

## 1A AND 1A1 SPEAKERPHONE SYSTEMS

### INSTALLATION AND MAINTENANCE

#### 1.00 INSTALLATION

##### Control Unit

1.01 Locate and install the control unit in accordance with the following:

- Allow 20 feet maximum cable distance between the control unit and other components of the speakerphone system.
- Mount control unit:
  1. On an insulated surface.
  2. Within 6 feet of a 105- to 125-volt 60-cycle ac commercial power outlet furnished and maintained by customer. Power outlet shall not be under control of a wall switch.
- Place transmitter:
  1. Within convenient reach of customer.
  2. Three feet minimum from loudspeaker.

**Note:** There should be no obstruction between the customer and transmitter or loudspeaker.

**THINK** *Under no circumstances connect the power cord of the control unit until all work is completed.*

- Fasten the power cord with a Tinnerman clamp (5A or 6A) and an ES-528772 bracket. Attach a tag (form E-3013) to the bracket. This is the same tag that is used on ground wire clamps. In certain areas where local ordinances prohibit this method of securing the cord, place only the tag near plug end of cord. Be guided by local instructions.

##### Associated Components

1.02 Fig. 1 and 2 show typical installations.

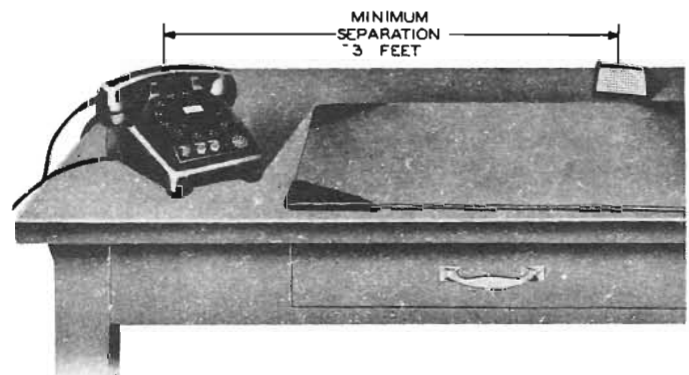


Fig. 1 — Speakerphone System Components with 592B Telephone Set

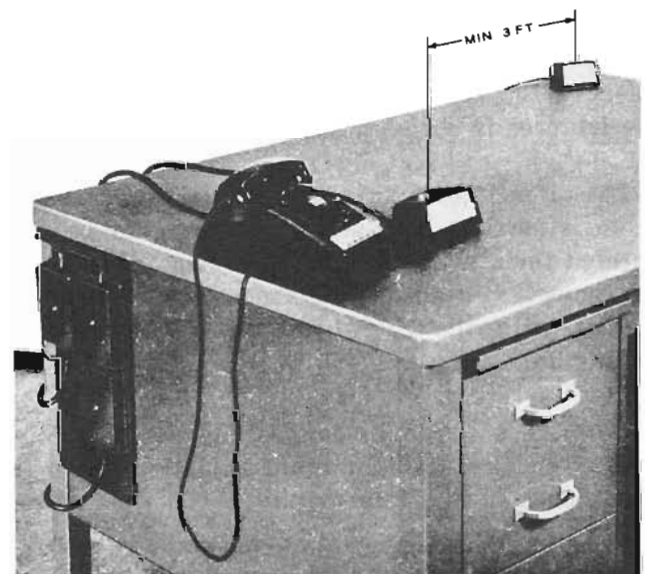


Fig. 2 — Speakerphone System Components with Key Telephone Set and 656A Transmitter

**1.03** For installation of 661A transmitter and A13A cord, refer to C Section covering 600-type telephone sets.

### Self-switching Circuit

**1.04** Self-switching is the automatic transfer from receiving to transmitting condition. This circuit is controlled by a signal transmitted by voice, room noises, or loudspeaker. The level of signal necessary to cause switching has been predetermined.

**1.05** For 1A1 speakerphone installation, place the audible signals where there will be no interference with the self-switching feature. It may be necessary to lower the volume of the audible signal.

## 2.00 ADJUSTMENTS AND TESTS FOR 1A1 SPEAKERPHONE



*Amplifier potentiometers and the potentiometer on the applique (part of control unit) have been set with a test set and **shall not** be changed.*

**2.01** Adjustments consist of connecting the SP2 loudspeaker lead to various terminals of the KS-14964, List 3 control unit. Proper connections compensate for the acoustic reverberant condition of the room by inserting several values of resistances in series with the loudspeaker.

**2.02** If self-switching occurs during a test call, the SP2 loudspeaker lead should be connected for a more reverberant room condition. It is, however, desirable to keep the resistance in series with the SP2 loudspeaker lead to a minimum.

**2.03** As a guide in connecting the SP2 loudspeaker lead for room adjustments, rooms are classified into four types:

- **TYPE 1 — Low Reverberation**

A room with very little echo or reverberation will have a large amount of sound-absorbing material such as acoustic ceiling

treatment together with carpeting or rugs, window or wall draperies, and upholstered furniture. For this type of room, connect the SP2 loudspeaker lead to terminal 14 of TS1.

- **TYPE 2 — Moderately Low Reverberation**

A room with a moderate amount of reverberation will have either carpeting or acoustic-treated ceiling, and perhaps draperies or upholstered furniture. Connect the SP2 loudspeaker lead to terminal A of the applique unit.

- **TYPE 3 — Moderately High Reverberation**

A room with this level of reverberation will have less acoustic treatment than TYPE 2. For this condition, connect the SP2 loudspeaker lead to terminal B of the applique.

- **TYPE 4 — High Reverberation**

A room with high reverberation will have practically no sound-absorbing qualities. In this condition, the SP2 loudspeaker lead should first be tried on terminal B of applique and, if self-switching occurs, be moved to terminal C of the applique.



*Avoid using terminal C unless false gain switching is objectionable.*

## 3.00 TEST CALL FOR 1A1 SPEAKERPHONE

When all connections have been made:

- Place a call to test desk.
- Adjust the loudspeaker volume to a moderately loud listening level.
- Have the test deskman repeat the sentence, "In what suburb does Joe live," several times.
- If installer detects choppiness in the sentence, particularly in the first b in suburb and the t in what, connect SP2 loudspeaker lead to the next terminal that adds resistance (eg, terminal 14 to A and so on).
- Repeat this test at a high-listening level by turning the volume control clockwise.
- When there is no choppiness, the room adjustment is satisfactory.

**4.00 MAINTENANCE**

*Always remove power cord from the power outlet when working on control unit.*

**4.01** For maintenance on control units, proceed as follows:

- Check that power cord is connected to commercial power outlet.
- Press ON button. If pilot light fails to light, test power supply outlet with a neon-lamp voltage tester or equivalent.
- When commercial power is entering the control unit, and amplification seems to be deficient in either receiver or transmitter circuit or both, replace the amplifier unit with one known to be serviceable.
- If changing the amplifier clears the trouble, interchange the tubes, one at a time, from good amplifier to defective amplifier. Orient them so that the red mark on the tube base faces both the top of the card and the dot near the top end of the socket. If this does not clear the trouble, it can be assumed that trouble is internal in the amplifier. Leave serviceable amplifier in place and return defective amplifier according to local instructions.

**Note:** Do not change amplifier gain controls.

- If trouble still persists, replace complete control unit.

**4.02** Fluorescent lights, transformers, motors, or other similar apparatus may cause an inductive noise in the loudspeaker. Grounding the amplifier chassis may eliminate this noise. In certain areas, local ordinances may not permit grounding. Be guided by local instructions.

- The ground wire should be run separately from a mounting screw inside control unit to a radiator or an electrical conduit system.
- If this does not eliminate noise, it can be assumed that the ground is poor, and the ground wire should be run to a cold water pipe instead.



*Where the regular transmitter (U1-type receiver) is troubled by inductive interference from power source, the trouble may be remedied by using a 658A transmitter (HC3 receiver with a cold-rolled steel shield). These transmitters are completely interchangeable but used only on a maintenance basis.*

**4.03** After working on equipment, test the complete system. For 1A1 speakerphone test call, refer to 3.00.

**5.00 RADIO INTERFERENCE**

Where radio interference is experienced in the telephone set, a suppressor may be installed. See C Section entitled Radio Signal Suppression in Telephone Sets.