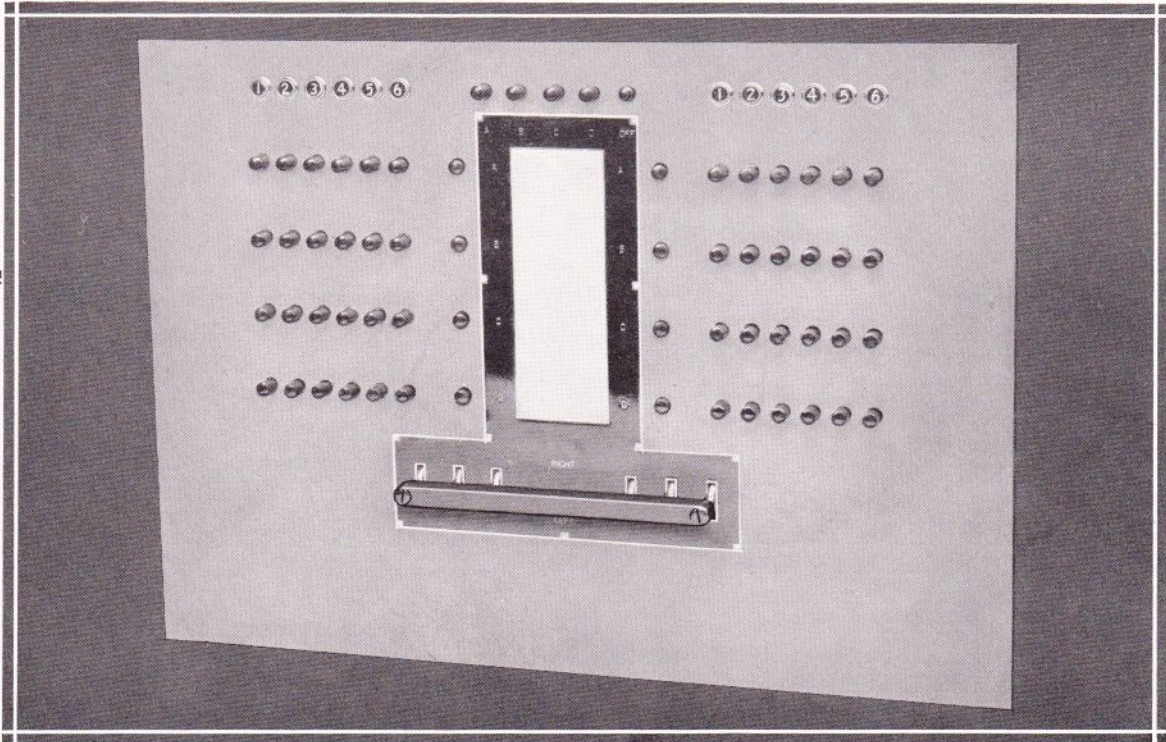


Western Electric

OUTPUT SWITCHING PANEL

271A



FOR RADIO TELEPHONE BROADCASTING SYSTEMS

A development of Bell Telephone Laboratories, the Research Laboratories of American Telephone and Telegraph Company and the Western Electric Company

A NEW Output Switching Panel, designed by Bell Telephone Laboratories for Western Electric, provides facilities for dispatching programs from as many as six amplifier channels over four output circuits to line amplifiers. This panel, coded the 271A, may also be used to assign any one amplifier channel simultaneously to a combination of two, three or four outgoing circuits for independently controlled networks to separate destinations.

Preselection of amplifier channels for the

group of programs which is scheduled to follow is a feature of this new panel. The desired selection and assignment of program channels to outgoing circuits is set up on a duplicate set of selector keys and at the proper time the change over is made instantly with a single master key which also operates the necessary control and indicating circuits. This arrangement eliminates the necessity for a number of switching operations in a short period of time.

The 271A Output Switching Panel is particularly adaptable to installations such as

multi-channel systems and key stations in which both local programs and programs from outside sources are amplified and dispatched simultaneously to one or more radio transmitters and also to program networks.

A monitoring amplifier and/or a volume indicator may be connected across any one of the four outgoing line amplifier circuits for either aural or visual monitoring or both. This is accomplished by means of a key mounted in the panel.

Additional 271A Output Switching Panels together with line amplifiers and other standard equipment units may be used to provide dispatching facilities for 12 or more studio amplifier channels.

If two panels are used as separate units, a preselection of studio amplifier channels for assignment to outgoing program lines is, of course, obtainable in each group of six amplifier channels. With this arrangement eight outgoing program circuits to line amplifiers are available. On the other hand, by combining the two panels as a single dispatching unit between 12 amplifier channels and four outgoing trunks to line amplifiers, any four of the 12 studio channels may be preselected for the next scheduled broadcast. This requires only slight modifications in one of the panels at the time of installation. The master switches of the two panels would then be operated simultaneously as a single master switch.

Two methods of output control of the separate studio amplifier channels are shown on the signal circuit schematic. In one of these (Typical System No. 1) the dispatcher assumes complete control of each studio channel output through the master switch of the 271A Output Switching Panel. In the other (Typical System No. 2) the studio operators control the outputs of the individual channels. The output switching panel and the component parts of the separate amplifier channels are adaptable to either of these systems.

Circuit Operation

The output switching panel is designed to operate from input circuits of 30 ohms impedance. It is necessary therefore to employ step-down repeating coils (Western Electric 119B Repeating Coils or the equivalents) between

the amplifier channel output circuits which are normally 500 ohms impedance and the input circuits to this panel in order to obtain the proper impedance relations. The Western Electric 993A Mounting Plate is designed to mount six 119 Type Repeating Coils and its use is recommended.

The four output circuits of the panel contain balanced resistance networks which are intended to attenuate the program energy and also to translate the impedance of the circuits to values which are suitable for use with the 707A Potentiometers and 82A (Line) Amplifiers which follow. These networks are normally connected to effect a 32 db attenuation in the panel from any input circuit to its selected output when the input energy level is zero (0.006 watt) which is a common operating level in a standard studio amplifier channel.

By changing straps on the respective resistances the network attenuations may be increased to 42 db in cases where a +10 db level (0.06 watt) output is used from the associated amplifier channels or from a particular channel.

A Monitor Selector Switch is included on the panel for connecting an 82A (Monitor) Amplifier and 707A Potentiometer and/or a 700A Volume Indicator, or the equivalents, across the output circuits of any one of the four associated line amplifiers.

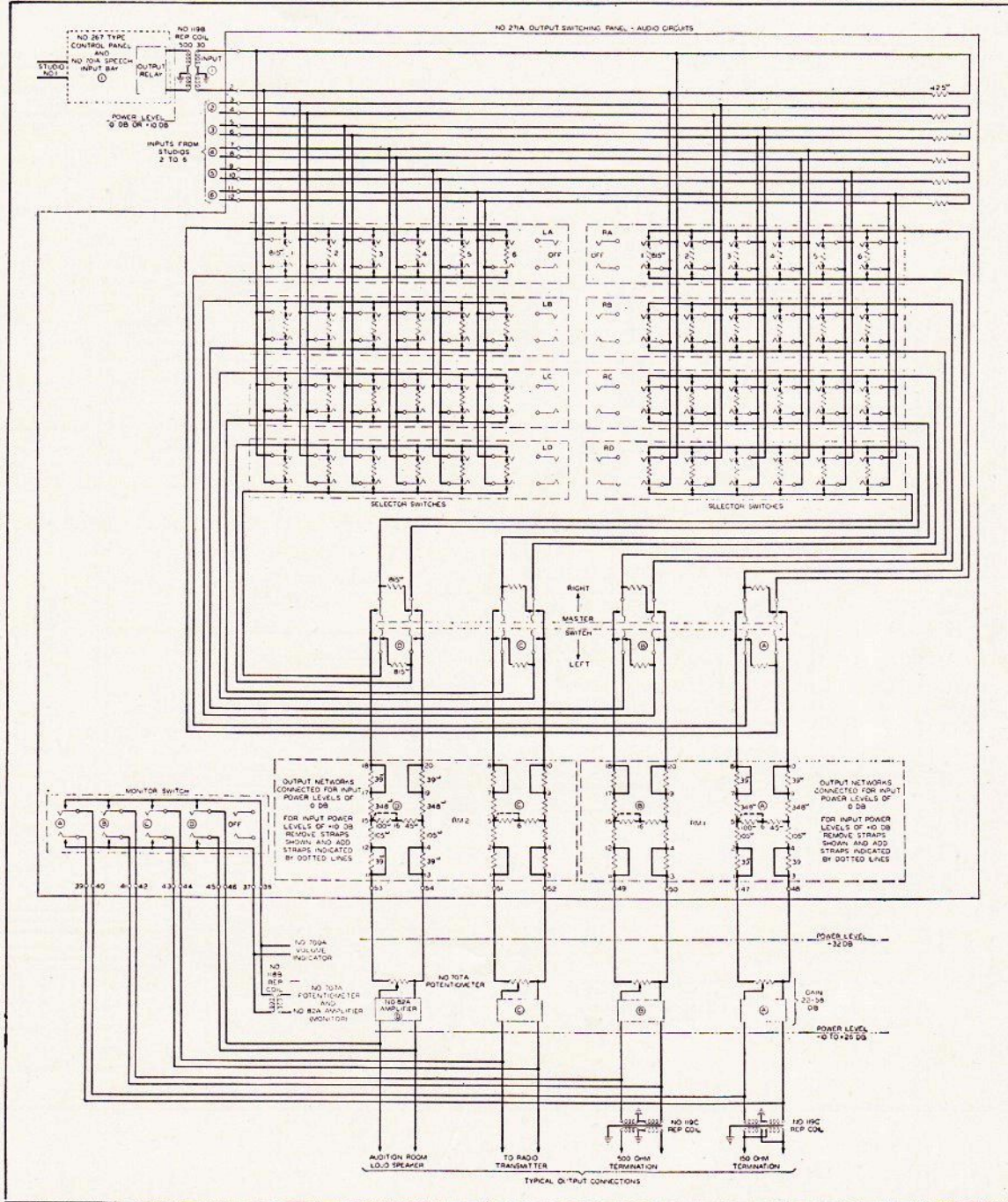
Mechanical Description

The component parts of the 271A Output Switching Panel are assembled on a metal panel designed for mounting in a standard relay rack or equipment cabinet. The panel is equipped with a mat providing a mounting for the designation plate which identifies the selector switches, the monitor switch and the signal lamps.

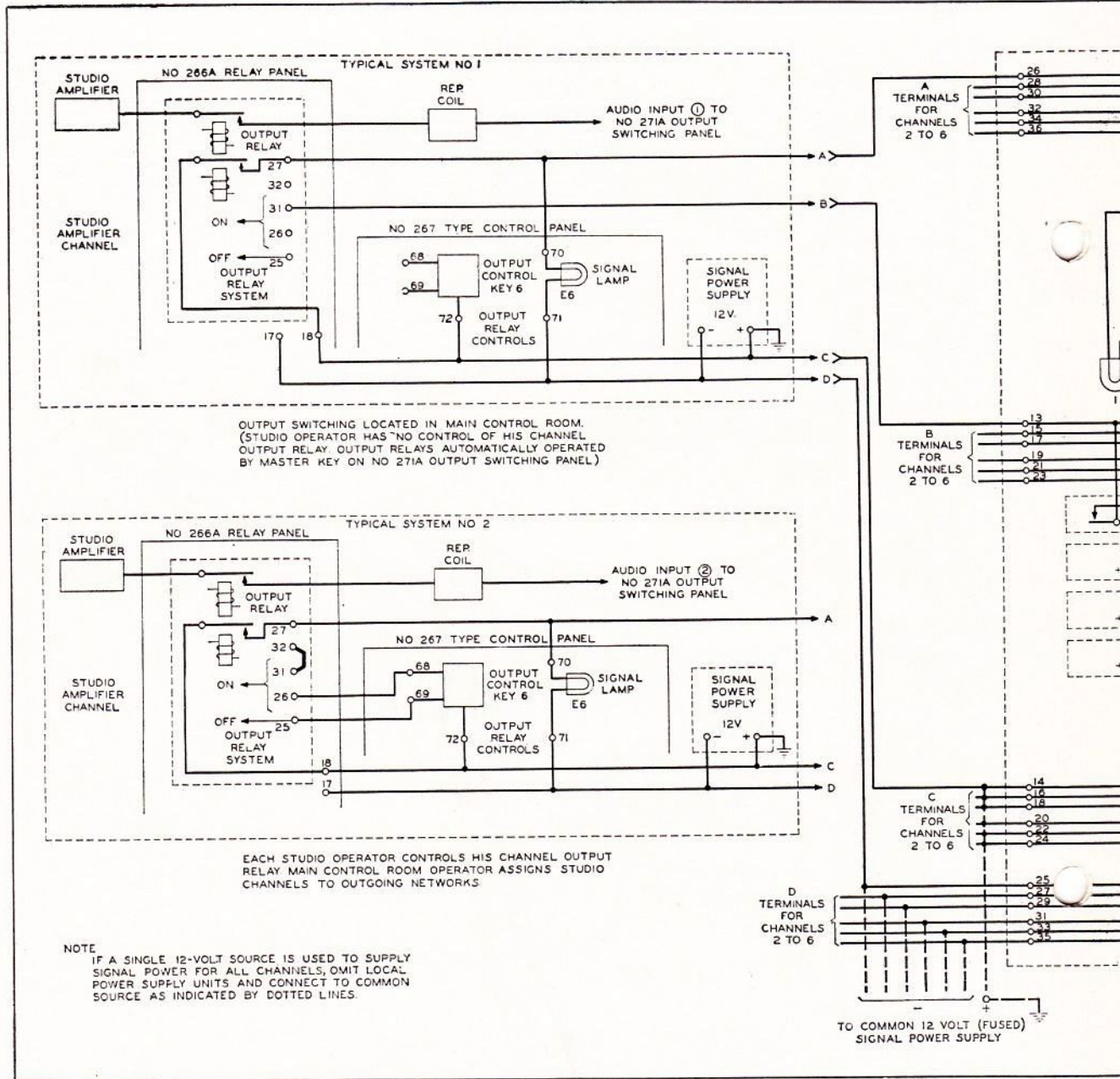
A granular surface is provided in the center of the designation plate on which circuit assignments may be pencilled. If the assignments are later changed the old markings may be washed off and the new assignments substituted.

Seven terminal strips for the external connections are located at the rear of the panel. The various circuit terminating resistances and artificial lines are assembled on two resistance mountings also located at the rear of the panel just above the terminal strips.

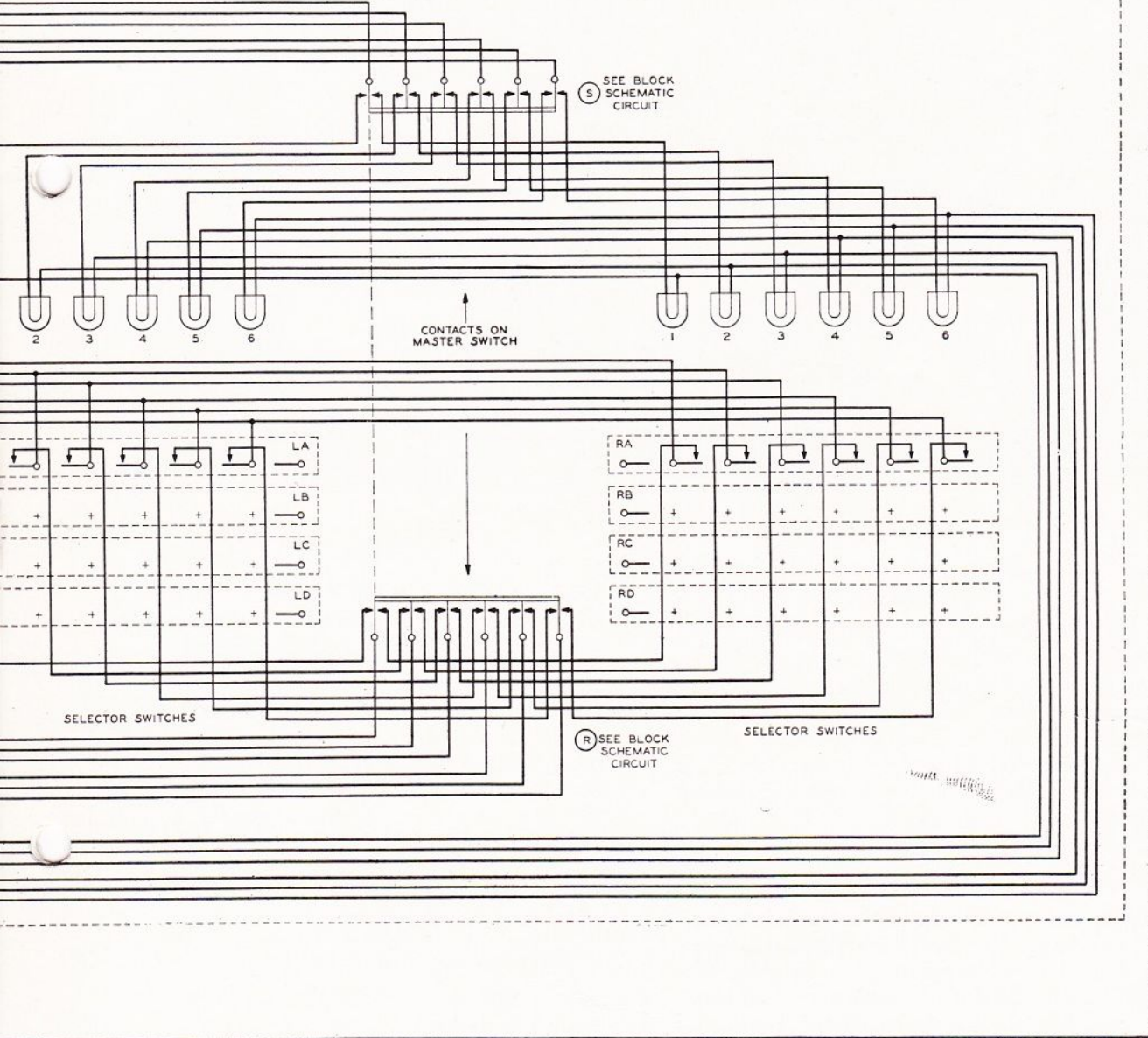
Audio Circuit Schematic



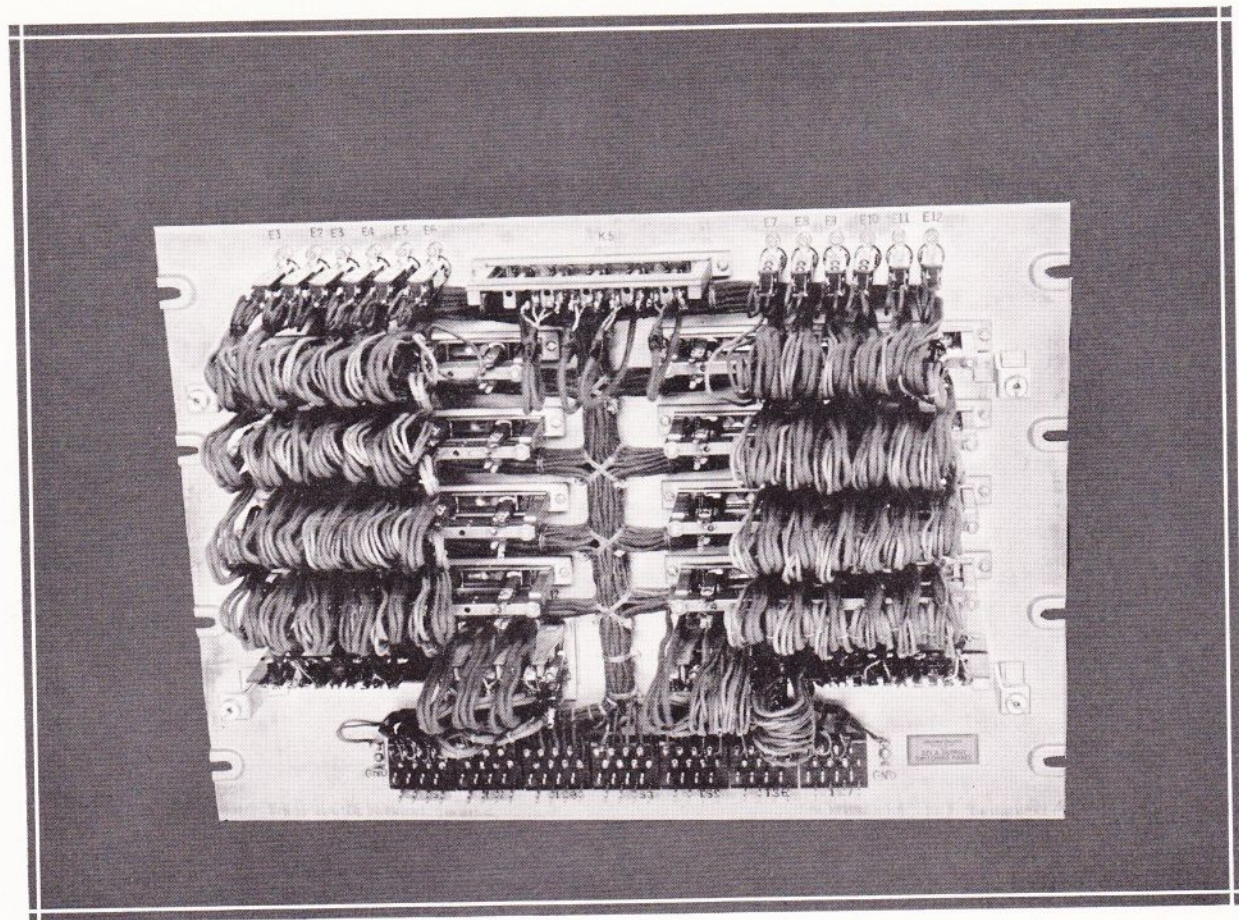
271A Output Switching Panel



NO 271A OUTPUT SWITCHING PANEL-SIGNAL AND CONTROL CIRCUITS



Signal Circuit Schematic



Rear View of the 271A Output Switching Panel

Power Supply

A 12 volt D.C. power supply is required for the operation of the signal lamps and for remote control of the respective studio amplifier channel outputs from the output switching panel, when this method of operation is employed. This power supply is not furnished with the panel, however, and must be provided separately.

Specifications

General: A selective switching unit in which any four of six amplifier channel outputs may be connected to four outgoing circuits. Intended for use with multi-channel and key station studio speech input systems. Duplicate selector keys allow pre-assignment of studio amplifier channels for the next scheduled program. Monitor switch transfers a monitoring amplifier and/or a volume indicator to any one of the outgoing circuits.

Operates from 500 ohm amplifier channels through Western Electric 119B Re-

peating Coils or equivalent which effect an impedance of 30 ohms for each channel entering this panel (repeating coils not provided).

Output: Impedance of each of the four output circuits is 330 ohms. Output circuits contain balanced networks of 32 db attenuation with straps which may be changed and the attenuation increased to 42 db each for use with incoming amplifier channels of 0 db or +10 db power level, respectively.

Power Supply: 12 volts D.C. required for the amplifier channel designation lamps.

Dimensions: Overall height 14", width 19", depth 3 $\frac{3}{8}$ ".

Weight: Approximately 18 pounds.

Mounting: Designed to mount in a standard relay rack or equipment cabinet. Mounting screws are furnished.

Finish: 271A-15—Standard—Mat finished in dark gray.
271A-3—Black.

DISTRIBUTOR IN THE UNITED STATES

Graybar

ELECTRIC COMPANY

Executive Offices: 420 Lexington Avenue, New York 17, N. Y.

ALABAMA
Birmingham

ARIZONA
Phoenix

CALIFORNIA
Los Angeles
Oakland
Sacramento
San Diego
San Francisco

COLORADO
Denver

CONNECTICUT
Hartford
New Haven

DIST. OF COLUMBIA
Washington

FLORIDA
Jacksonville
Miami
Orlando
Tampa

GEORGIA
Atlanta
Savannah

ILLINOIS
Chicago
Peoria

INDIANA
Hammond
Indianapolis

IOWA
Davenport
Des Moines

KANSAS
Wichita

KENTUCKY
Louisville

LOUISIANA
New Orleans

MAINE
Portland

MARYLAND
Baltimore

MASSACHUSETTS
Boston
Springfield
Worcester

MICHIGAN
Detroit

Flint
Grand Rapids
Lansing

MINNESOTA
Duluth
Minneapolis
St. Paul

MISSOURI
Kansas City
St. Louis

NEBRASKA
Omaha

NEW JERSEY
Newark

NEW YORK
Albany
Buffalo
New York
Rochester
Syracuse

NO. CAROLINA
Asheville
Charlotte

Durham
Winston-Salem

OHIO
Akron
Cincinnati
Cleveland
Columbus
Dayton
Toledo
Youngstown

OKLAHOMA
Oklahoma City
Tulsa*

OREGON
Portland

PENNSYLVANIA
Allentown
Harrisburg
Philadelphia
Pittsburgh
Reading

RHODE ISLAND
Providence

SO. CAROLINA
Columbia

TENNESSEE
Chattanooga
Knoxville
Memphis
Nashville

TEXAS
Beaumont
Corpus Christi*
Dallas
Fort Worth
Houston
San Antonio

UTAH
Salt Lake City

VIRGINIA
Richmond
Roanoke
Norfolk

WASHINGTON
Seattle
Spokane
Tacoma

WISCONSIN
Milwaukee

*Sales Office

A NATIONAL ELECTRIC SERVICE

DISTRIBUTOR FOR CANADA AND NEWFOUNDLAND

Northern Electric Company

LIMITED

General Offices: 1620 Notre Dame Street, W. Plant: 1261 Shearer Street,
Montreal, P. Q., Canada

TWENTY-THREE BRANCHES FROM COAST TO COAST