

100A CONFERENCE SYSTEM USED WITH 4A SPEAKERPHONE SYSTEM IDENTIFICATION, INSTALLATION, OPERATION, AND MAINTENANCE

1. GENERAL

1.01 This section contains information on the 100A conference system when connected to a 4A speakerphone system. The 100A conference system consists of a 1A (linear array) microphone, 106A control unit (controller), KS-21239L5 transformer, 122A connecting unit, and an optional 114A loudspeaker sets. The M9K and M15L cords are used to connect the units together (Fig. 1).

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

Warning: *The 1A microphone, 114A loudspeaker set, and 106A control unit are portable and can be moved between conference rooms and/or buildings containing a telephone company installed 122A connecting unit. To assure safe transportation of the 1A microphone, it must be transported in the specially designed telephone company provided carrying case. Never pick up the 1A microphone by the vertical mast. The microphone should be handled and carried from the base only.*

1.03 The 100A conference system has been designed as an adjunct to enhance the capabilities of the present teleconferencing equipment. The 1A microphone is designed so that speech from persons either seated or standing within a 1.5- to 12-foot radius of the 1A microphone will be picked up at approximately the same voice volume level. At the same time it will screen out reflective speech and noise. These characteristics permit a single 1A microphone to cover a relatively large room without the clutter of multiple microphones and at the same time virtually eliminates the "barrel effect" resulting from re-

flective sound. The 114A omnidirectional loudspeaker has been designed to connect directly under the microphone base for a compact assembly. Control units and buttons are covered in Part 2 of this section.

1.04 The 100A conference system can also be used with the 50A1 conference set and the Group Audio Teleconferencing Terminal (WA7400038L1A). Refer to Sections 481-100-101 and 481-100-102, respectively.

2. IDENTIFICATION

2.01 The 1A microphone is composed of 28 miniature microphones mounted in a polished rectangular 32-inch vertical aluminum mast. The mast has two (2) recessed black vertical stripes, one on each of the narrow sides. The 6-inch square base is ivory and contains four (4) light emitting diodes (LEDs) (MIKE ON OFF indicators), one on each of the top beveled edges. The top of the base is covered with a black faceplate through which the mast and two nonlocking MIKE OFF buttons protrude (Fig. 2).

2.02 The 114A loudspeaker set (ivory with a black skirt) transmits sound in all directions (Fig. 3). The loudspeaker set mounts underneath and plugs directly into the 1A microphone, eliminating the need for a connecting cord (Fig. 4).

2.03 The 106A control unit (ivory with black faceplate) contains a volume control potentiometer, ON and OFF pushbuttons with associated LED, and a locking (MIKE ON OFF) button (Fig. 5).

2.04 The 122A connecting unit (Fig. 6, 7, and 8) is an interface unit for the various system components. It also is a diagnostic test unit for the system. The LEDs inside the unit along with associated test procedures are used to isolate troubles.

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

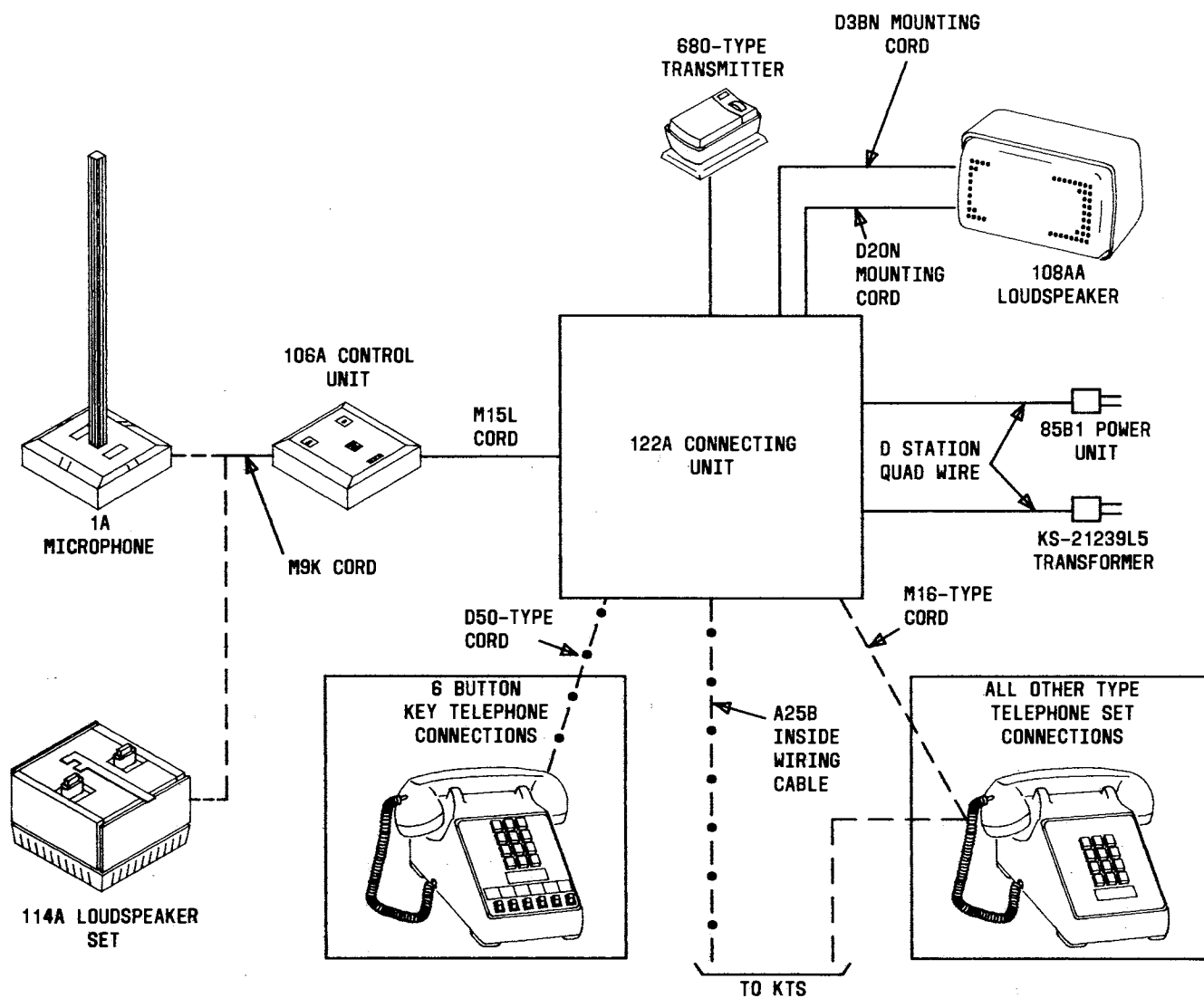


Fig. 1—100A Conference System Connected to a 4A Speakerphone System

2.05 The KS-21239L5 transformer and 85B1 power unit provide power for the 100A conference system and 4A speakerphone, respectively.

2.06 Ordering guides are as follows:

(a) The 100A conference system is a modular adjunct and may be ordered as follows:

- Microphone, 1A (103559944)
- Set, Loudspeaker, 114A (103558797)
- Unit, Control, 106A (103558805)

- Unit, Connecting, 122A (103558821)
 - Transformer, KS-21239L5 (401823778)
 - Cord, M9K-12 (12-foot) (103687356)
 - Cord, M15L-25 (25-foot) (103687372)
 - Case, Carrying, 1A Microphone (900674219).
- (b) Optional apparatus ordered separately as follows:
- Cord, M9K-30 (30-foot) (103687364)

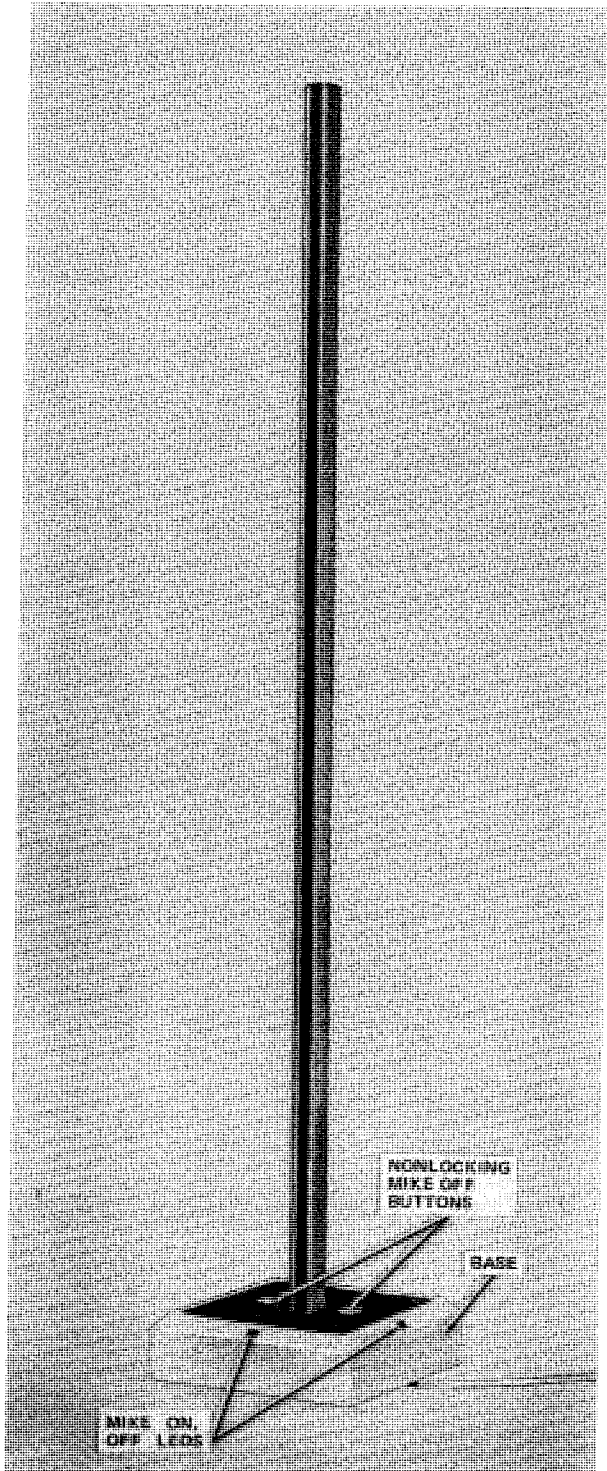


Fig. 2— 1A Microphone

- Cord, M15L-50 (50-foot) (103687380)
 - Cord, Mounting, D3BN
 - Connector, D-161488.
- (c) The 4A speakerphone system components may be ordered as follows:
- Set, Loudspeaker, 108AA- (add color suffix)
 - Transmitter, 680AE- (add color suffix) (includes 7-foot D8S mounting cord)
 - Transmitter, 680AE14- (add color suffix) (includes 14-foot D8S mounting cord)
 - Plug, Option, KS-21149L4 (401228556) (option plug needed when a new 4A speakerphone system with a six button key set is being installed.)
 - Cord, M16H (14-foot)
 - Power Unit, 85B1-49.
- (d) **Telephone Set:** See appropriate section in Division 502 for telephone set ordering information.

2.07 Design features are as follows:

- Modular cord connected.
- Portable.
- Latch together 1A microphone and 114A loudspeaker set.
- 1A microphones (without 114A loudspeaker set) can be connected together (up to a maximum of four units).
- Operational indicating LEDs.
- Mike off buttons.
- Omnidirectional loudspeaker.
- Self-contained diagnostic trouble shooting capability.
- Compatible with both rotary and TOUCH-TONE® service.

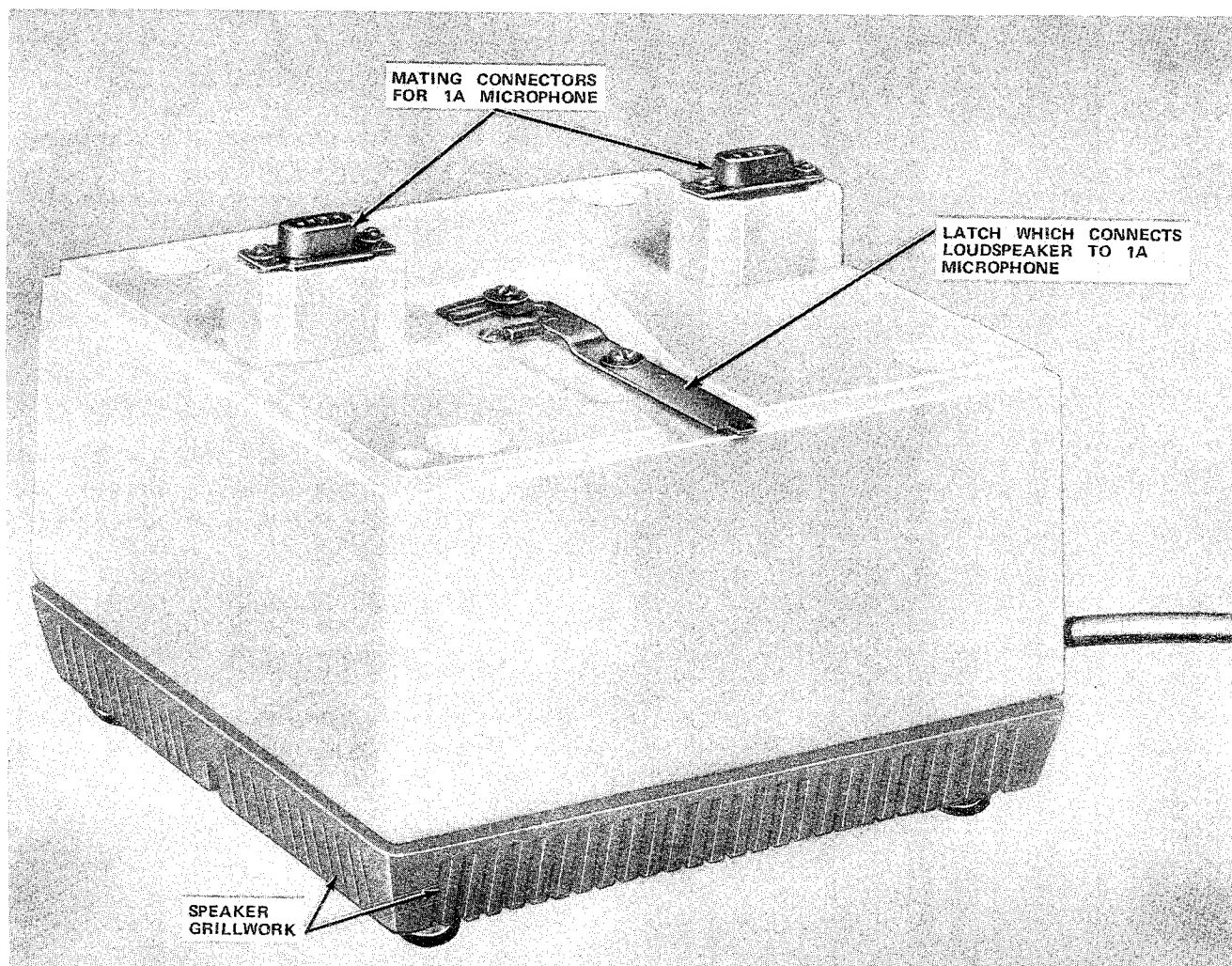


Fig. 3—114A Loudspeaker Set

Note: The 1A microphone and 114A loudspeaker set are designed to be used directly on a conference table (without padding) located in the middle of a room. Performance of the system may be affected when used on a table located against a wall.

3. INSTALLATION

3.01 To install a 100A conference system to an existing 4A speakerphone system proceed as follows. (To install a new 4A speakerphone and 100A conference system, proceed to paragraph 3.02.)

- (1) Remove the 4A speakerphone system 85B1 power unit and cord.
- (2) Remove 82-type connecting block or 223-type adapter, whichever is used. If an 82-type connecting block was disconnected, remove the option plug for reinstallation [paragraph 3.04(a)] in the 122A connecting unit.

3.02 The 122A connecting unit (Fig. 6) should be located in a convenient location to accept the plugs from the various components.

Note: The 4A speakerphone system used in

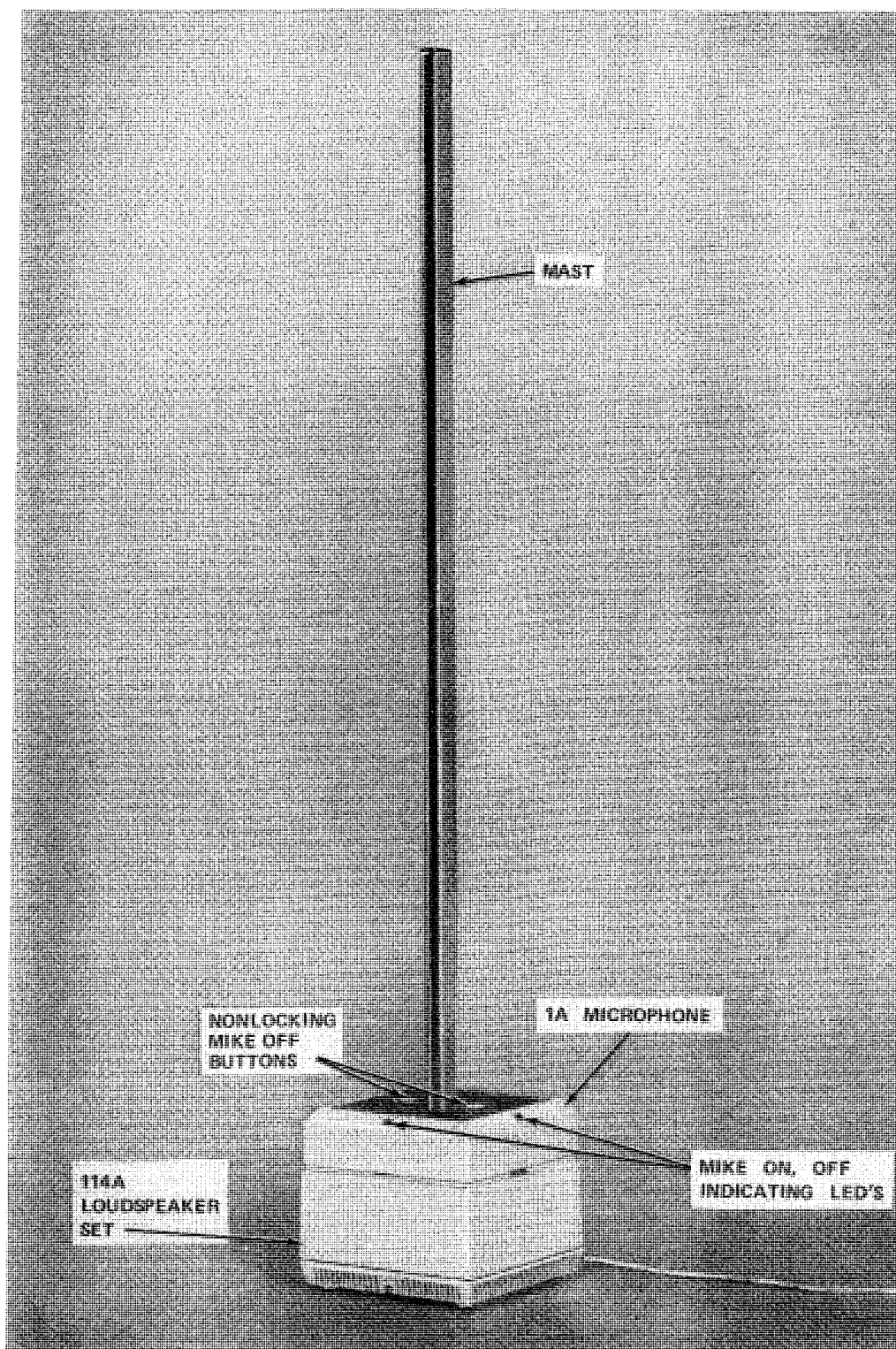


Fig. 4—114A Loudspeaker Set With 1A Microphone Connected on Top

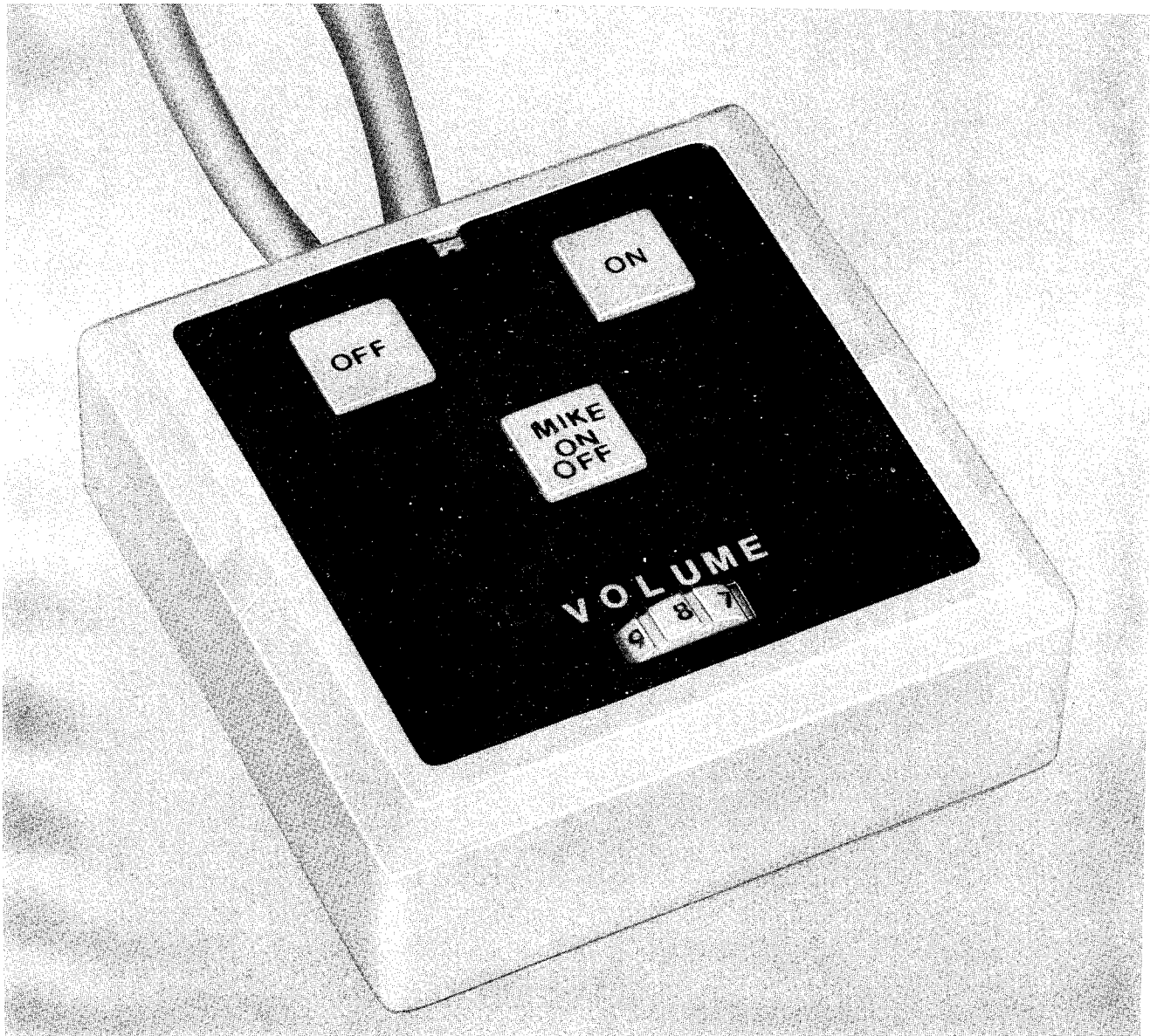


Fig. 5—106A Control Unit

conjunction with a 100A conference system must contain a 108AA loudspeaker set. Other 108-type loudspeakers do not have the designated screw connection and lead necessary for connection of the D3BN (auxiliary) mounting cord.

3.03 To install the associated units to the 122A connecting unit proceed as follows:

- (1) Plug the D20N cord from the 108AA loudspeaker set into the appropriate part of the receptacle marked 4A as/per 122A connecting unit cover (Fig. 7 and 8).
- (2) Remove the cover from the 108AA loudspeaker set by removing the two bottom cover screws.
- (3) Disconnect the red lead on terminal 29 inside

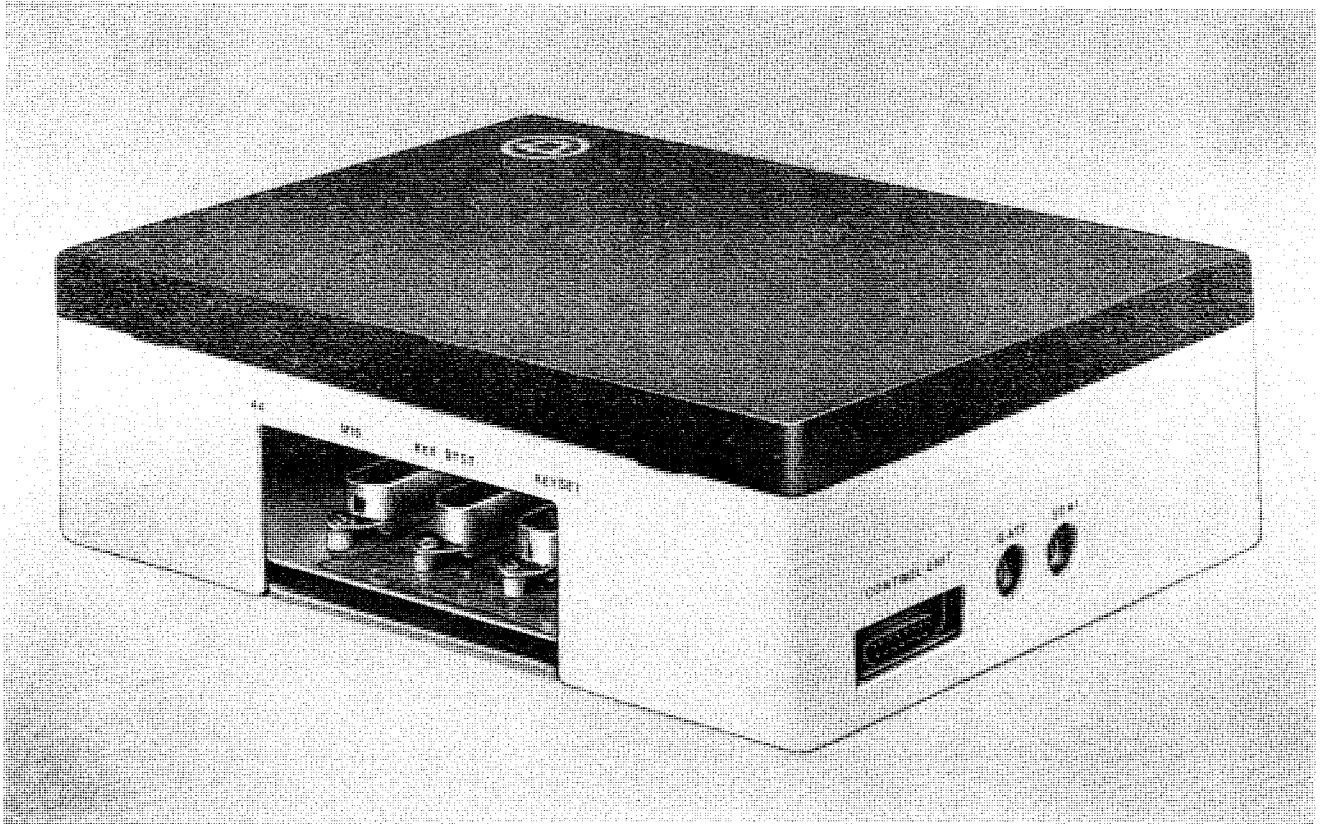


Fig. 6— 122A Connecting Unit

the loudspeaker.

- (4) Install a D3BN mounting cord between the loudspeaker and the 122A connecting unit.
- (5) Connect the red lead of the D3BN mounting cord to the red lead removed from terminal 29 of the loudspeaker using a D-161488 connector (Fig. 9).
- (6) Insulate and store connector.
- (7) Connect the green lead of the mounting cord to terminal 29 (Fig. 9).
- (8) Replace loudspeaker cover.
- (9) Connect the other end of the D3BN mounting cord red lead to terminal SP2 and green lead to terminal SP1 of the 122A connecting unit (Fig. 8).

- (10) Plug the D8S cord from the 680-type transmitter into the appropriate portion of the receptacle marked 4A as per 122A connecting unit cover (Fig. 7 and 8).

Note: Always replace the M2FG cord used in some 4A speakerphone installations with a piece of quad D-type station cable when connecting the 85B1 power unit to the 122A connecting unit.

- (11) Place two pieces of quad D-type station cable between the 122A connecting unit and the nearest electrical outlet not controlled by a switch.

Note: The maximum length each quad cable can be is 78 feet.

- (12) Connect the 85B1 power unit to the outlet end of the quad cable.

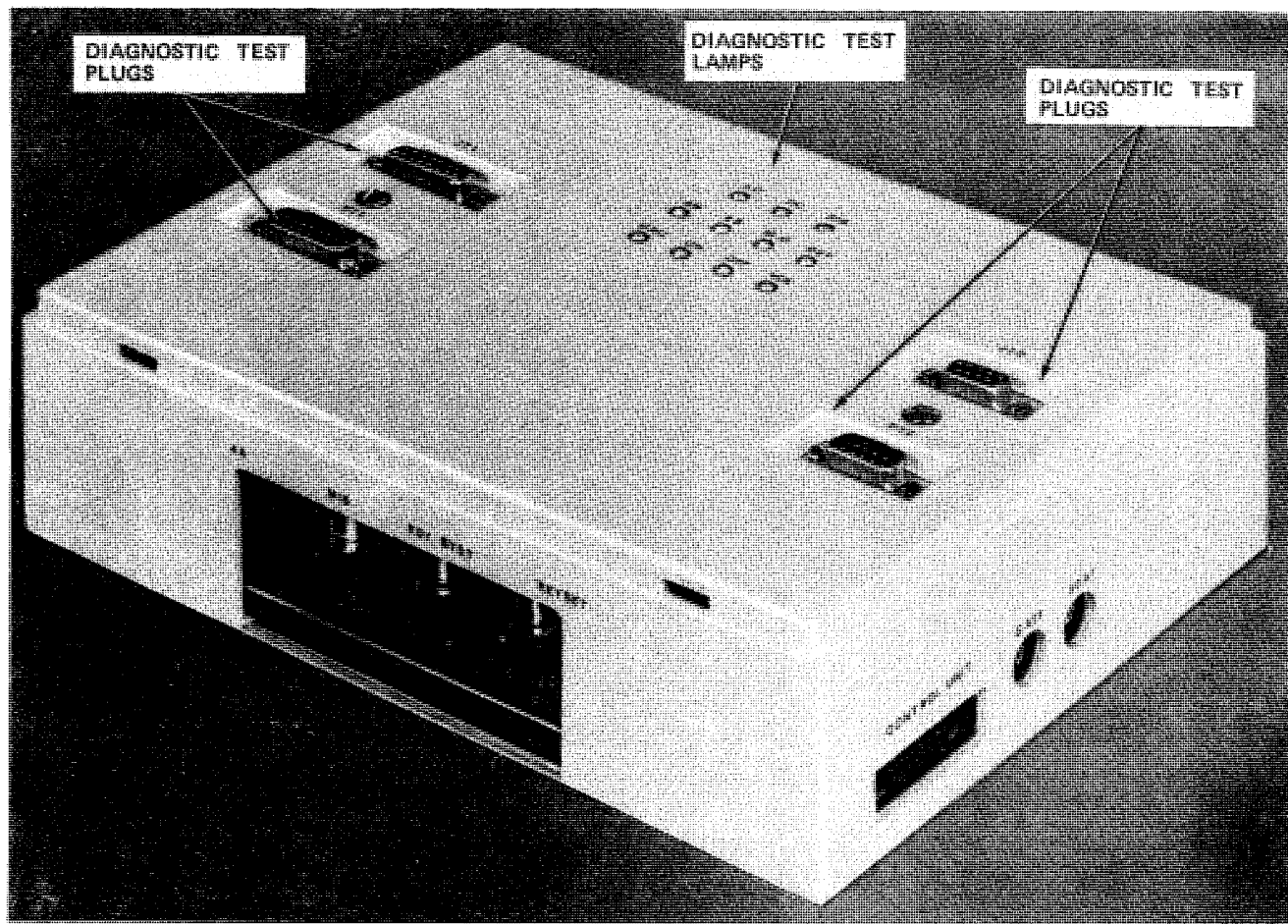


Fig. 7—122A Connecting Unit With Test Cover Removed

- (13) The opposite end of the 85B1 power unit quad should be connected to the two ac screw terminals on the 122A connecting unit.
- (14) Connect the second quad D-type station cable to KS-21239L5 transformer terminals 1, 2, 3, and 4 only.
- (15) Connect the other end of the quad D-type station cable to the corresponding 122A connecting unit terminals T1, T2, T3, and T4.
- (16) Plug the M15L cord into the appropriate 122A connecting unit receptacle designated CONTROL UNIT on adapter cover.
- (17) Place the 106A control unit upside down and unsnap the hinged bottom cover (Fig. 10) exposing two connectors.
- (18) Plug the other end of the M15L cord into the appropriate connector of the control unit.
- (19) Connect the M9K cord into the remaining connector of the 106A control unit and close bottom cover.
- (20) Insert the other end of the M9K cord into the bottom of the optional 114A loudspeaker set, if used (Fig. 11).
- (21) If the 4A speakerphone system loudspeaker (108AA) is to be used in place of the 114A loudspeaker set, plug the cord directly into the 1A microphone.

Note: A speaker detection circuit in the 122A connecting unit determines if the 114A loud-

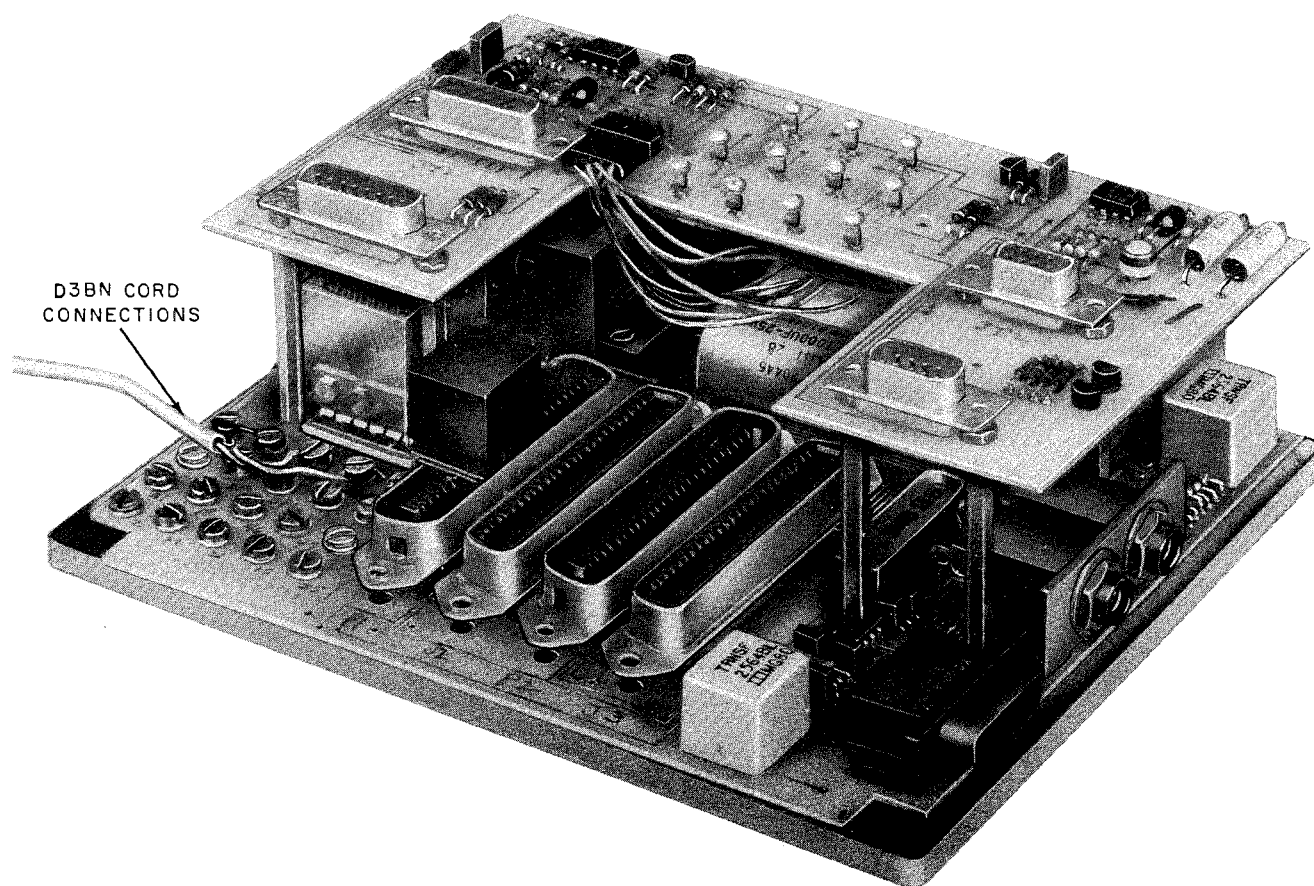


Fig. 8—122A Connecting Unit With Both Covers Removed

speaker is connected. If the loudspeaker is connected, the detection circuit disconnects the 108AA loudspeaker from the circuit. If the 114A loudspeaker is not connected the detection circuit allows the 108AA loudspeaker to remain in the circuit.

- (22) If the 114A loudspeaker set is used, place the 1A microphone on top of the loudspeaker mating plugs properly (Fig. 4). Check that the slide latch is engaged, locking both units together.

Note: The 1A microphones can be connected together (up to a maximum of four units) without a 114A loudspeaker set. This can be accomplished by plugging an M9K cord into the remaining unused connector of the 1A microphone and adding additional units. The maximum length of connector cord that can be used between the 122A connecting unit and the last

1A microphone connected is 200 feet. If a 114A loudspeaker set is used with the 1A microphone only one such assembly can be supported by the 122A connecting unit power supply. When this combination is used the maximum length of connector cable drops to 100 feet.

3.04 Telephone set connections to 122A connecting unit are as follows.

- (a) For six button key telephone sets proceed as follows.

- (1) Plug set mounting cord (D50-type) into receptacle designated KEY SET on 122A connecting unit cover.
- (2) Connect inside wiring cable (A25B) female end from KTS to plug designated KEY SYSTEM on 122A connecting unit cover.

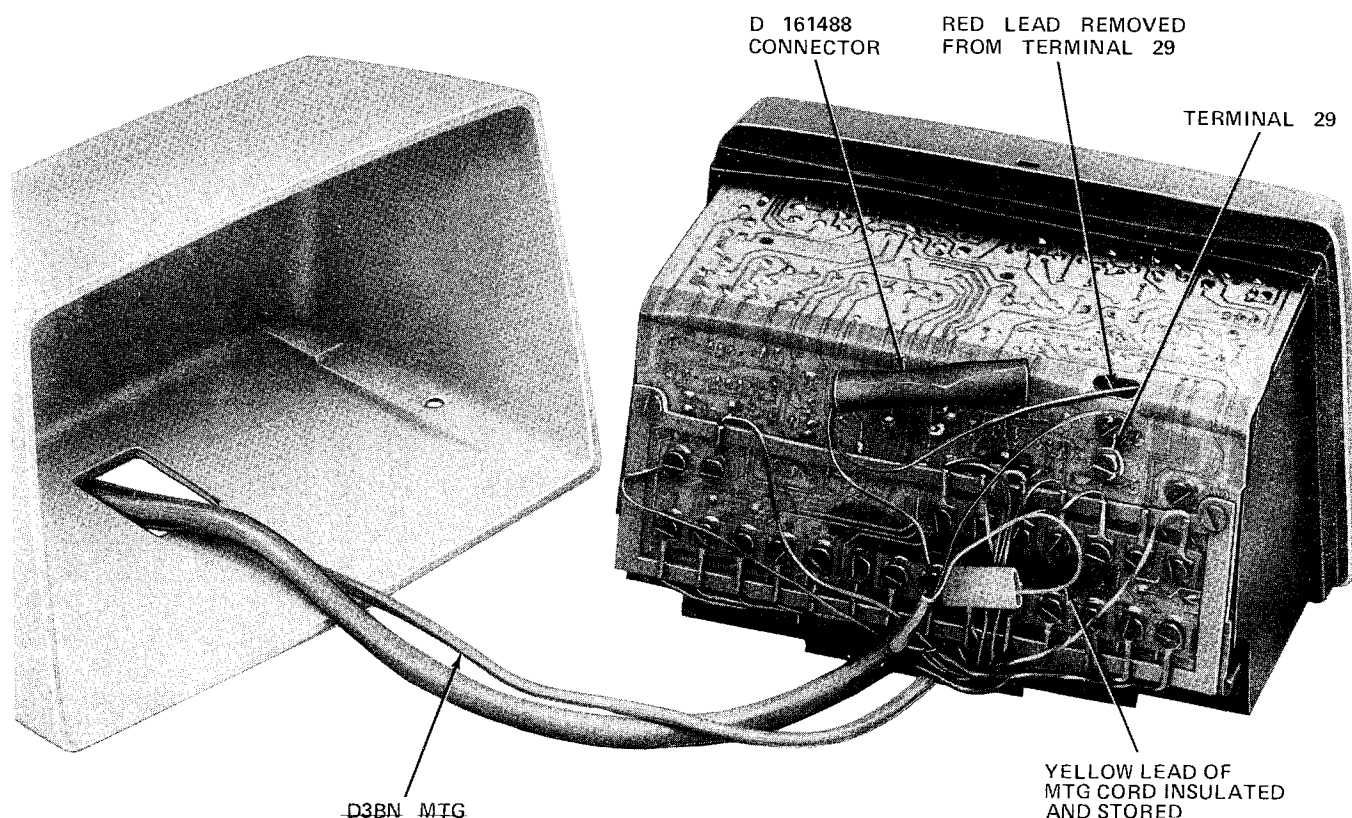


Fig. 9—108AA Loudspeaker With Cover Off and D3BN Mounting Cord Connected

(3) Install the KS-21149L4 option plug in connector designated 4A on 122A connecting unit.

(b) For all other type telephone sets proceed as follows.

(1) Connect an M16-type cord between the telephone set and 122A connecting unit receptacle M16 as designated on cover.

Caution: When connecting the M16-type cord to the telephone set, insulate and store the red green, green red pair to prevent power from entering the 122A connecting unit via these leads.

(2) For M16-type cord connections see section in Division 512 for appropriate set used and titled Connections, Speakerphone System—4A.

3.05 An option strap from terminal 2 to terminal A1 is factory provided in the 122A connecting

unit for 1A1 or 1A2 KTS. When a busy lamp is provided in 1A KTS the strap end on terminal 2 must be moved to terminal 19.

3.06 The 122A connecting unit contains five option jacks P4 through P8 with strapping connectors. Plugs P5 through P8 come with the strapping connector encompassing only one pin. Plug P4 has the strapping connector encompassing both pins. This provides a margin against self-switching.

4. TEST AND OPERATION

Note: With rotary telephone service, the distant party must be called before the conferencing system is turned on. With TOUCH-TONE service, calling can be made before or after conferencing system is turned on.

4.01 Make a test call and proceed as follows:

(1) Depress the 106A control unit ON button. All microphone LEDs (microphone on off indica-

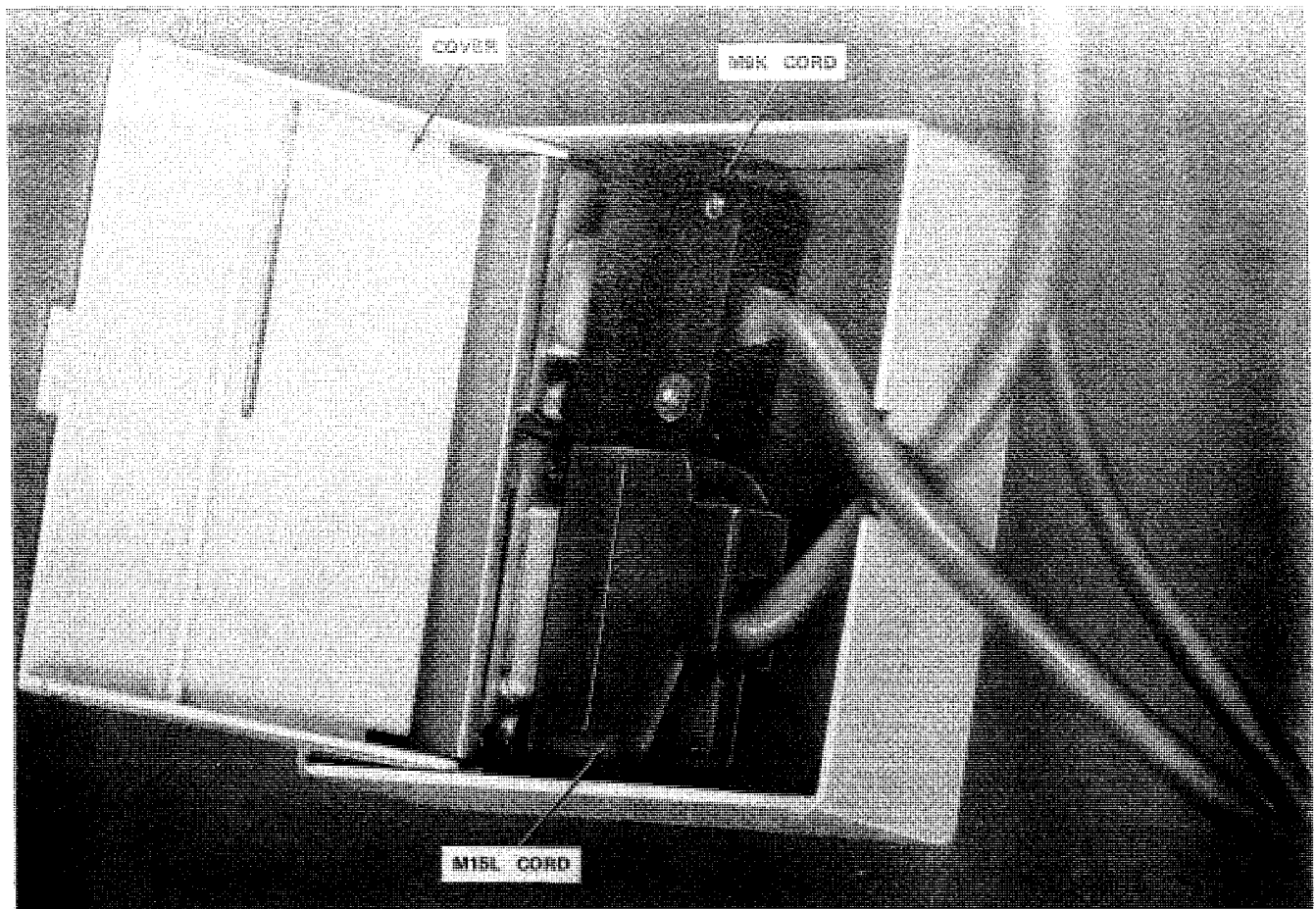


Fig. 10—Cover Open on Bottom of 106A Control Unit With M9K and M15L Cords Connected

tors) and control unit LED light. The conference loudspeaker is operational.

- (2) Adjust the volume control and check that loudspeaker volume varies. Adjust the volume so that any conferee within a 12-foot radius of the 114A loudspeaker can easily hear the distant party.

Note: The 108AA loudspeaker is automatically disconnected from the circuit when 114A loudspeaker is used in the conferencing system.

- (3) Depress the locking MIKE ON OFF button on the control unit. Verify that all microphones are off and all microphone LEDs are off. Verify that distant party is not receiving transmission

but that reception from the distant party is received.

- (4) Depress the MIKE ON OFF button on the control unit again.
- (5) Depress and hold each mike off button on the 1A microphones, verification is same as in Step (3).
- (6) Verify that any conferee within a 12-foot radius of the 1A microphone can be easily heard by the distant party.
- (7) Depress the 106A controller OFF button. All LEDs go out and the 100A conference system is off.

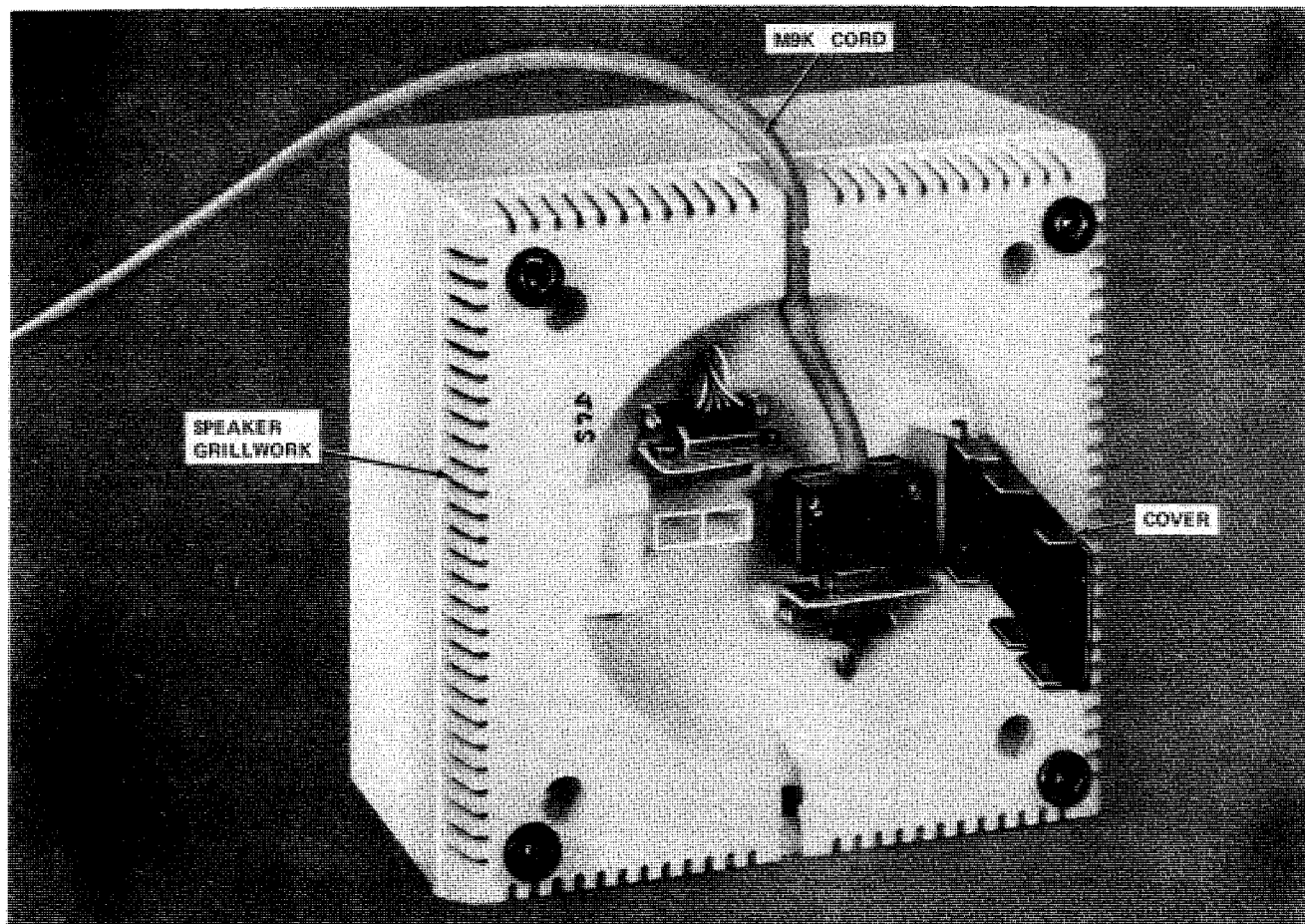


Fig. 11—Bottom of 114A Loudspeaker Set With Cover Open and M9K Cord Connected

Note: When the 100A conference system is off the 4A speakerphone system is returned to its normal state and can be used independently of the conference system controls.

5. PROBLEM DIAGNOSTIC PROCEDURES

Note: Repair is limited to replacement of modular components. For internal repair, defective 100A conference system major components must be returned to an authorized repair center (see local instructions for location).

5.01 If a problem develops in the 100A conference or 4A speakerphone system, proceed as follows to locate defective unit or cord.

A. Power Test

- (1) With power on, row one LEDs (AC, DC, SIG) should light. If not check the following:
 - (a) Wall outlet for power.
 - (b) Transformer (KS-21239L5).
 - (c) Quad from transformer to 122A connecting unit for shorts or opens.
 - (d) Disconnect all leads, excluding power leads, from 122A connecting unit. If LEDs do not light, replace defective 122A connecting unit.

B. M9K Cord Test

- (1) Connect M9K cord between 122A connecting unit connectors JT2 and PT2. If all LEDs in row two do not light, replace defective cord.

C. M15L Cord Test

- (1) Connect M15L cord between 122A connecting unit connectors JT1 and PT1. If the following LEDs do not light, replace defective cord.

- (a) All LEDs in row two light
- (b) All LEDs in row three light
- (c) LED MO lights green.

D. 106A Control Unit Test

- (1) Connect M15L cord between control unit and 122A connecting unit connector JT1.
- (2) Connect M9K cord between control unit and 122A connecting unit connector PT2. Verify that the following:
 - (a) Lamp on control unit lights
 - (b) All LEDs in row two of 122A connecting unit light
 - (c) LED MO lights green.
- (3) Depress 106A control unit ON button. The 122A connecting unit ON LED lights while button depressed.
- (4) Depress 106A control unit OFF button. The 122A connecting unit OFF LED lights while button depressed.
- (5) Depress control unit MIKE ON OFF button. The 122A connecting unit LED MO lights red.
- (6) Again depress MIKE ON OFF button. The 122A connecting unit LED MO lights green.
- (7) Adjust VOLUME control from 0 to 9 position.
 - (a) The 122A connecting unit LED (VOL) is OFF at position 9.

- (b) The 122A connecting unit LED (VOL) is at maximum brightness at 0 position.

E. 1A Microphone Test

- (1) Connect M9K cord between 106A control unit and 1A microphone. LEDs on microphone lights.
- (2) Talk at a normal level 6 to 12 feet from 1A microphone. The 122A connecting unit DET LED flashes in response to speech.

F. 114A Loudspeaker Test

- (1) Connect M9K cord between 106A control unit JT1 and loudspeaker.
- (2) Mount 1A microphone on loudspeaker. Verify that the following:
 - (a) Tone is heard from loudspeaker.
 - (b) LEDs on 1A microphone light.
 - (c) 122A connecting unit DET LED lights.

G. 122A Connecting Unit

- (1) If the previous tests prove negative, the trouble is either in the leads between the 122A connecting unit and the speakerphone or the 122A connecting unit is defective.

H. 4A Speakerphone System

- (1) If the 4A speakerphone system is not functioning correctly, check and/or replace the following items:
 - (a) The 680-type transmitter
 - (b) The 108AA loudspeaker
 - (c) The 122A connecting unit
 - (d) The 85B1 power unit.

