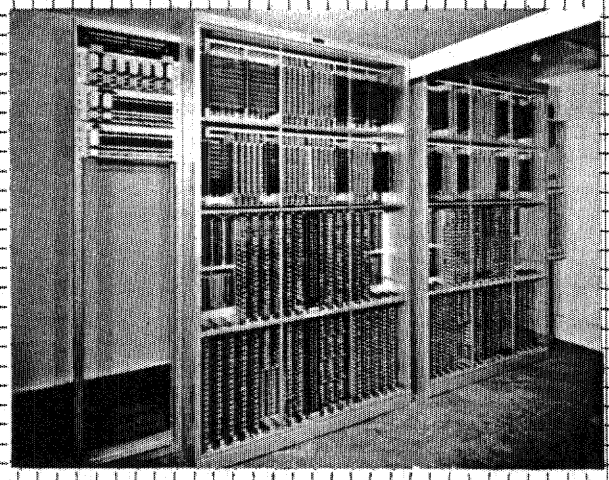
*** Indicates PABX**

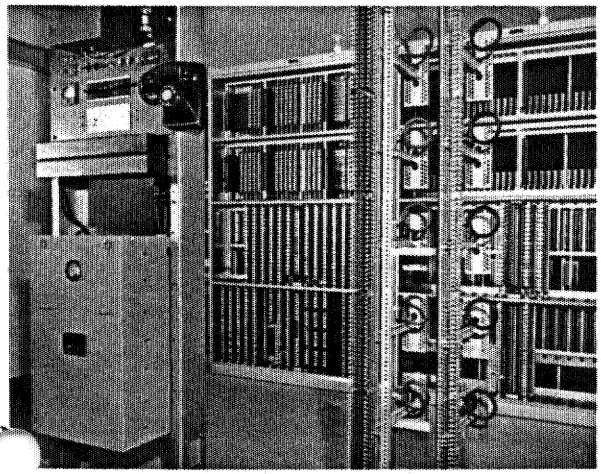
In Service

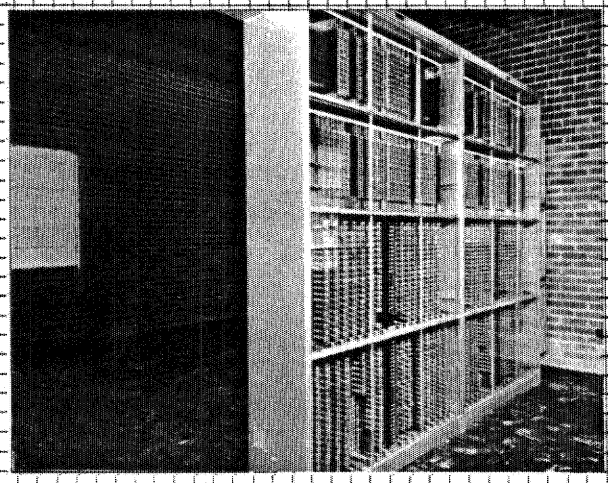




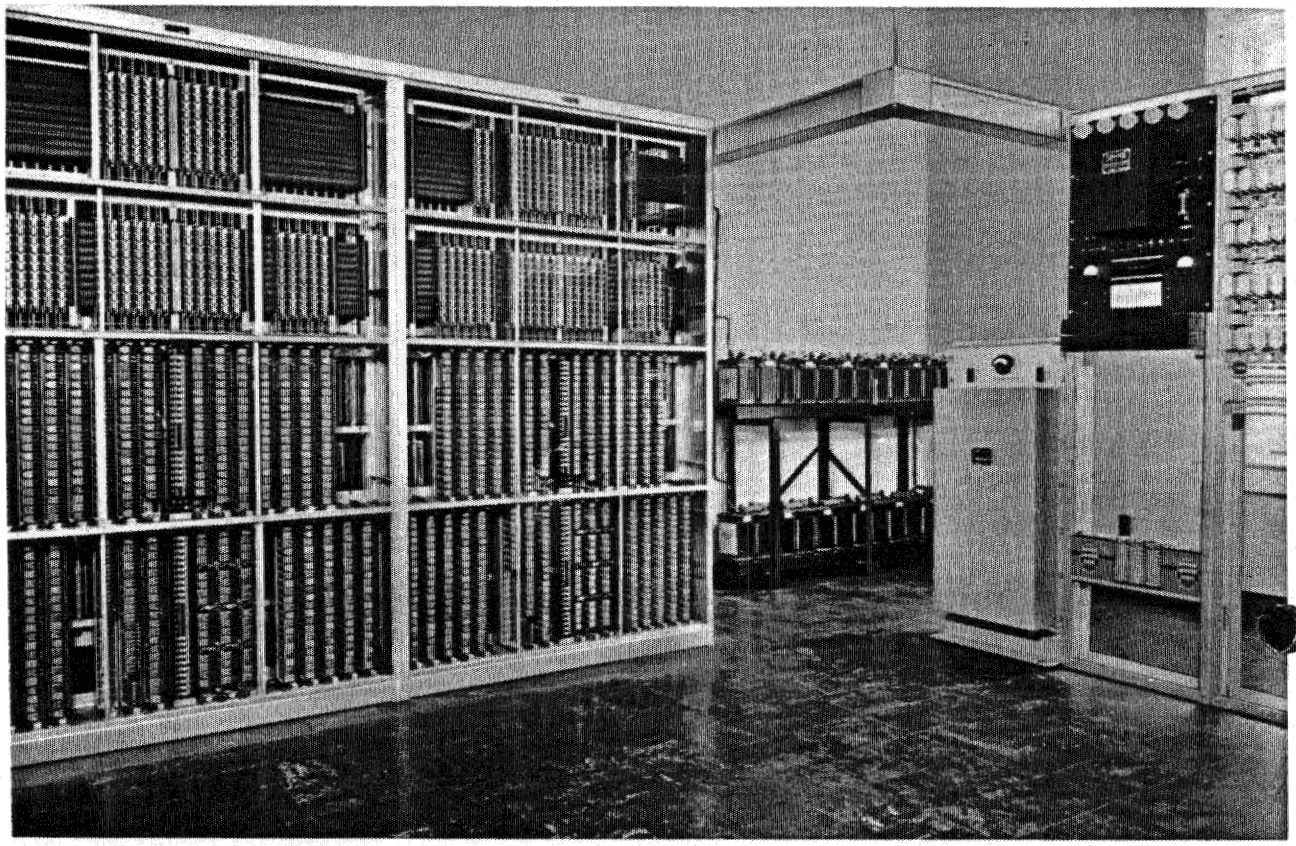




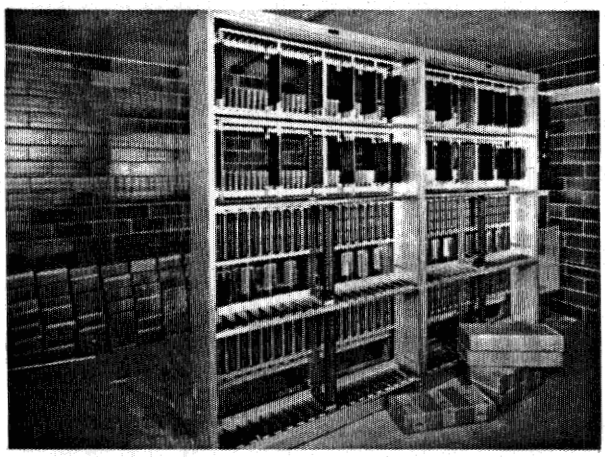




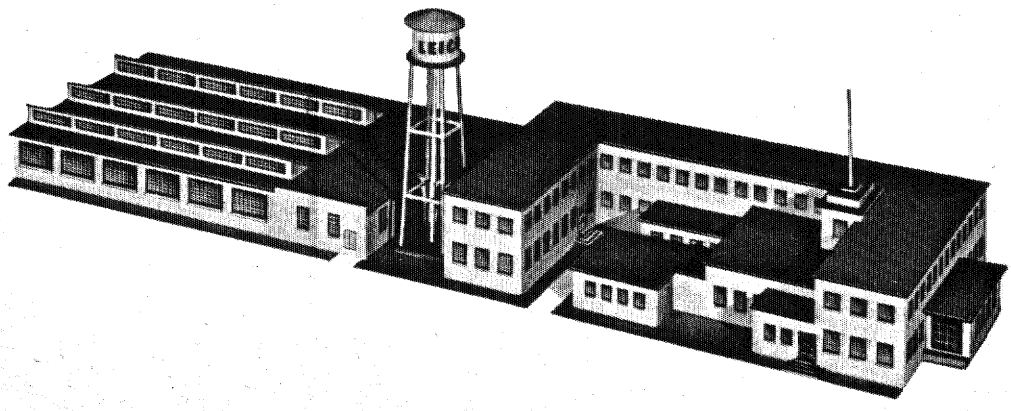
You'll be Surprised...



... how easily and quickly your **LEICH DIAL SYSTEM** *can be installed!*



The small photograph at the left illustrates how simple and relatively inexpensive it is to install a Leich Dial System. Each steel frame bay has a capacity of 100 lines and 15 links. Two men can carry a bay. All the equipment comes in small packages as shown, is merely jacked-in on the switchboard after it is set in the exchange building. It only takes about 80 man-hours per 100 lines to install a Leich Dial System.



LEICH ELECTRIC COMPANY

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