

**INTERCOMMUNICATING SYSTEMS
SPEAKER-MICROPHONE
1200-SERIES TELETALK
DESCRIPTION**

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1. GENERAL

1.01 This section describes the 1200-series Teletalk.

1.02 Teletalk systems are made up of two or more stations joined by interstation wiring. These stations may be either master or speaker stations, depending on the type of system used and the kind of intercommunication desired where a station is to be located.

1.03 A master station consists of a cabinet containing an amplifier, a speaker-microphone, and the necessary switches and controls for operation. A master station requires an ac power supply.

1.04 Master stations can originate calls with other master stations or speaker stations and they are used where it is necessary to communicate with several other stations. The number of stations can vary in units of six station lines, i.e. 6, 12, 18, 24. Master stations can communicate with other masters or speakers over high-level intercommunication wiring or over zero-level telephone cable. If zero-level communication over telephone cable is desired, an applique unit must be connected between each pair of line terminals (in the terminal box), and the cable pairs assigned to these stations. Master stations are designed for "S"- and "M"-circuit applications.

1.05 The "M" circuit is not secretive. Any master station can monitor a speaker station or another master station. Any master station can

listen in on conversations between any other two stations. However, the -14 silencing feature can be used to prevent monitoring of speaker stations. Zero-level communication between master stations or between a master station and a speaker station is limited to the "M"-type circuit.

1.06 An "S" circuit is secretive and is used for high-level communication only. Conversations between two high-level master stations cannot be listened to by any other station, nor can any master station monitor any other station except when set up for conference.

1.07 Master stations can be supplied with a variety of circuit and equipment options described later in this section.

1.08 1200- and 700-series master stations can be used interchangeably in high-level systems.

Speaker Stations

1.09 There are two types of speaker stations, high-level and zero-level.

High Level:

(a) Consists of a speaker-microphone without amplifier. It can be used to talk only with a master. Two-way conversation is possible with a master station when connected for "M"-circuit operation. It is possible to originate calls from speaker stations equipped with either an annunciator push button, or call-in switch. When a speaker station is connected to the "S" circuit of a master, only one-way conversation is possible from master to speaker.

Zero Level:

(b) Consists of a speaker-microphone, amplifier, and zero-level applique unit. An ac power supply is required. Two-way conversation is possible when connected to the "M" circuit of a 1200-series master. A zero-level

speaker station can make calls. In a simple system consisting of two stations only, two zero-level speaker stations can be used.

1.10 A typical-system layout including both high-level and zero-level circuits is shown in Figure 11.

2. STATION EQUIPMENT

Master Station

2.01 The Teletalk coding system is designed to combine all the necessary information on a particular model into a single code number.

2.02 The basic-model code number gives only the series number and line capacity (number of stations).

TABLE 1

No. Added to Series Number	Capacity
06	6 station
12	12 station
18	18 station
24	24 station

2.03 Other letters and numbers preceded by a dash are used in the code number to designate model features as indicated.

Feature Code	Feature
A	Annunciator
L	Busy Signal
T	Telephone Handset
-1	All-Call Switch
-3	Three-Position Selector Keys
-14	Silencing Circuit
-15	Paging Key
-18	All-Call Paging

Typical-Code Example

2.04 The following example shows a typical code made up of series number, capacity (number of stations), and features (letters and numbers).

Example (1206A-1-3)

12	06	A	-1	-3
1200 Series	6-Station Capacity	Annunciator	All-Call Switch	3-Position Selector Key

2.05 Figure 1 shows the 1200-series master station without annunciators and Figure 2 with annunciators. The cabinets have a walnut finish.

2.06 The cabinets house the speaker-microphone and the chassis equipment, consisting of the power supply, amplifier, three-position talk-listen switch, and the combined power on-off switch and volume control. A 6-foot cable extends from the key cabinet to a station terminal box. A brown rubber-covered cord approximately 7-feet long is provided for connection to the power supply. The front panel of these cabinets holds a perforated-metal grill and a switch panel. Behind the grill is the speaker-microphone and pilot light. On the front of the grill are the talk-listen switch and the combined power on-off switch and volume control. The switch panel contains the station-selector keys, designation strips, and annunciators, when equipped.

2.07 The station-selector keys are made in strips of six keys. Two strips are used for 12-line cabinets and are mounted so that the operating levers extend through the switch panel.

2.08 The designation strips are directly above these keys.

2.09 Individually mounted plunger-type annunciators are located directly above each designation space. They are operated electrically, but must be restored manually.

2.10 The talk-listen switch is a three-position rotary-type switch. Idle, or the up position is locking. In this position, the speaker-microphone is connected and is ready to receive incoming calls from other master stations. The idle position is a call-in position only. Listen, or the horizontal position is also locking, and the amplifier is connected for incoming speech. Talk, or the down position is nonlocking and the amplifier is connected for outgoing speech.

2.11 The pilot light shows when the power is turned on.

2.12 The conductors in the cable connected to the cabinet are terminated directly on the selector switches and annunciators. At the other ends, they are connected to screw terminals in the station terminal box.

Speaker Stations (High Level)

2.13 Speaker stations are single-line stations. For two-way high-level conversation, master stations are arranged for "M"-circuit operation.

2.14 The speaker station 5G45 shown in Figure 3 is a 5-inch speaker mounted in a plastic cabinet. Screw terminals for connections are on

the bottom. This unit is used at locations having average room noise, and is most generally used.

2.15 The speaker station 8C45-2 shown in Figure 4 is an 8-inch moisture-resistant speaker housed in a brown metal housing, protected front and back by wire screens. This model is for use in damp locations. It can be used outdoors, if protected from the weather. It has a bracket and fittings for mounting at various angles.

2.16 Speaker station MIL-45 shown in Figure 5 is a 6-inch diameter horn, directional in operation, with built-in hermetically sealed driver unit for outside locations, or where the air is damp.

2.17 Speaker stations may be provided with a push button in the speaker unit (as in the 5G45B speaker) or a push button of the 551 type externally mounted in the vicinity of the speaker, for use with the annunciator system. These push buttons are used in "M"-circuit systems to signal annunciator-equipped master stations.

2.18 To communicate from a speaker station to an "M"-circuit master station, speaker stations may be equipped with a call-in key mounted on the side of the speaker cabinet as in the 5G45R speaker station. A separately mounted 6017C key is used with other types of speaker stations.

2.19 For a complete listing of speaker stations see Section C70.912.

Speaker Stations (Zero Level)

2.20 The zero-level speaker station RM-B, can be used as a single-line station for two-way use on zero-level telephone lines with master stations arranged for "M"-circuit operation. It works with either annunciator- or regular-type master stations having buzzer call-in.

2.21 Speaker station RM-B shown in Figure 6 has a walnut-grain plastic cabinet. It houses a speaker-microphone, power supply, amplifier, call-in switch, the combined volume control and power on-off switch, and an applique unit. A brown rubber cord approximately 7-feet long is provided for connection to the power supply. The front panel has a metal grille behind which is mounted the speaker-microphone and a pilot light. The call-in switch and a combined volume control and on-off switch are located on the grille. The control for adjusting the output to the telephone line is on the rear of the amplifier chassis.

2.22 The call-in switch is a three-position rotary type. Idle, or the up position is locking. In this position all calls from a master station can be answered without manual operation.

Since the speaker station is controlled by the master, this position allows monitoring. Listen, or the horizontal position is also locking. In this position the speaker station will handle incoming speech, and is used to listen to a reply from a master station after a call is initiated. This position prevents monitoring; however, calls made by the master station will still be received. Call-in, or the down position is nonlocking and is used to call a master station.

2.23 Screw terminals for connections are on the back of the amplifier chassis. Provision is made on the terminal strip, by means of straps, to add a speaker-microphone in parallel with, or in place of, the one in the unit. Provisions are also made on the terminal strip, by means of straps, to vary the impedance of the unit to meet the conditions of the various-type telephone lines used.

2.24 The volume control on the front, regulates incoming speech only. The control on the rear, regulates both incoming and outgoing speech at the telephone line. At full-output position, the level should not exceed zero dbm plus 5 decibels.

Applique Unit

2.25 Applique unit AP-B, shown in Figure 7, is used with 1200-series master stations for zero-level communication over telephone cable. It is used with either the annunciator or the regular-type master station having buzzer call-in.

2.26 Four applique units can be mounted in a 105-type apparatus box. Screw terminals are used for connections.

2.27 The applique unit consists of a line-matching transformer, attenuating pad, call-in relay, and a line-level control. Provision is made on the terminal strip, by means of straps, to vary the impedance of the cable pair to which it is connected.

3. OPERATING FEATURES

3.01 "S"-circuit operation is for high-level communication only. (For zero-level communication, "M"-circuit operation must be used.) When the talk-listen switch is in the idle position, the speaker-microphone is connected directly to the green pair (home line) of the station, and is ready to receive incoming calls from other master stations. (Refer to Figure 8.) In "S"-circuit applications, the amplifier handles outgoing and incoming speech. The high-level speech from another master is attenuated by a pad in the input of the amplifier, and is then again amplified to speaker level. This prevents double amplification.

"M"-Circuit Systems

3.02 An "M"-circuit system is composed of one or more master stations and one or more speaker stations. Any master station may talk to, and receive a reply from, any other master or speaker station in the system. The calling master station controls the direction of conversation; that is, press the talk-listen switch to the talk position to talk to the other station, and release it to the listen position to hear the reply. The idle position is for receiving calls. The switch should be kept in this position when not in use. The volume control regulates the volume for both ends of the conversation. (Refer to circuit operation shown in Figure 8.)

3.03 When high-level "M"-circuit operation is used between a master and speaker station, only one pair of wires is used. When the call-in feature is used, another pair is necessary. This pair is connected to the call-in terminals of the master station. (See Paragraphs 3.08, 3.09, 3.10, and 3.11.)

3.04 For zero-level communication between speaker or master stations "M"-circuit operation is used. Only one pair is necessary. This pair is connected to an applique unit, which in turn is connected to the assigned terminals of the master station. Both master and speaker stations can receive calls, and call-in. (The voice circuits are described in Figure 9, and the call-in circuits are discussed in Paragraphs 3.10 and 3.11.)

3.05 "M" operation is not secretive. Any master station can listen on any line by operating the selector key for that line and moving the talk-listen switch to the listen position.

3.06 To prevent monitoring at a high-level speaker station, the -14 silencing circuit can be used. To prevent monitoring at a zero-level station, its call-in switch can be placed in the listen (horizontal) position. To answer a call, the switch must be put in idle position.

3.07 To prevent monitoring of a high-level line to a master, its talk-listen switch can be placed in the listen position. The talk-listen switch must be operated to idle or talk, to answer a call. This method of preventing monitoring can only be used in a system where the busy-signal feature (1) is not used.

Speaker-Station Call-In – High Level

3.08 The speaker call-in feature is standard on all models without annunciators. The call-in feature is used with "R"-type speaker stations. The call-in key at both master and speaker stations is a double-pole, double-throw key. In the

normal position of the master station's call-in key (last key with red dot) the voice (call-in) line is connected in series with the buzzer and a 12-volt ac supply. When a call is originated at a speaker station, the call-in key is operated, connecting the speaker in series with the call-in line and buzzer at the master station. Thus, the buzzer will be heard at both the master and speaker stations. The person at the master station operates his call-in key to connect the call-in line to the amplifier and then determines who is calling, using the talk-listen switch. The call-in key must be operated at the speaker station until the person at the master station determines who is calling and operates the selector key of this station. (See Figure 10.)

3.09 The call-in circuit of a speaker station can be connected to only one master station in a system, but any number of speaker stations can be connected to one master station.

Speaker-Station Call-In – Zero Level

3.10 The call-in feature is standard on all zero-level speaker stations. When a call is originated from a speaker station, the call-in switch is momentarily operated to the talk position and released to the listen position. This operates a relay in the applique unit, which completes the master station's buzzer circuit. The buzzer tone is heard at both the master and speaker stations. (See Figure 10.)

3.11 The call-in circuit of a zero-level speaker station can be connected to only one master station in a system, but any number of speaker stations can be connected to one master station.

4. MASTER-STATION FEATURES

4.01 Annunciators are used on master stations for call-in indications from other stations. A low-toned buzzer signals the call. Plungers over the selector keys identify the station calling, and serve as a "call-back" memo in case the person called is absent from his desk.

Three-Position Selector Key (-3)

4.02 Annunciator-equipped master stations have three-position selector keys. The third position operates the annunciators of other master stations.

Busy-Signal Models (L)

4.03 A relay in the circuit turns off the pilot light, used as a busy signal, to tell when a called station is busy. This prevents breaking in on a conversation, and avoids double amplification, which will result, if a second master station cuts in on a call in progress.

4.04 When calling a speaker or master station connected to a zero-level line with a busy-signal model, you cannot tell that the station is busy. There is no possibility of double amplification when zero-level operation is used.

Operation of Busy Signal

4.05 The talk-listen switch must be in the idle position to tell if a station is busy.

4.06 During conversation, the busy-signal lamp will remain on when the talk-listen switch is operated to the talk or listen position.

4.07 When the master station is not in use, the talk-listen switch should be left in the idle position. If the talk-listen switch is left in the listen position, a busy indication will be given to a calling station.

Silencing Circuit (-14)

4.08 The silencing circuit can be included in a system using any number of master stations. All master stations must be equipped with the silencing circuit and connected for "S"-circuit operation. The busy-signal feature cannot be used on master stations arranged for silencing.

4.09 Master stations having the -14 silencing circuit have a relay similar to the one used in busy-signal models. When communicating at high-level to a speaker station with the talk-listen switch in the listen position, and the speaker station selector key is up, the relay is operated through the normally made contacts of the reply-back key to ground. The relay operated shorts the input of the master station's amplifier.

- When the talk-listen switch is in the talk position, the relay is released. This allows the master station to call the speaker station, but the master station cannot hear the speaker station until its reply-back key is operated.

4.10 When talking over zero-level lines to a speaker station, the person at the speaker station can prevent monitoring by placing the call-in switch in the listen position. In this position calls can still be received. Though the silencing relay of the master station is not used, the features of the silencing circuit are obtained.

Telephone Handset (T)

4.11 The telephone handset is for use in locations where confidential information must be exchanged. It is used without operation of the talk-listen switch on "S"-circuit systems. With "M"-circuit systems the talk-listen switch is operated in the regular manner. Only the calling station uses the handset in an "M"-circuit system.

All Call (-1)

4.12 A special all-call switch may be added so that all "M"-circuit stations can be called simultaneously.

4.13 A rotary-type switch parallels all stations. On standard-type masters having the call-in key, the last selector key is not connected to the all-call switch.

All-Call Paging (-18)

4.14 When paging high-level speaker stations, a special all-call switch can be added so that all stations will be called simultaneously using an external high-power amplifier. This system is used to page speaker stations only, though it is possible to page master stations. When high-power paging is used, it is only possible to call the zero-level remote stations at regular power.

4.15 If a station being paged desires to answer a paging call in this type system, means to do so must be provided, such as annunciator or call-in switch.

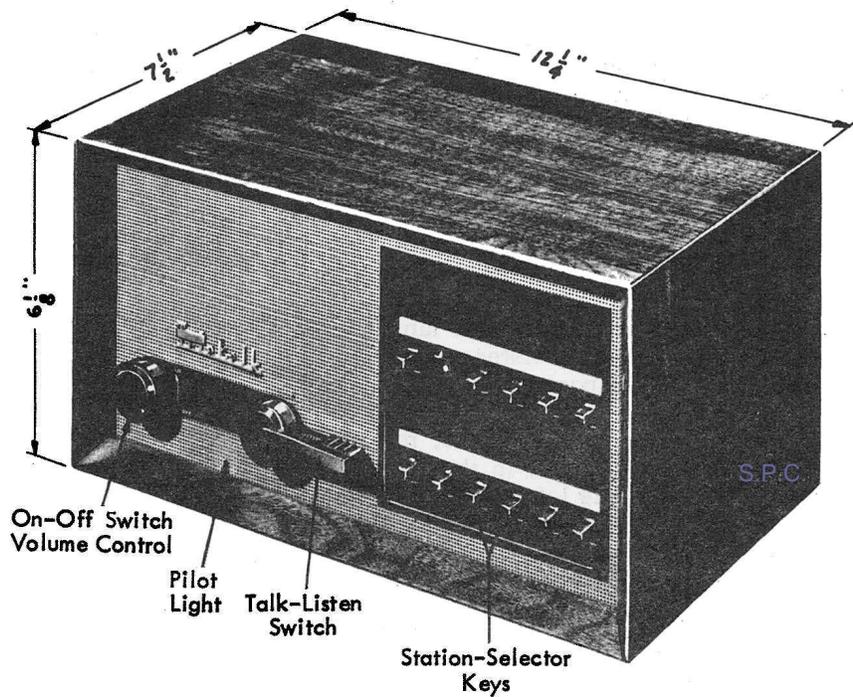


Fig. 1 - 1200 Master Station

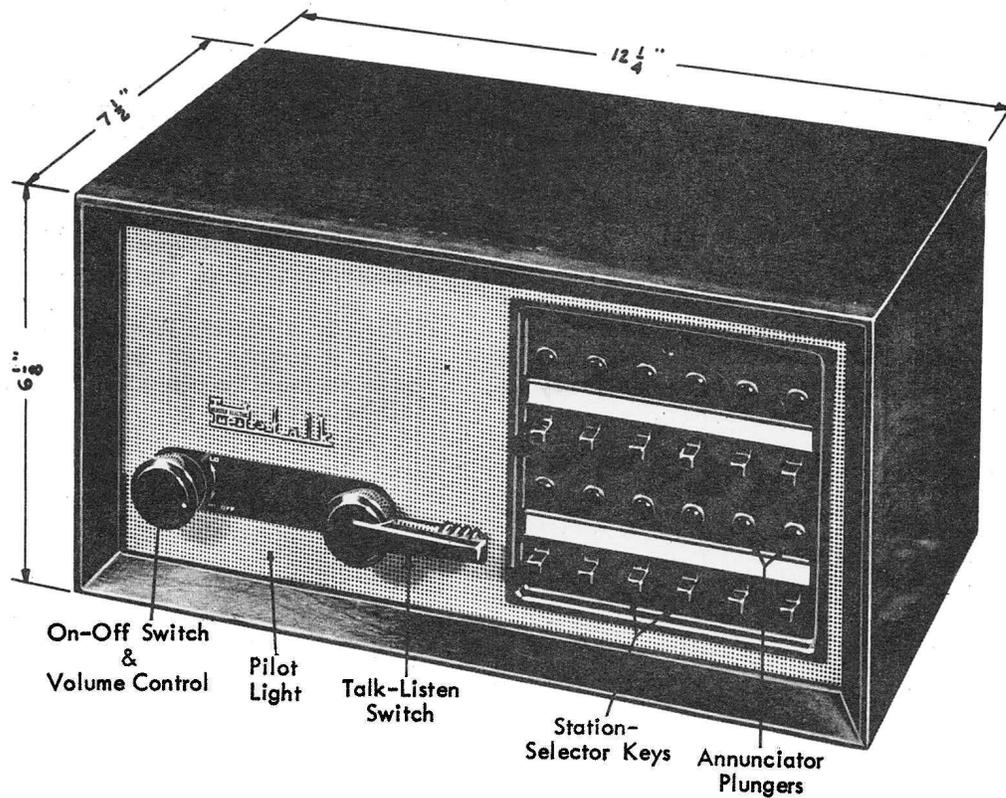


Fig. 2 - 1200A Master Station

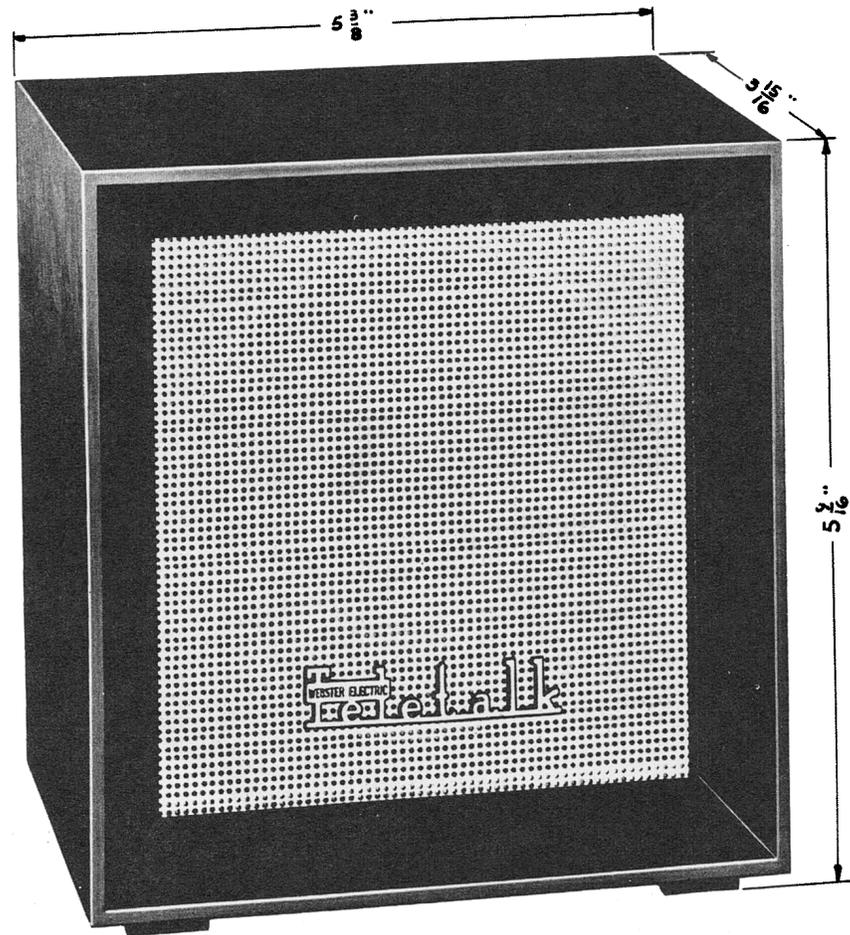


Fig. 3 - 5G45 Speaker Station

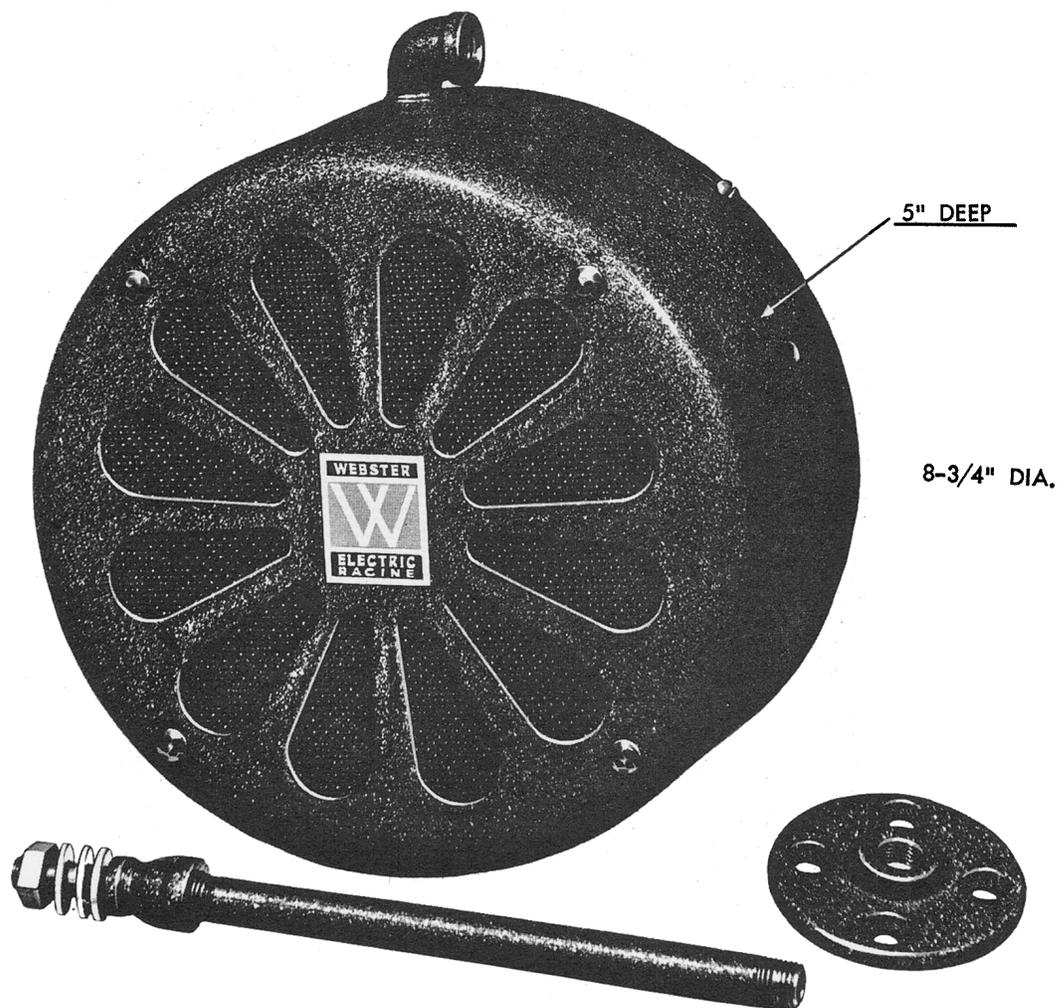


Fig. 4 - 8C45 Speaker Station

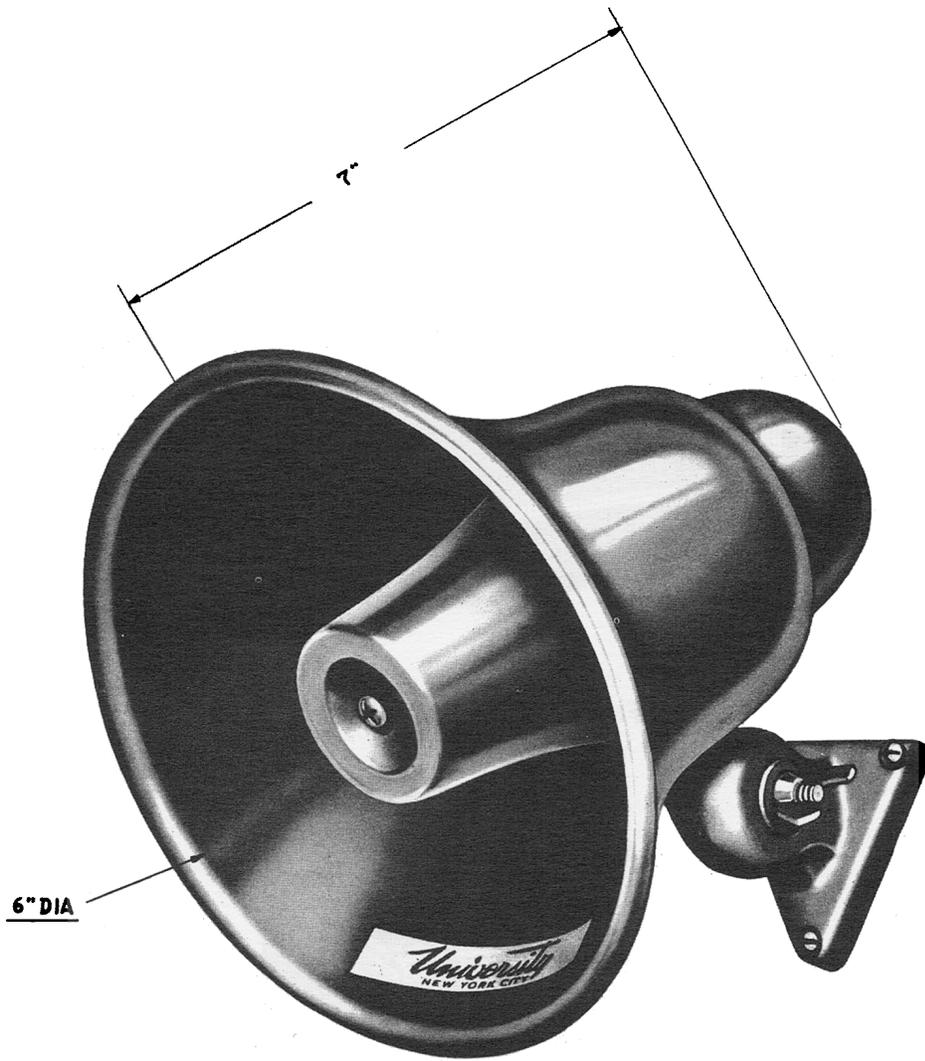


Fig. 5 - MIL-45 Speaker Station

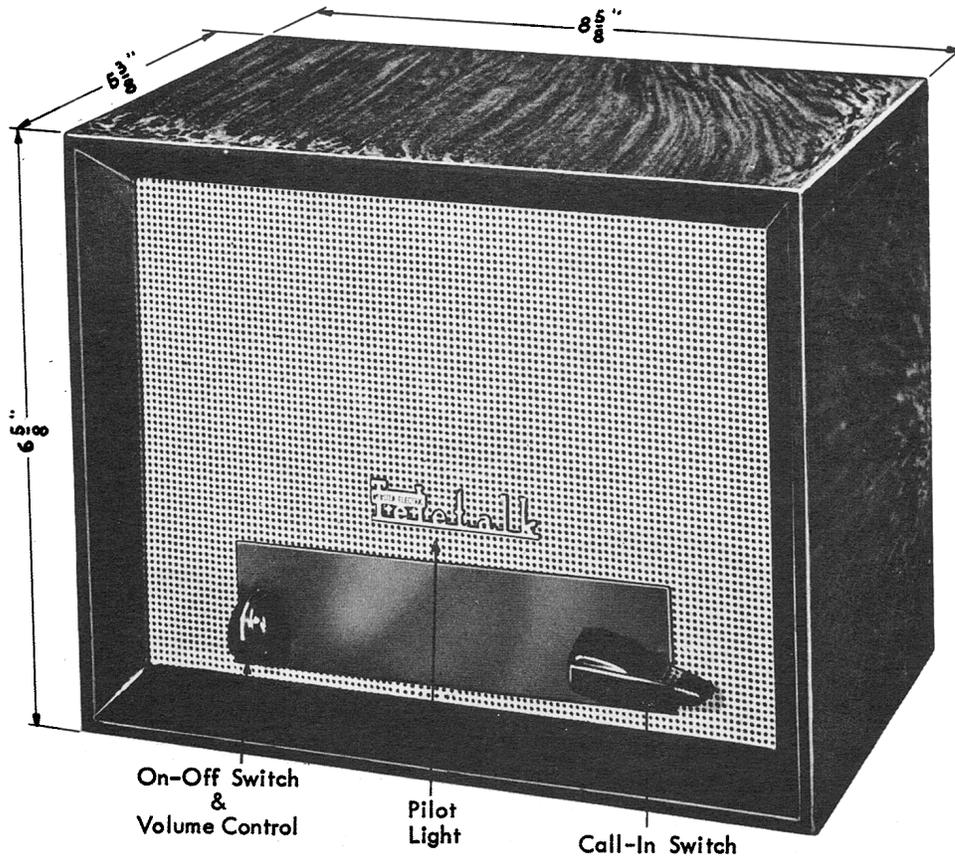


Fig. 6 - RM-B Speaker Station

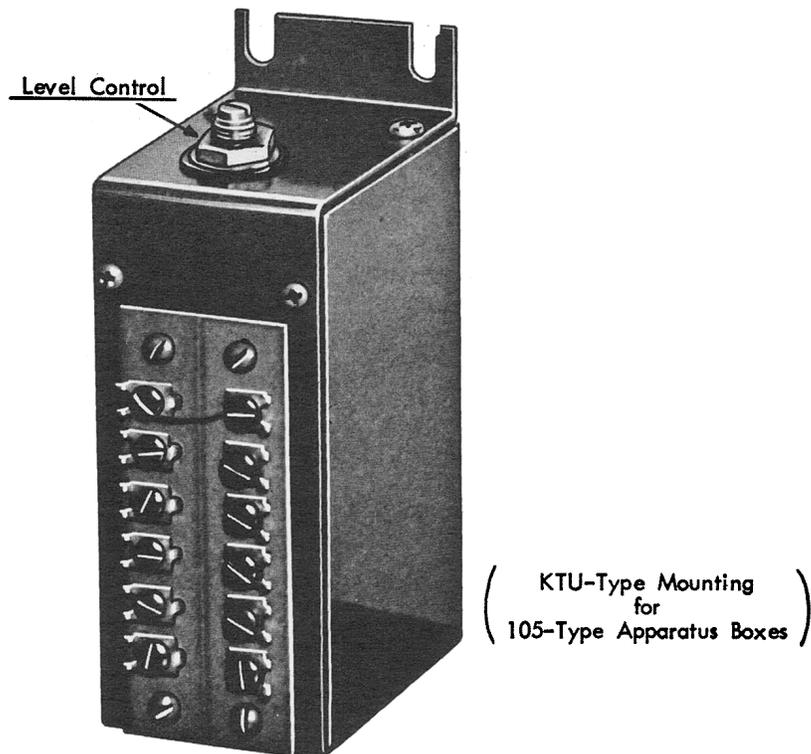


Fig. 7 - AP-B Applique Unit

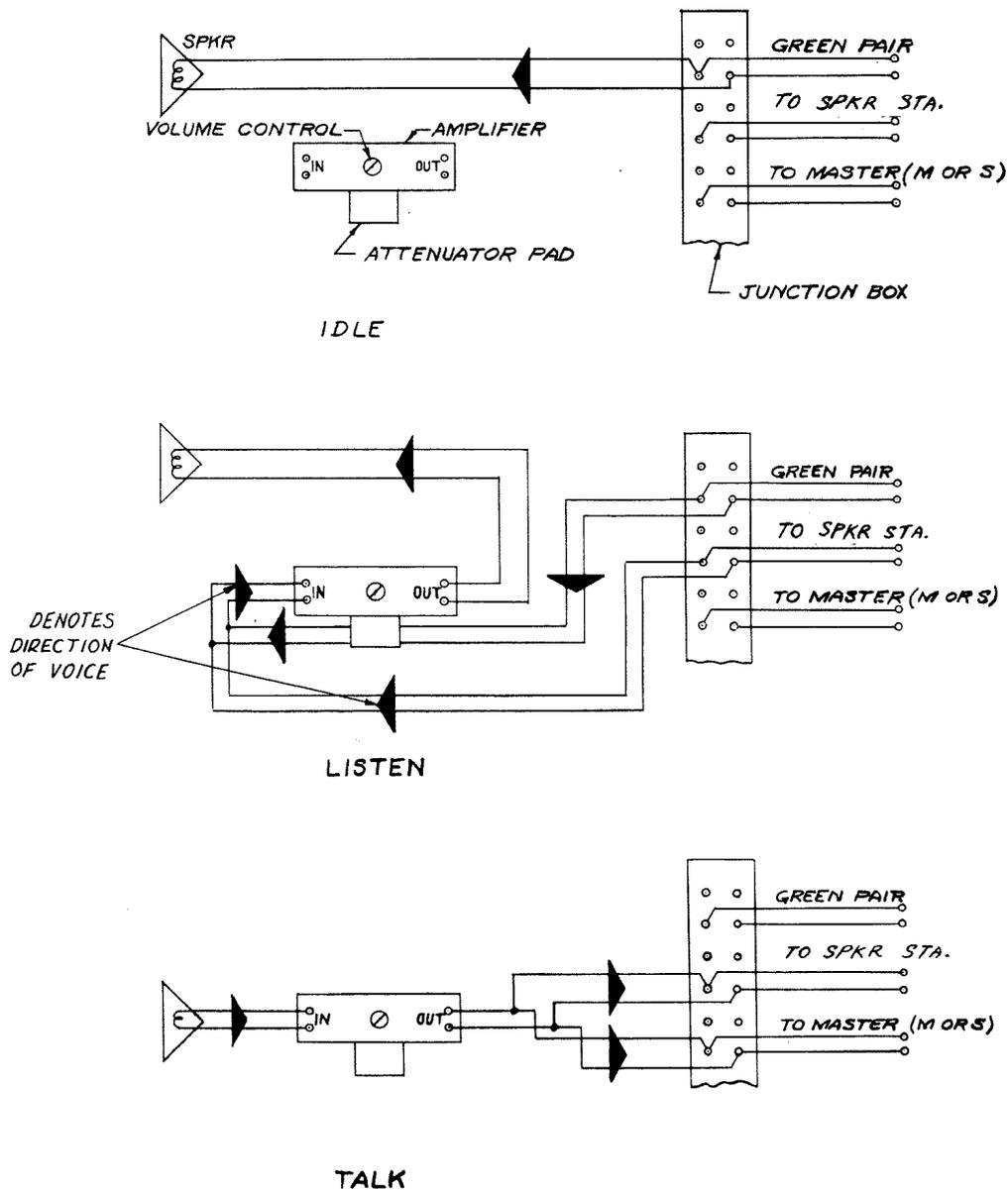


Fig. 8 - High-Level Operation

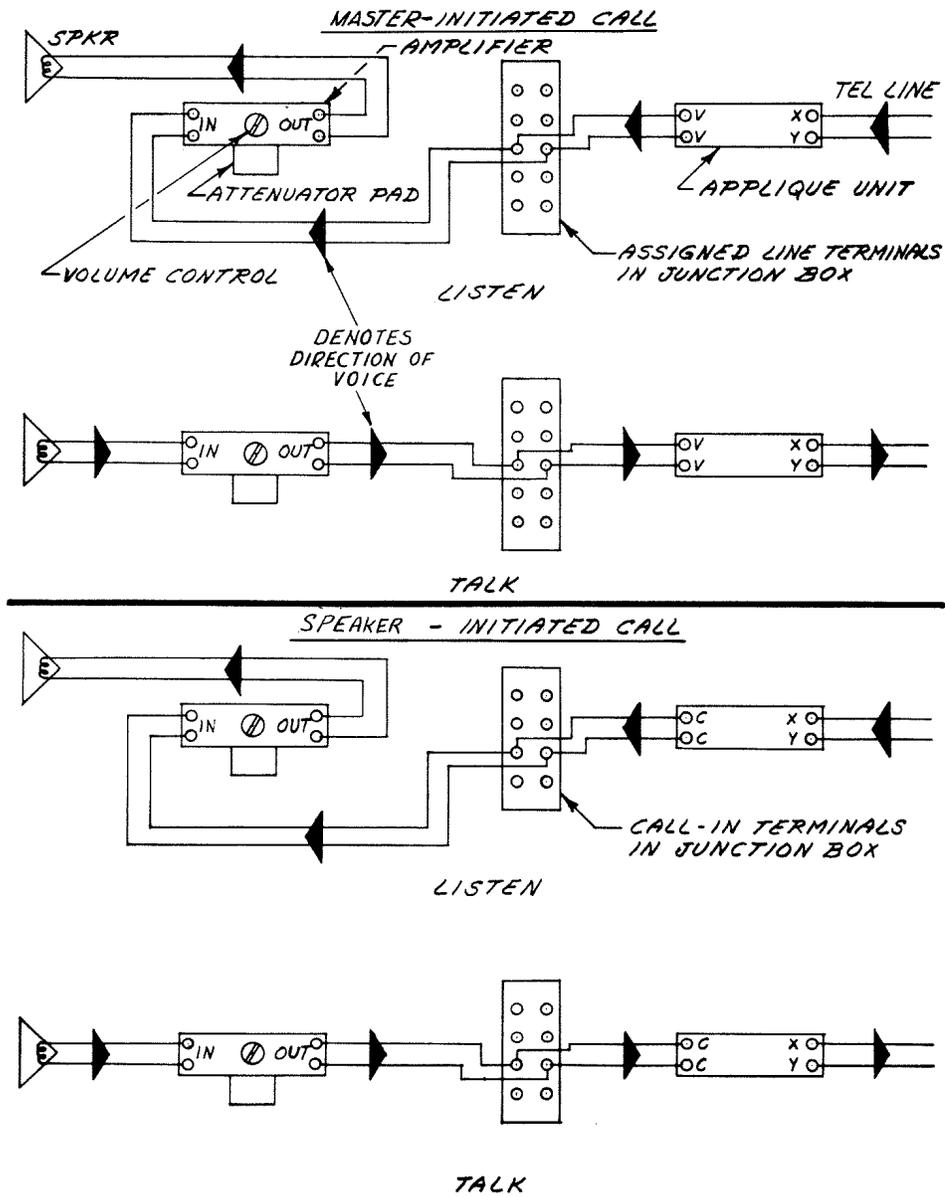


Fig. 9 - Zero-Level Operation

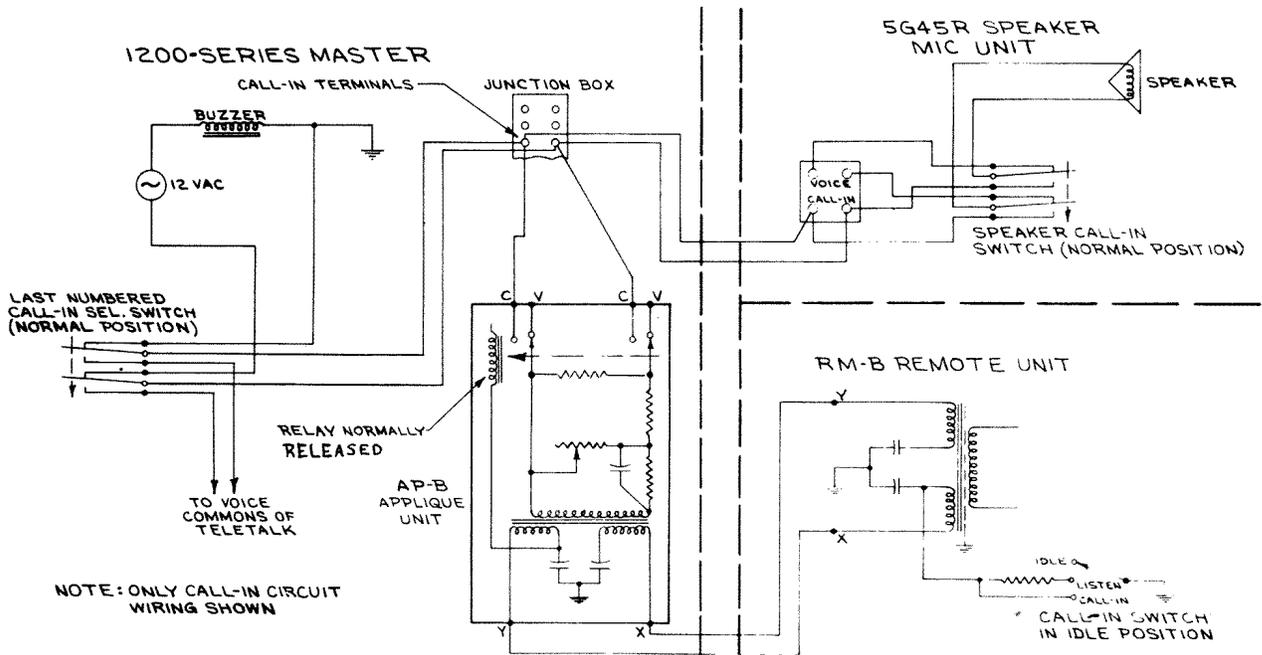


Fig. 10 - Call-In Circuit

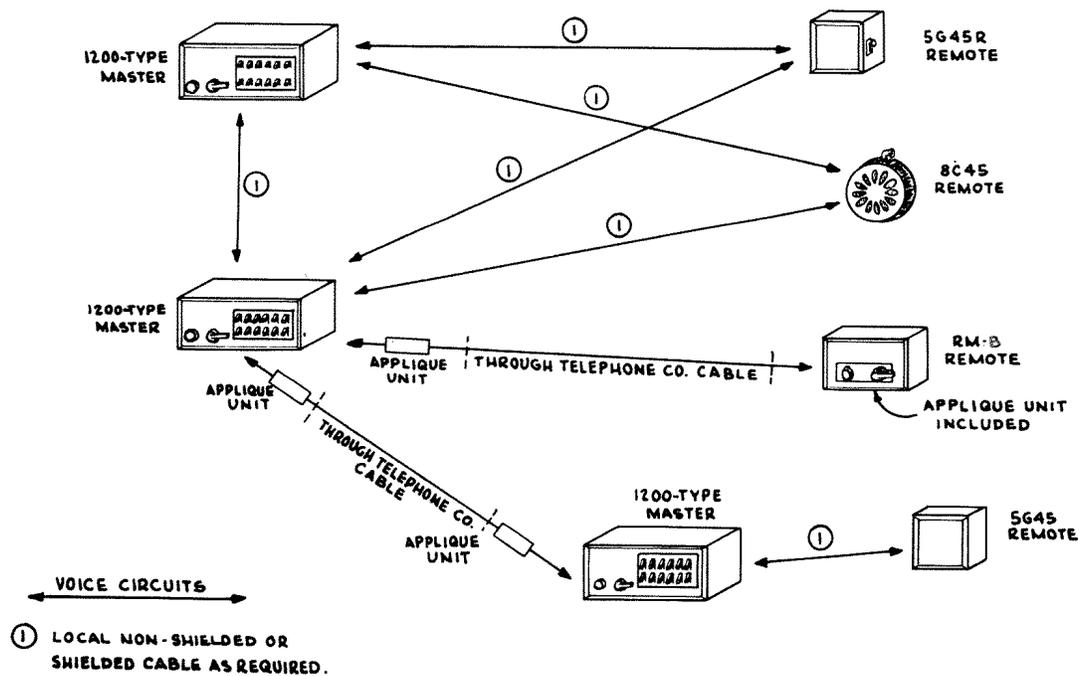


Fig. 11 - Typical System