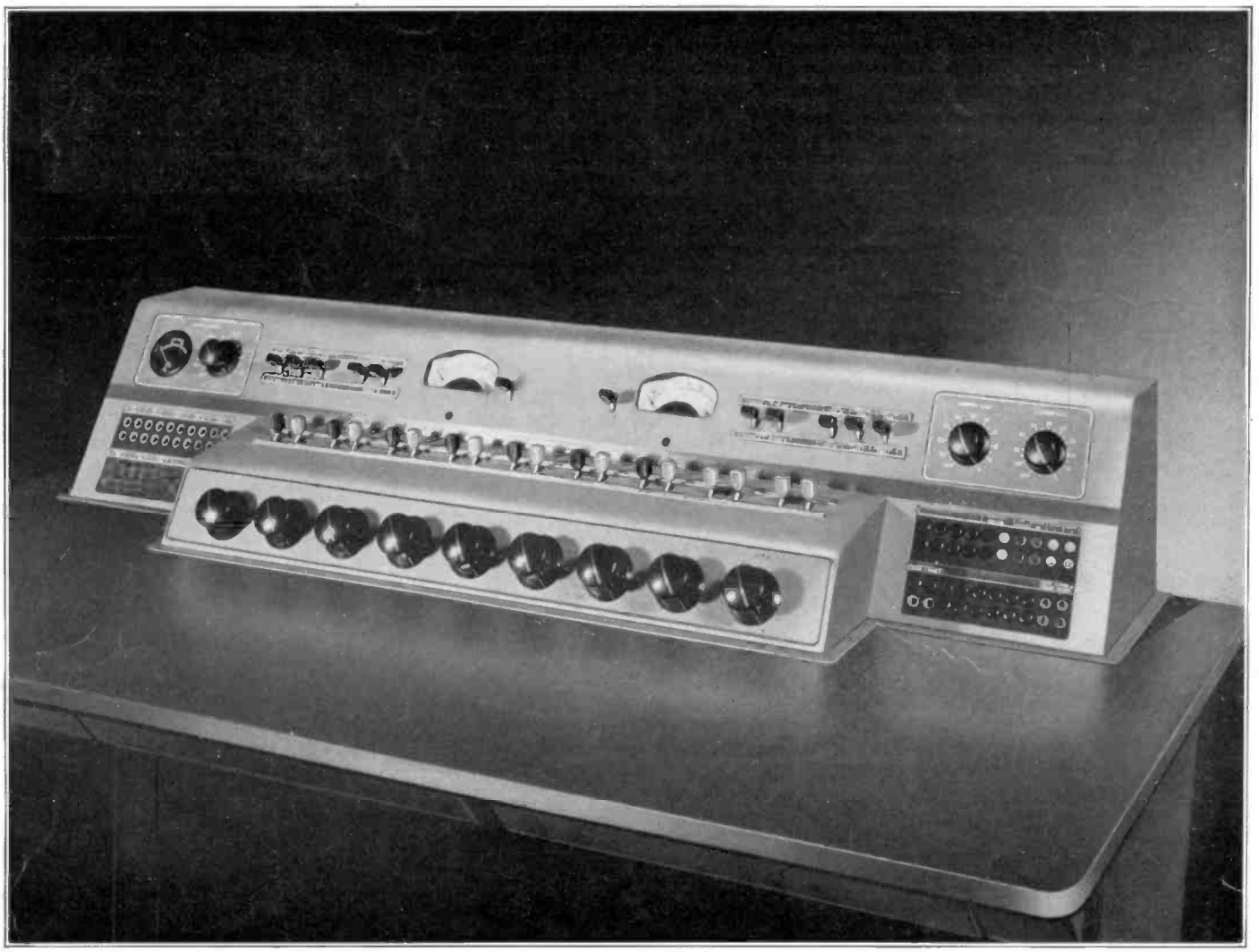
STANDARD AUDIO FACILITIES

FOR

HIGH QUALITY BROADCASTING

25B SPEECH INPUT EQUIPMENT



Western Electric

STANDARD CONSOLE TYPE AUDIO FACILITY FOR BROADCASTING

A HIGHLY FLEXIBLE UNIT CAPABLE OF HANDLING TWO PROGRAMS SIMULTANEOUSLY

SEVERAL basically new ideas in speech input console design and operation have been built into the Western Electric 25 type equipment. This console was designed by Bell Telephone Laboratories for use at broadcast stations using FM transmission or at AM stations planning to provide for FM at some future time. Accordingly, high-fidelity service for FM broadcasters is provided by the 25 type's uniform, noise-free, and distortionless operation over a 15,000-cycle range.

The 25B Speech Input Equipment provides a seven channel mixer circuit and more facilities than its predecessor, the 25A, together with improved mechanical and cabling arrangements.

The design is greatly simplified as to mounting and installation, requiring only a minimum of effort to put the two fully assembled and wired units into service.

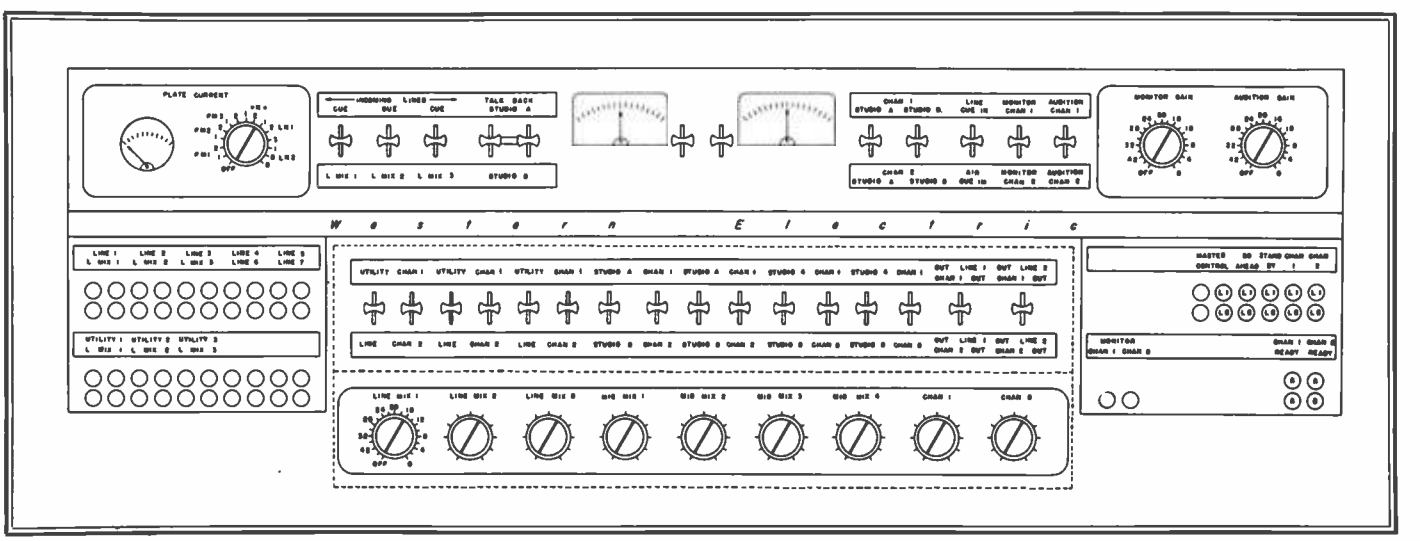
The main unit houses two complete high-quality main amplifier channels, capable of simultaneous operation on different programs without interference or cross talk. Also in this desk console are pre-amplifiers, mixers, switching, indicating, monitoring, cue feeding, and other control apparatus, arranged and coordinated to provide maximum operating flexibility and convenience.

A compact power supply unit serves the 25B equipment. This is arranged for wall mounting, and is generally located away from the console. The power supply unit, mounted on a swinging frame for easy inspection and maintenance access, contains the power supply units for plate and filament power to all vacuum tubes, and also for the loudspeaker cut-off relays. Thus the only need for any other auxiliary power supply is the usual D. C. Signal supply for operation of indicating lights and external relay systems where employed.

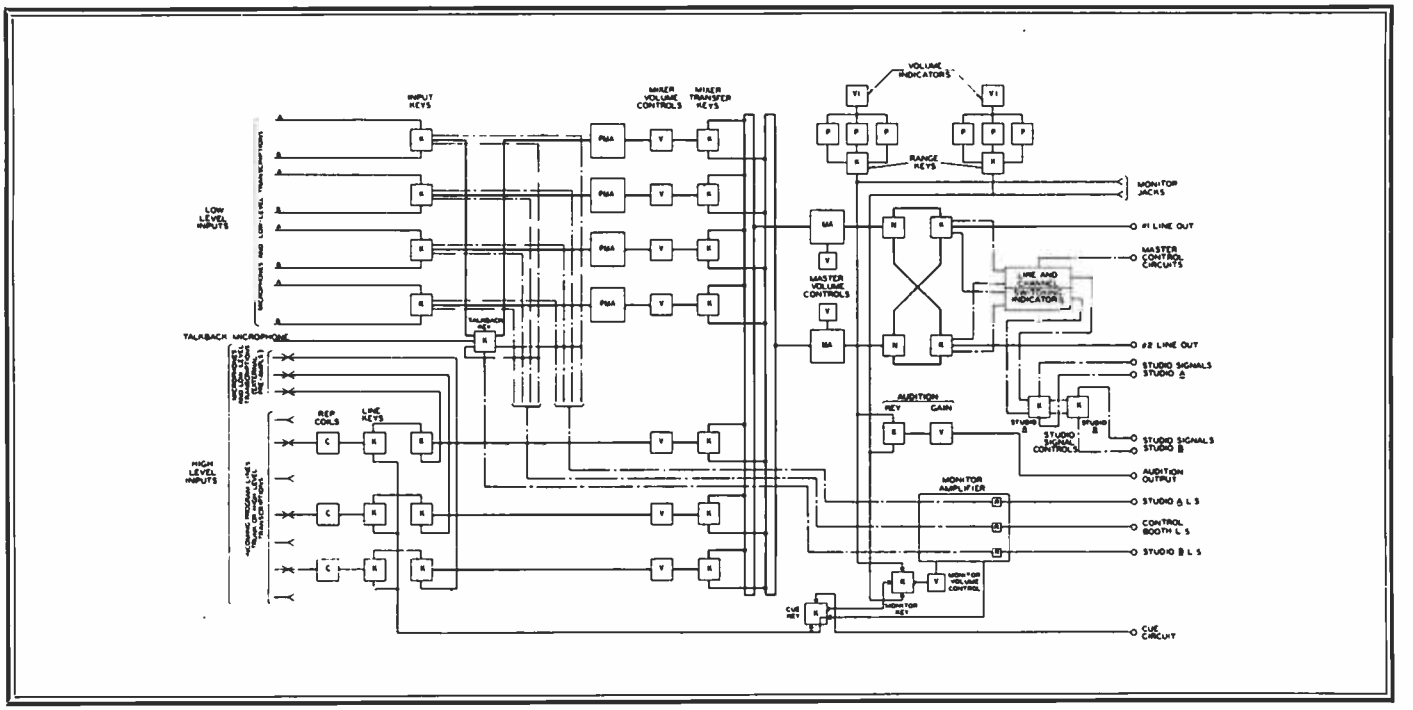
Built into the main housing of the console are eight microphone or low-level transcription input circuits and four pre-amplifiers, with switching keys for ready selection of either of two low-level inputs for each pre-amplifier. These are shown diagrammatically in the schematic circuit. Four of these circuits can be used simultaneously, with four in reserve available at a moment's notice, enabling the engineers to schedule programs of eight sources, or to dispatch two successive four-source programs. Three additional microphone or transcription sources can be introduced simultaneously through the three line mixers as explained below. Optional addition of jacks, lamps, or jack-sized keys for system control and indicating circuits give the 25B still greater utility.

Especially valuable to stations operating both AM and FM transmitters, or simultaneously originating both local and network programs, are the line facilities of this speech console. The two main amplifier channels, capable of simultaneous operation on separate programs, permit concurrent dispatch of audio signals to each of two transmitters or out-going lines through the one console, each channel being governed by a separate master gain control for adjusting overall level. This set-up obtains flexibility through two line switching keys which allow either of the two main channels to be fed to either or both of two outgoing lines.

Three remote line input-circuits with repeating coils feed incoming line programs to three separate line mixer-controls. Ready and rapid selection of remote or network programs is speeded by three remote line switching keys, usable in selecting any one of three lines, for monitoring incoming programs, or for connecting to the associated mixer input. Patching jacks, with which four additional remote lines can be substituted on a line-for-line basis, make available a total of seven input lines or trunks.



FACE EQUIPMENT AND DESIGNATION LAYOUT OF 25B SPEECH INPUT EQUIPMENT



FUNCTIONAL SCHEMATIC OF WESTERN ELECTRIC 25B EQUIPMENT WHICH PROVIDES VERSATILE CONTROL OF STUDIO FACILITIES

Each of the line mixer inputs is provided with a transfer key which will allow an external utility circuit such as a transcription source or output of microphone preamplifier to be switched in place of a line program source. Thus three additional microphone or transcription sources (a total of seven simultaneously) can be accommodated where required by providing externally mounted preamplifiers.

With seven mixer potentiometers for individual level adjustment on the three line or utility input circuits and on the four microphone input circuits, the 25B makes extensive provision for blending programs under a wide variety of operating situations. These potentiometers operate on either of the two main amplifier channels through a seven-channel mixer circuit with individual mixer transfer keys for association with either main amplifier channel input.

Mounted on the console are two volume indicators for visual monitoring of program levels of the two main channels. In addition, headphone jacks for each channel are mounted on the housing for occasions when both channels are being used and monitored simultaneously, making headphone monitoring necessary on one of the channels. A built-in monitor amplifier which may be connected to either main channel is included for aural monitoring.

The important operations of cueing are thoroughly controlled. The monitor amplifier feeds cue programs into a studio speaker and the remote line circuits, while a monitor transfer key gives access to programs on either of the two main channels or to the cue transfer key. This key switches between the conditions of monitoring on the remote lines, receiving cue from master control, or feeding cue to remote lines. Operation of a loudspeaker in the same room with a live microphone is automatically prevented by loudspeaker cut-off relays for the booth and two studio loudspeakers. Contacts are also provided for operating equipment outside the system, such as studio warning signs, buzzer cut-offs, and other auxiliaries.

Other important features include an additional circuit with a gain control and a channel switching key to feed either main channel output to a separate local amplifier system external to the speech input equipment. This is invaluable for audition circuits, sound re-enforcement in large audience studios and similar applications. Normal operation of the amplifier tubes can be checked quickly by a plate-metering circuit with a meter and rotary tap switch for individual plate current measurement.

When this equipment was in the planning stage, emphasis was put upon the convenience afforded by low height and small overall size. Accordingly, the dimensions of the console were held down to 36 ins. overall height and a width of 55¼ ins. Overall depth is 28¼ ins.—of which only 13½ ins. at the rear is the control cabinet. The table top stands 27½ ins. from the floor. The separate power supply unit is 16½ ins. high, 28 ins. wide, and 10 ins. deep.

Although extremely useful in small installations, large stations will find the 25B an even greater boon. A number of these consoles, one installed in each studio control room or in a control room common to two studios will, with the help of master coordinating equipment, provide complete speech input facilities for an entire station.

This speech input console should bridge a long-standing gap in broadcasting apparatus, for it is more flexible than table-top units, and less expensive than custom-built equipment.

12A POWER UNIT

The power supply unit is separate and is designed for wall mounting. It is approximately 15 inches high, 28 inches wide and 10 inches deep. It contains the power supply units for plate and filament power to all vacuum tubes and is intended for location near the main unit, but separate from it. Louvers are provided for ventilation and the equipment is mounted on a swinging frame which allows easy access for inspection and maintenance. Power supply is also incorporated for operation of the loud speaker cut-off relays so that no auxiliary power supply unit is necessary for that purpose. (The usual D. C. Signal power source is needed where indicating lights or external control relays are required.)

The 25B SPEECH INPUT CONSOLE

PROVIDES A WHOLE ALPHABET OF FEATURES

A Eleven microphone or low level input circuits, seven of which can be used simultaneously.

B Four microphone preamplifiers.

C Switching keys, for selecting either of two low level inputs for each preamplifier.

D Three remote line input circuits, with repeating coils.

E Three remote line switching keys, for selecting any one or combination of three lines, for monitor, or for program feed.

F Three utility keys for selecting any one or all of the three line mixers for microphone or transcription inputs (using external preamplifiers) or for other line level sources.

G Patching jacks, for substituting four additional remote lines, on a line-for-line basis. Thus a total of seven input lines or trunks are available to the operator.

H Seven mixer potentiometers, for individual level adjustment on four microphone input circuits, and three line input circuits.

I A seven channel mixer circuit, with individual mixer transfer keys, for switching each of the seven mixer potentiometers between the two main amplifier channels.

J Two main amplifier channels capable of simultaneous operation on separate programs without interfering crosstalk.

K Two master gain controls, one for adjusting the over-all level of each main channel.

L Two output switching keys, allowing either of the two main channels to be fed to either or both of two outgoing lines.

M Line isolation pad for each line, which serves to stabilize line impedance, and aids in maintaining high grade transmission.

N Two volume indicators for each main channel for visual monitoring of program level to the lines.

O Jacks for individual head phone monitoring on each of the two main amplifier channels.

P A monitor amplifier for aural monitoring, with the booth loudspeaker, of programs on the two main amplifier channels, on the incoming line circuits, or on an external cue feed circuit from master control; also for feeding cue programs to the studio speaker and to the remote line circuits.

Q Monitor transfer key, giving the monitor amplifier input access to programs on either of the two main amplifier channels, and to the cue transfer key.

R Cue transfer key, for switching between the conditions of monitoring on the remote lines, receiving cue from master control, and feeding cue to the remote lines.

S Gain control for monitor amplifier.

T Loudspeaker cut-off relays, for the booth and two studio loudspeakers, with strapping board for interlock with regular microphone input keys to automatically prevent operation of loudspeaker in same room with a live microphone.

U Contacts for closing control circuits to relays outside this equipment for operation of studio warning signs, buzzer cut-offs, master control equipment and other auxiliaries.

V A branching circuit, with gain control and channel switching key, for feeding a separate local amplifier system external to this equipment. This is useful for audition purposes or for sound reenforcement in large audience studios and similar applications.

W A plate metering circuit with meter and rotary tap switch, for quickly checking individual plate currents, to determine that all amplifier tubes between microphones and broadcast lines are normal.

X Power supply for operating loudspeaker cut-off relays.

Y Adequate terminal facilities to accommodate incoming and outgoing line and program circuits and power supply feeds.

Z Talk-back control key for switching one microphone input circuit and the loudspeaker control circuits for talk-back from the control room into the associated studio.

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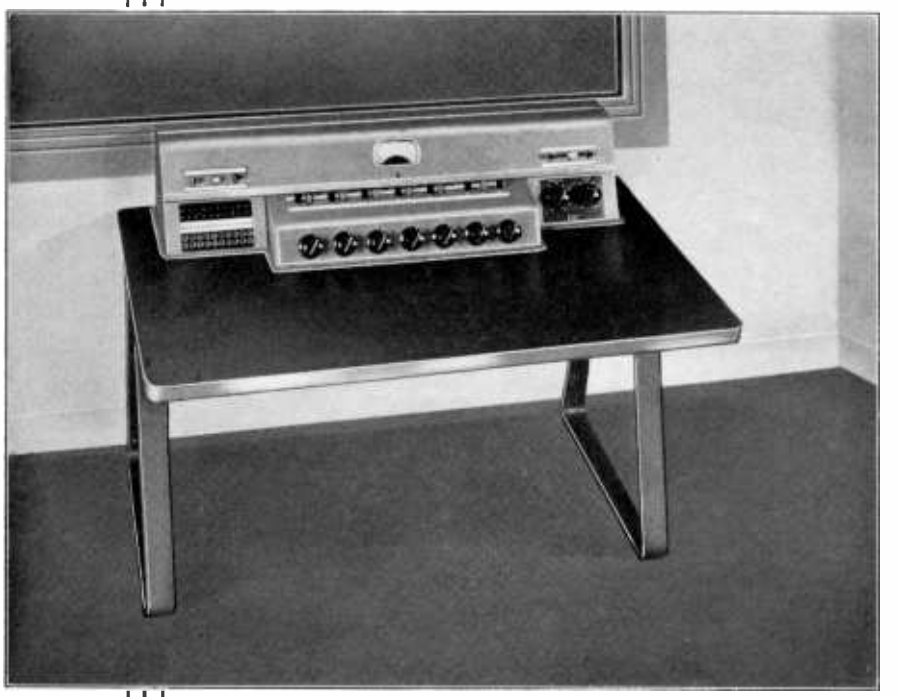
Tops for FM

SPEECH INPUT EQUIPMENT
25A
Western Electric

TWO CHANNEL SPEECH INPUT CONSOLE



STYLE QUALITY ACCESSIBILITY

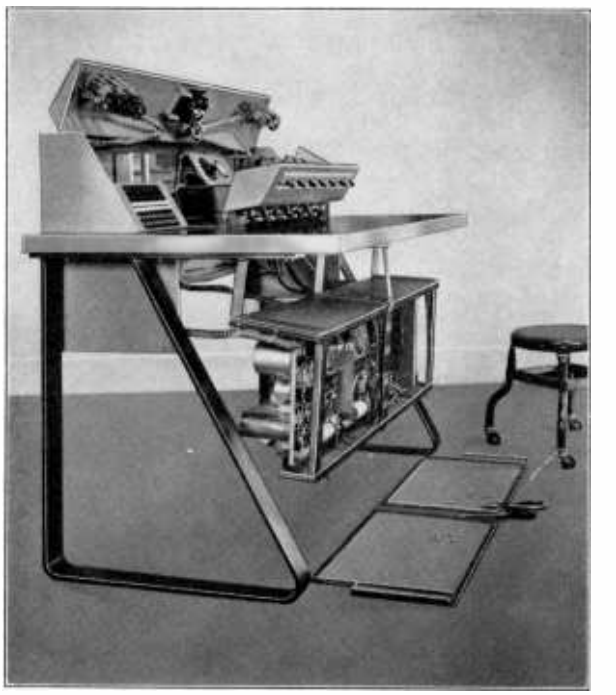
DIMENSIONS

49″ long, 26½″ deep, 35½″ overall height above floor. Writing surface 27″ above floor and 14½″ from front edge to nearest sloping panel.

Featuring compactness, its main unit houses two, complete, high quality, main amplifier channels, capable of simultaneous operation on different programs without interference or cross talk. It also houses preamplifier, mixer, switching, indicating, monitoring, cue feeding, and other control apparatus indicated on the schematic drawing.

FOR routine maintenance and inspection of the top side apparatus such as vacuum tubes, gain control potentiometers, keys and switches, of the 25A Desk, it is only necessary to lift the upper panel and fold back the potentiometer panel.

During installation and at infrequent intervals when access to the smaller amplifier parts and wiring may be desired, it may easily be obtained by swinging the amplifier rack down into a position just below the front edge of the table as shown in the illustration at the right.



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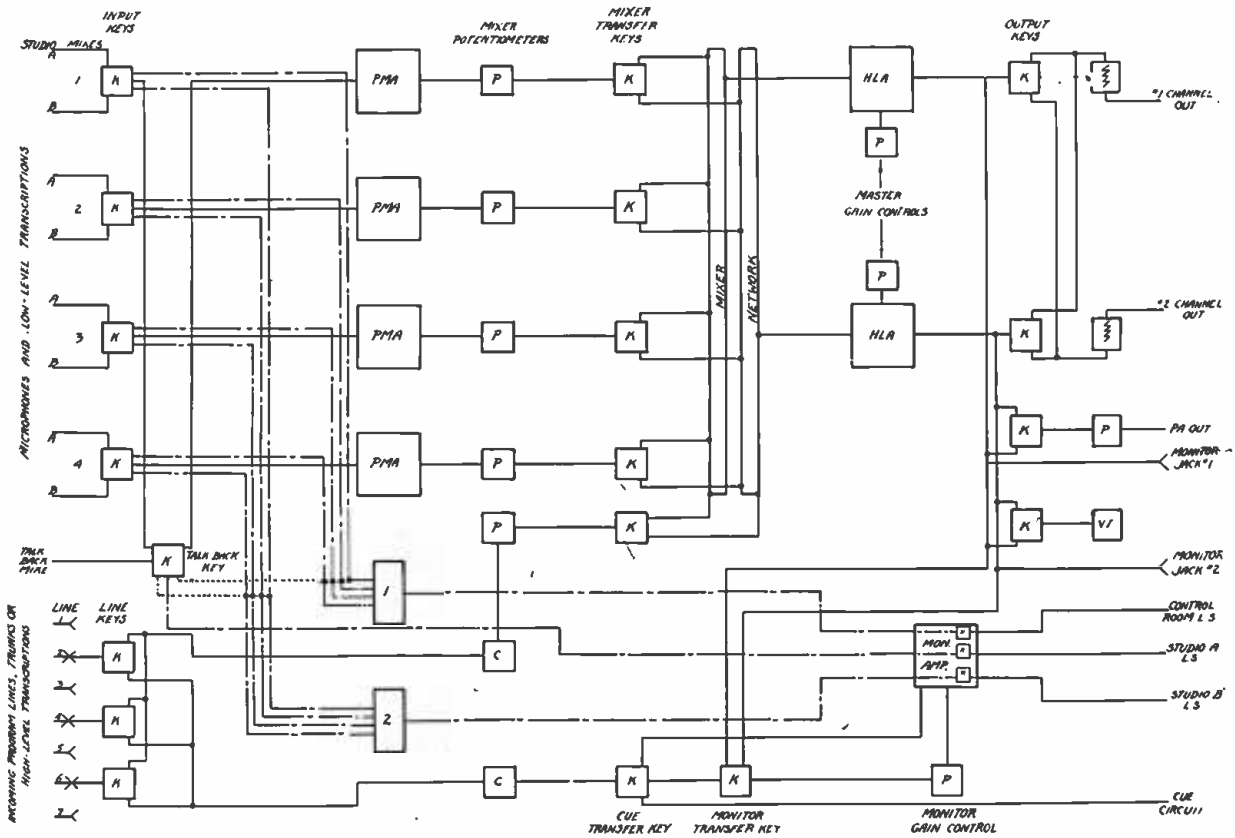
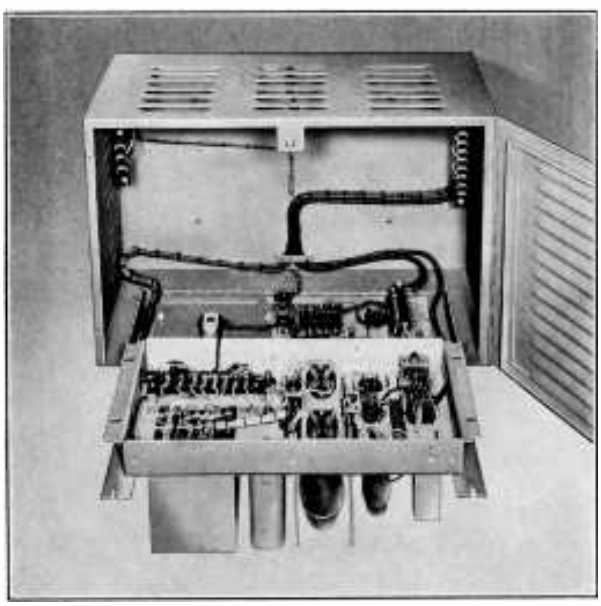


Functional Schematic of 25A Speech Input Equipment

POWER SUPPLY

The power supply unit is separate and is designed for wall mounting. It is approximately 15 inches high, 23 inches wide and 8 inches deep. It contains the power supply units for plate and filament power to all vacuum tubes and is intended for location near the main unit, but separate from it. Louvers are provided for ventilation and the equipment is mounted on a swinging frame which allows easy access for inspection and maintenance. Power supply is also incorporated for operation of the loud speaker cut-off relays so that no auxiliary power supply unit is necessary for that purpose.



FEATURES

1 Eight microphone or low level input circuits, four of which can be used simultaneously.

2 Four microphone preamplifiers.

3 Switching keys, for selecting either of two low level inputs for each preamplifier.

4 A remote line input circuit, with repeating coils.

5 Three remote line switching keys, for selecting any one of three lines, for monitor, or for program feed.

6 Patching jacks, for substituting four additional remote lines, on a line-for-line basis. Thus a total of seven input lines or trunks are available to the operator.

7 Five mixer potentiometers, for individual level adjustment on four microphone input circuits, and the line input circuit.

8 A five channel mixer circuit, with individual mixer transfer keys, for switching each of the five mixer potentiometers between the two main amplifier channels.

9 Two main amplifier channels capable of first grade simultaneous operation on separate programs.

10 Two master gain controls, one for adjusting the over-all level of each main channel.

11 Two output switching keys, allowing either of the two main channels to be fed to either of two outgoing lines.

12 Line isolation pad for each line, which serves to stabilize line impedance, and aids in maintaining high grade transmission.

13 A volume indicator, for visual monitoring of program level to the lines, with switching key for connecting to the output of either of the two main channels.

14 Jacks for individual head phone monitoring on each of the two main amplifier channels.

15 A monitor amplifier for aural monitoring, with the booth loudspeaker, of programs on the two main amplifier channels, on the incoming line circuits, or on an external cue feed circuit from master control; also for feeding cue program to the studio speaker and to the remote line circuits.

16 Monitor transfer key, giving the monitor amplifier input access to programs on either of the two main amplifier channels, and to the cue transfer key.

17 Cue transfer key, for switching between the conditions of monitoring on the remote lines, receiving cue from master control, and feeding cue to the remote lines.

18 Gain control for monitor amplifier.

19 Loudspeaker cut-off relays, for the booth and two studio loudspeakers, with strapping board for interlock with microphone input keys to automatically prevent operation of loudspeaker in same room with a live microphone.

20 Contacts for closing control circuits to relays outside this equipment for operation of studio warning signs, buzzer cut-offs, and other auxiliaries.

21 A branching circuit, with gain control and channel switching key, for feeding a separate local amplifier system external to this equipment. This is useful for sound reenforcement in large audience studios and for similar applications.

22 A plate metering circuit with meter and rotary tap switch, for quickly checking individual plate currents, of all amplifier tubes to determine that they are normal.

23 Power supply for operating loudspeaker cut-off relays.

24 Space for addition of 20 jacks, lamps or jack-sized keys as required for system control, and indicating circuits.

25 Adequate terminal facilities to accommodate incoming and outgoing line and program circuits and power supply feeds.

26 Talk-back control key for switching one microphone input circuit and the loudspeaker control circuits for talk-back from the control room into the associated studio.

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