

BEFORE the new station was built, passenger trains crossed streets in getting to five stations

New Orleans Passenger Terminal

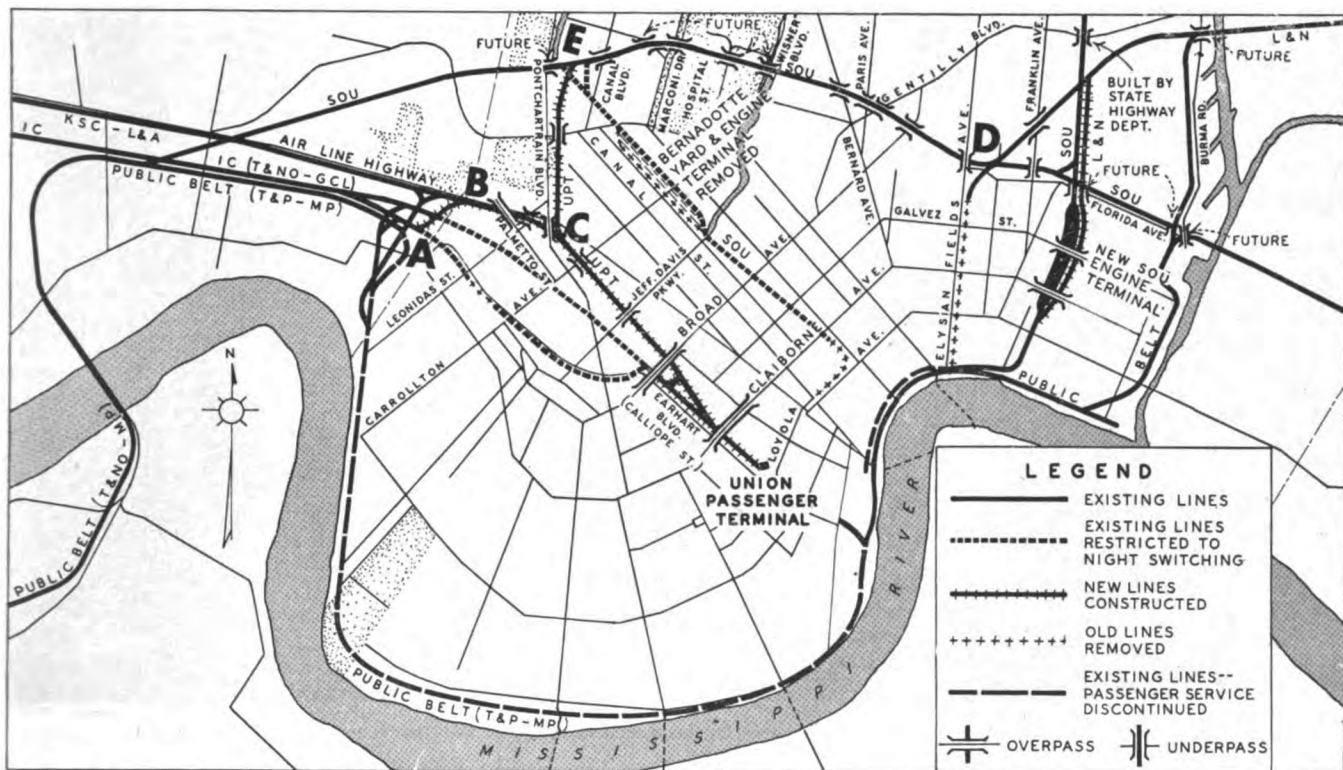
Project includes large "NX" interlockings at station and six remote control layouts, and also modern communications, including public address, radio and special inter-com phones

THE NEW ORLEANS UNION Passenger Terminal project, completed and officially placed in service May 1, has accomplished two major objectives. Now all of the 44 passenger trains entering and leaving the city daily, on eight railroads, use the same terminal, rather than the previous five stations. On the routes previously used through the city, these trains crossed hundreds of streets at grade. By concentrating the operation on fewer routes, nearly all of the streets now go over or under the tracks used by passenger trains.

The map shows the locations of the previous five stations, and in general the routes used to and from these terminals. Formerly, the 12 Louisville & Nashville trains used the L & N station, designated 4. Six Southern trains used the Terminal Station, 3. Four Texas & Pacific and four Missouri Pacific trains used the TP-MP station, 5. Four Kansas City Southern trains used the KCS station, 2. Eight Illinois Central, six Southern Pacific, and four Gulf Coast Lines trains used the Illinois Central Station, known as Union

Station, 1. The new passenger terminal is, in part, on the same general location as the previous Union Station, although the track layout and approaches are entirely new sections of railroad, built to connect with existing rail lines to form routes, so that trains of all eight railroads are now operated into and out of the new passenger terminal.

Trains of the SP, T&P and MP, which use the bridge over the Mississippi river, connect with the IC at East Bridge Jct. A total of 26 of the passenger trains, operated by the IC, SP, MP, T&P and GCL, now approach New Orleans, and depart therefrom, through the Southport interlocking, designated A on the map, Fig. 2. Between Southport and the previous IC New Orleans passenger station, the IC had two tracks, one of which was the previous Y&MV, and the other the original IC; these tracks were separated as much as 300 ft. at some places. Thus, in this section of about 5.5 mi., there were numerous street crossings at grade. A different route was therefore planned for the 26 passenger trains to be operated daily between Southport and the new station. From a connection with the IC at Southport, two new main tracks extend northeast 4,520 ft. to connect with the main track of the KCS at KCS Jct., B. No public crossings at grade are in this section. Two main tracks extend on from KCS Jct. about 5,800 ft. to Carrollton Jct., C. Thus, trains of the IC, SP, MP, KCS, MP (GCL) and T&P, are routed over the section between KCS Jct. and Carrollton Jct.



After the Union Passenger Terminal was built, trains cross streets via grade separations

In this 5,800 ft., there is an overpass for Airline Highway, an underpass for Carrollton Ave., and an overpass is to be built for Palmetto Blvd.

Trains of Other Roads

In the vicinity of Terminal Junction, D on the map, incoming lines of the L&N, and Southern, connect with a previously existing line of the New Orleans Terminal Co. that extends east through East City Switch, marked E. Underpasses have been constructed, or are planned to separate grades at principal street crossings between Terminal Jct., to and including East City Switch. As part of the new project, double track was built about 8,800 ft. along the east bank of the Basin Canal from East City Switch, E, to Carrollton Jct., C. Thus, the 18 trains of the L&N, and Southern are routed into and out of the city over this new section between East City Switch and Carrollton Jct., which has no crossings at grade.

Carrollton To The Terminal Along The Old Canal

The previous Basin Canal, now filled in, had a right-of-way 300 ft. wide, extending southeast from Carrollton Jct. to the site of the new passenger terminal, about 2.3 miles. Previously, the KCS main line was located on the east bank of the old canal, from Carrollton Jct. 4,375 ft. to Poydras Yard Jct.; from this point, the KCS diverged to the left to freighthouses and the previous KCS passenger station.

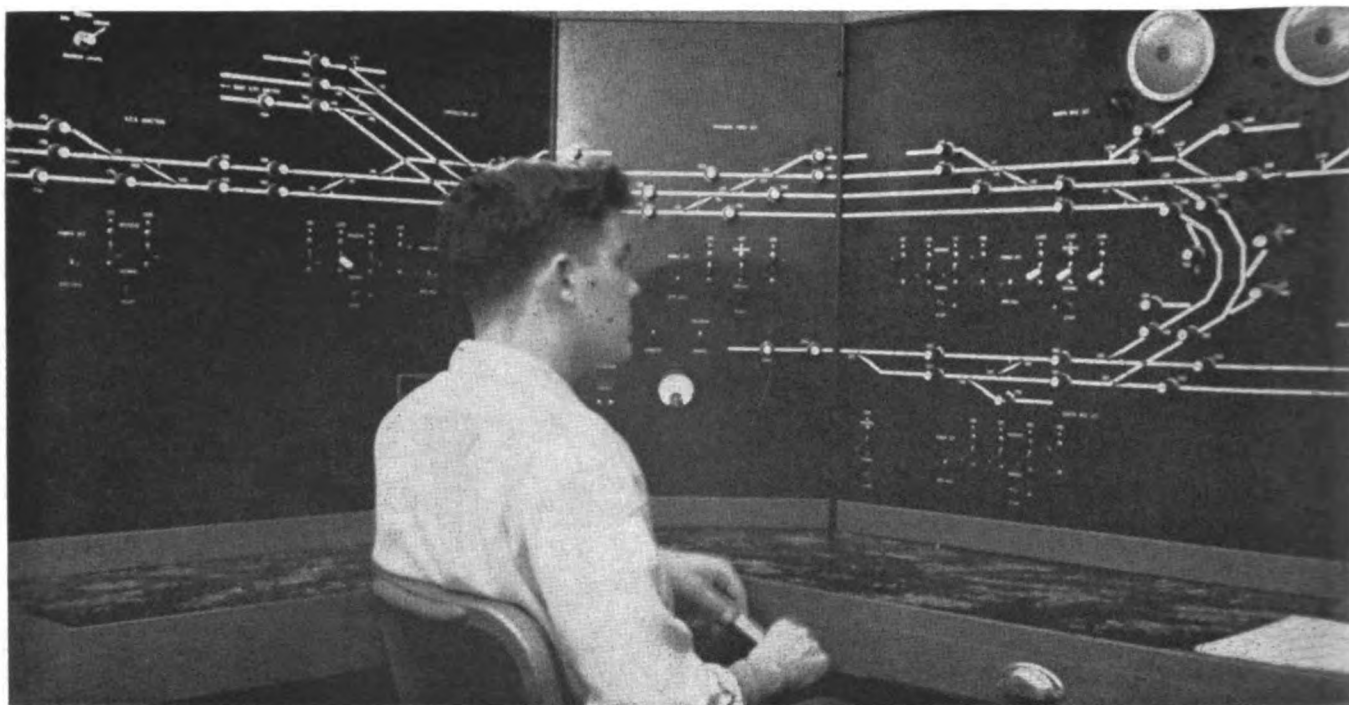
As shown in Fig. 3, in the new project, three main tracks extend on what was the east bank of the old canal from Carrollton Jct. to Poydras Yard Jct. 4,375 ft., and on for 1,800 ft. to North Wye Jct. from which point one new main track, used exclusively as the outbound, extends to the throat of the station track layout at Clara Street Tower. Also from North Wye Jct., two new main tracks extend on a curve for about 1,400 ft. to South Wye Jct., O, to connect with the

two previous IC main tracks which, on a revised alignment, extend about 4,000 ft. to the throat at Clara Street Tower. In the entire distance, between Carrollton Jct. and the new station, there are no public street crossings at grade. Carrollton Ave. goes under the tracks. Overpasses were built at Jefferson Davis Parkway, Broad Ave., and Claiborne Ave. A new boulevard is to be built on the right of way of the old canal.

Operations of the new Union Passenger Terminal extend from the new passenger terminal out through Carrollton Jct., to East City Switch, as well as from Carrollton Jct. out through KCS Jct. to Southport. On these tracks, the switches and signals at the various junctions, and at the throat entering the station, are included in electric interlockings, with traffic control arrangements between the interlockings so that, throughout this area, train movements are authorized by signal indications.

Each incoming train from Carrollton Jct. is headed around the Wye from North Wye Jct. to South Wye Jct., and pulls up with the rear north of South Wye Jct. Then the train is backed down through South Wye Jct. on one or the other of two main tracks, (1st main or 2nd main) to the throat at Clara Street Tower, and on into one of the station tracks. An outbound train, from any station track is headed out through the throat at Clara Street, and then on the single track, marked 3rd main, directly to North Wye Jct. and on to Carrollton Jct., from which point the trains of the L&N and Southern go to the right, and trains of other roads go to the left.

When a train arrives in the station, the road locomotives are cut off, and run out to the engine zone. A switch engine takes off the head-end cars and sets them on the tracks at the mail and express buildings. Then the switch engine pulls the passenger cars out to the coach yard. Thus, eight moves are made through the Clara Street interlocking for each arriving train, and likewise eight such moves are made for each departing train. With 44 scheduled trains, this



An entrance-exit (NX) pushbutton control machine was installed at the new terminal interlocking

totals 352 moves daily, in addition to extra moves.

The Clara Street interlocking, which extends from the station tracks through the throat to Claiborne Ave., includes 15 single switches, 2 crossovers, 10 double-slip switches and 46 home signals. The interlocking at South Wye Jct. includes 3 single switches, 1 crossover and 8 home signals. Poydras Jct. has 1 single switch, 3 crossovers, 11 home signals and 2 electrically locked switches. Poydras Yard Jct. includes 1 switch, 2 crossovers and 7 home signals. Carrollton Jct. includes 3 single switches, 4 crossovers, 11 home signals and 1 electrically locked switch. At KCS Jct., the interlocking includes 1 switch, 1 crossover and 5 home signals.

All seven interlockings are controlled from one panel-type interlocking machine in the Clara Street Tower near the new station. On the illuminated track and signal diagram, each signal is represented by a

knob. In the face of the knob is a frosted glass with a black arrow, fixed to point in the direction which the corresponding signal controls.

The switches in the area from the station tracks out through the throat to Claiborne Ave. are controlled by the Entrance-Exit system in which a route is set-up when the towerman pushes one button representing the signal governing the entrance to a route, and then pushes a button representing the exit of the route from home signal limits. Thus, any route, which may involve as many as six switches and crossovers, is set up, and the signal cleared, within a few seconds. This fast and simple manipulation is an important aid in saving time when changing routes through this complicated track layout. Alternate available routes are automatically selected, if the most direct route is not available.

At the outlying interlockings, at the Wye junctions,

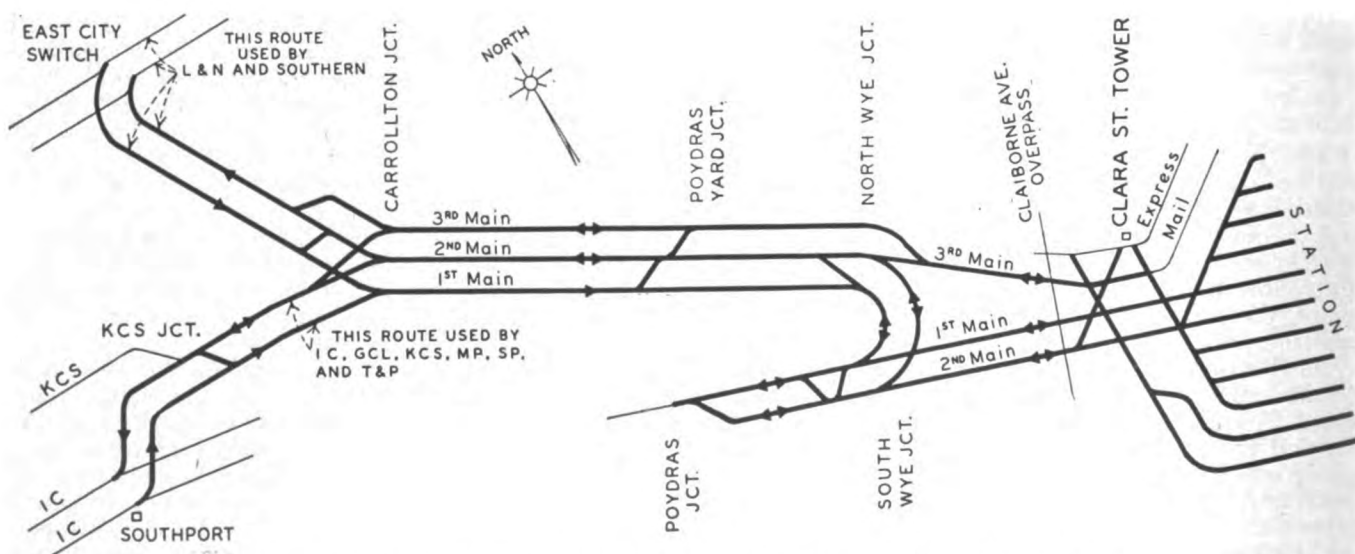
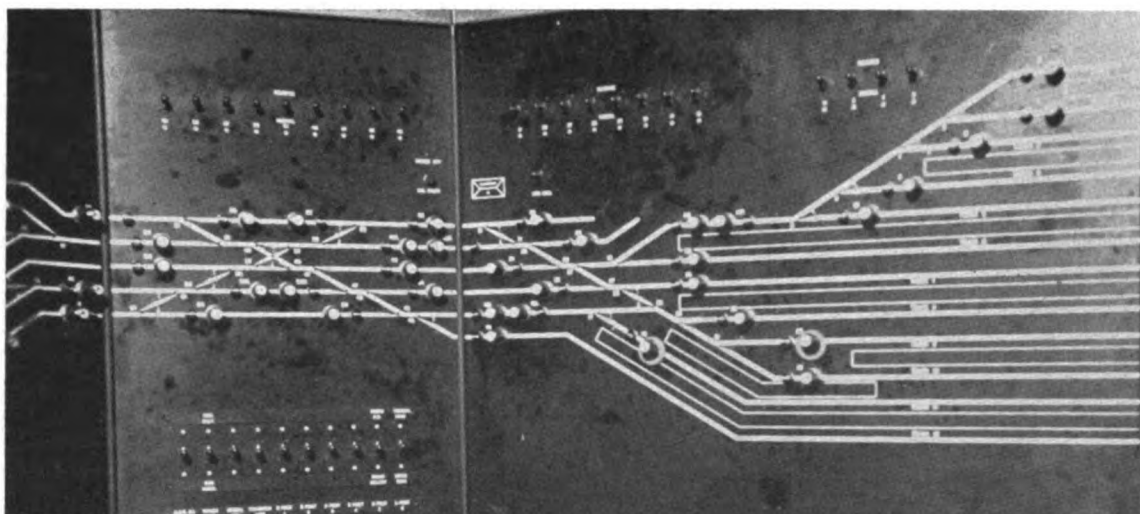


Fig. 3. Seven interlockings are controlled from the Clara street interlocking tower

Right end of the control machine with the stub-end tracks into the passenger station



and at Poydras Yard Jct., Carrollton Jct., and KCS Jct., the time between train moves is longer, and the layouts are simple. Therefore, in the portions of the control panel applying to these outlying interlockings, each switch or crossover is controlled by a toggle type lever, mounted in the panel below the symbol for that switch on the diagram. Having thus lined up the switches and crossovers, the towerman pushes the corresponding entrances and exit buttons for the route desired, as previously explained.

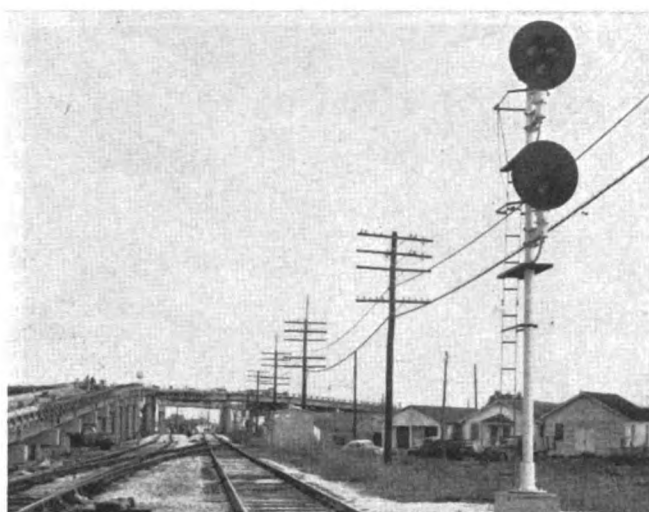
Interlocking signals, and intermediate automatic signals, where required, are arranged for train operation in both directions on both tracks between Clara Street and South Wye Jct; on both tracks between South Wye Jct. and North Wye Jct. to Poydras Jct.; on the 2nd and 3rd mains between North Wye Jct. and Carrollton Jct.; on the north track between Carrollton Jct. and KCS Jct., and on the single track between Clara Street Tower and North Wye. Other sections of track are signaled for one direction only.

Where the tracks are signaled for both directions, two trains of the same direction can be operated simultaneously in the same direction on parallel tracks. This helps to handle peaks of incoming trains in the morning, and outgoing trains in the evening. For example, if an inbound IC train and an inbound KCS train approach KCS Jct. at about the same time, they can be run side by side on the parallel tracks from KCS Jct., through Carrollton Jct. North Wye and South Wye and then back down through the throat to station tracks, at the same time. Similarly, outbound trains, after passing North Wye can be run on parallel tracks.

Signals and Aspects

In the limits of the Clara Street interlocking, at the throat leading to the station tracks, all train movements are limited to 15 m.p.h. The signals are the colorlight type and are dwarfs. Each signal normally displays the red aspect, for Stop, or the yellow aspect for Clear. From Poydras Yard Jct. on out through Carrollton Jct. and KCS Jct., they are the multiple-unit type, with searchlight mechanisms.

The 110-volt storage battery for operating the 39 switch machines on the Clara Street interlocking consists of 55 Exide 120-a.h. cells. The same type battery, arranged in two sets of 12 cells each, feeds the 24-volt circuits, and a set of 6 cells feeds the 12-volt circuits. Twenty cells of Exide 8-a.h. feed the code line circuits to outlying interlockings. At each of the six outlying interlockings, 24-volt switch machines are operated

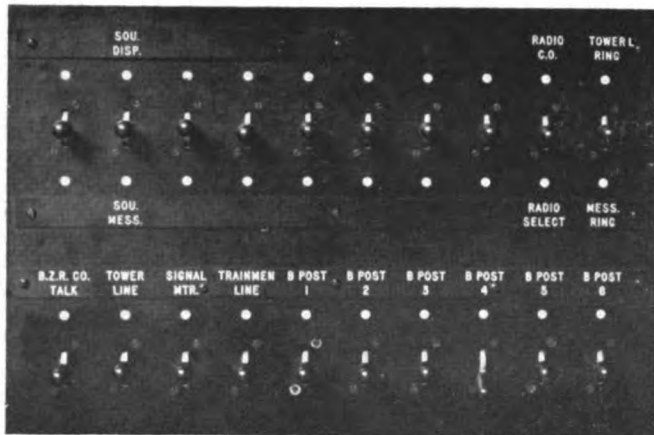


Some of the high signals are the color-light type



Switch machines are equipped with an outboard brake

from a set of Exide 120-a.h. cells. Throughout the entire project, each track circuit is fed by one Edison storage cell. Except on the platform tracks, the track circuits are the conventional d.c. type, using 4-ohm relays. On the platform tracks, the track circuits are for control of track occupancy indication lamps on the interlocking control panel. On each of these track circuits, a.c. is fed to the rails at the end toward the tower. At the bumper end of each track circuit, the a.c. goes through a rectifier to make d.c., which feeds back on the rails to energize a d.c. relay, connected to the same track wires as the a.c. feed. This type of rectified circuit serves the purpose for a track-occupancy indication circuit, and is cheaper to install than a conventional track circuit. The relays on this interlocking project are the plug-in type, mounted in racks.



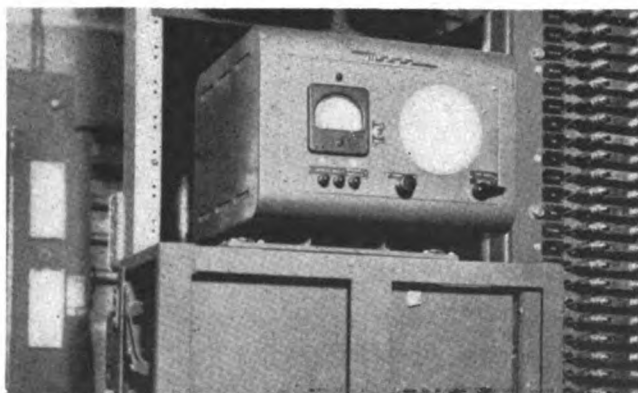
Telephone concentration unit in control machine enables operator to call dispatchers, starters and maintainers



Electric switch machines are equipped with telephone jacks enabling maintainers to talk with interlocking operator



Train starter telephones to interlocking tower to inform leverman that a passenger train is ready to depart



Base station of yard radio system is in Clara street tower. Three yard locomotives are radio equipped

In line with the relay racks is a large terminal board where all wires terminate which come from relays, the control machine and circuits outside the tower wiring connections are made with Aircraft-Marine solderless terminals. Under tracks, the circuits are in buried cable. Along the tracks, the circuits are in aerial cable, attached with Raco beaded straps to Copperweld stranded messenger, on concrete posts. The insulated wire and cable was furnished by the

Kerite Company. The wires are No. 14 for control circuits and No. 9 for connections to track circuits. At the rail, the single conductor No. 9 is brought up through a Raco bootleg to a terminal on top of this outlet, from which stranded Copperweld extends to a $\frac{3}{8}$ -in. plug in the rail.

The signaling and interlocking on this Union Passenger Terminal was planned by a committee of the signal engineers of railroads which use the terminal. Many of the final details and inspection were handled by signal department forces of the Illinois Central. The interlockings and signals were manufactured and installed by the General Railway Signal Company.

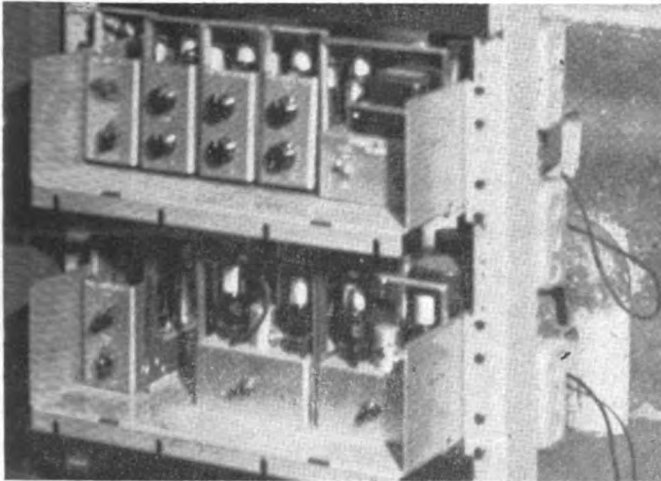
Modern Communications

Several modern communications systems, each for its own purpose, were installed as part of the new terminal project. A public address system announces the departure and arrival of trains. Loudspeakers are located in the waiting rooms, restaurants, rest rooms, and on the concourse. Microphones are located at the information desk, and on the main concourse. The amplifier equipment for this system was made by Dukane, St. Charles, Ill.

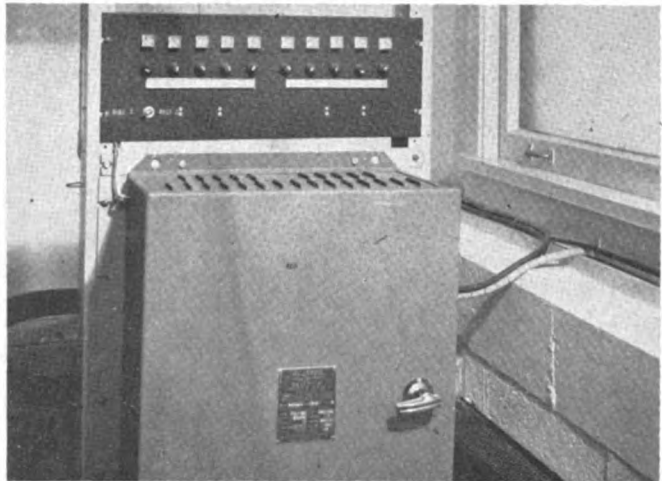
The towerman in the new Clara Street tower has direct control of the movement of trains. On his control machine are two loudspeakers, a microphone and a communication panel, known as the concentration unit. Connected in this concentration unit are telephone circuits to dispatchers of some of the railroads which operate trains into the terminal, and to operators in the Southport interlocking, and the East City Switch interlocking.

Also connected to the communications panel at Clara Street tower is a separate set of telephones used for train starting. Such a phone is located in a small cast iron box at every other bumper post in the station concourse. When a train is due to depart, the train starter goes to the nearest bumper post telephone and lifts the receiver. This causes an indication lamp to light above the corresponding key on the panel in the Clara Street tower. When the towerman answers, the train starter says, "No. 2 ready to go." Then the towerman clears the interlocking home signal for the train to depart. Thus, the telephones constitute a very simple and efficient train-starting system.

Special telephones, located in boxes at Carrollton Ave. station and at all the outlying junctions, are for use by trainmen and conductors when calling the towerman at Clara Street tower. Such a call from a



Rack-mounted shelves of RCA plug-in amplifier equipment used in connection with telephone concentration unit



Selenium rectifier furnishes d.c. power for a Teletype system with machines in four offices in terminal area

trainman comes in on the No. 2 loudspeaker on the towerman's desk; when he operates his line selection key, the circuit is switched to use the No. 1 loudspeaker for the conversation. This leaves the No. 2 loudspeaker to receive other calls. An Automatic Electric Company type 48 battery eliminator furnishes the principal source of d.c. energy to feed the communication system.

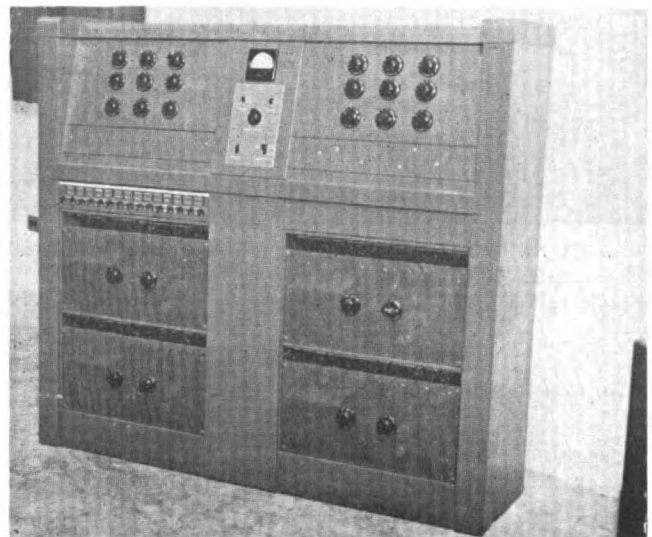
The signal maintainers each carry a portable telephone. These phones can be plugged into jacks in the switch machines, relay cases and instrument houses at numerous places on the entire terminal. Thus, a maintainer can call the towerman. When making tests, one maintainer may be located in the relay room in the Clara Street tower, and a second man may be at one of the remote interlockings. In such instances, these men can use their test phones to ring each other, and to carry on conversations without bothering the towerman. The test telephone sets are the type 10 Mono-Phone type, made by Automatic Electric Company, Chicago.

Keyboard Teletype machines, which print messages on tape, are located in the Clara Street tower, in the office of the supervisor of trains, in the office in the enginehouse and in the office in the coach yard. These Teletype machines are used for transmitting information on the arrival of trains, the makeup of trains, etc. A Fansteel selenium rectifier furnishes the d.c. power for the Teletype system.

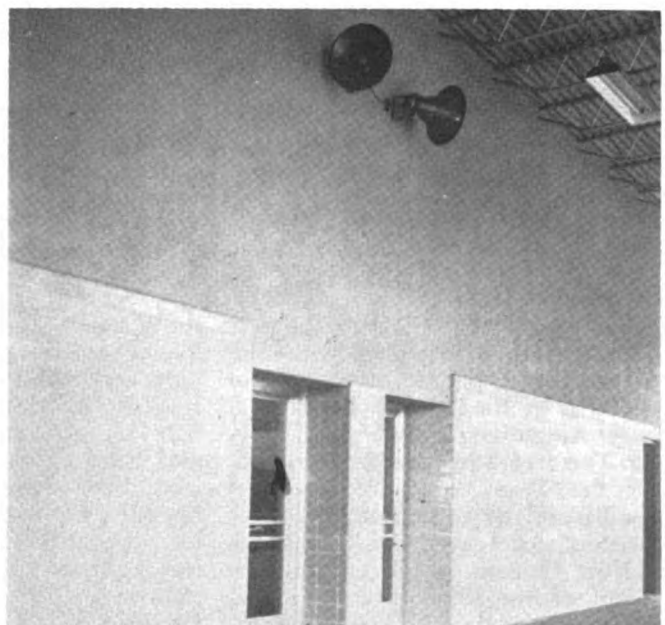
Radio on Switchers

Diesel switch engines operated by the Union Passenger Terminal are used to do all the switching of cars in and out of the terminal, coach yard, mail building and the express and baggage platforms. The three diesel switch engines assigned to this service are equipped with Motorola radio. Fixed station radio was installed at Clara Street tower, so that radio calls could be made either way between the towerman and crews on the switch engines. This use of radio saves a lot of time, which is especially important during morning and evening peaks of traffic.

The communications systems installed on this terminal (except the public address system) were planned by a committee of the superintendents of communications of the railroads using the terminal. The detail plans were prepared and the construction done by a force of the communications department of the Illinois Central.



Public address loudspeaker system includes this console which contains the amplifier equipment and control panel



Public address loudspeakers on the concourse are used to keep people informed of train arrivals and departures