2A FARM INTERPHONE

INSTALLATION AND MAINTENANCE

1.00 GENERAL

1.01 This section is reissued to:

- Add information on maintenance of the 2A farm interphone system.
- Include information on the E1B ringer.
- Add information on colors.
- Add information for installations where more than one monitor set is required.

1.02 Due to extensive changes marginal arrows have been omitted.

1.03 This section covers the installation and maintenance of the 2A farm interphone system. Since the telephone sets, wire, and cable are standard items, only additional information will be covered in this section.

1.04 A typical arrangement of the 2A farm interphone system is shown in Fig. 1.

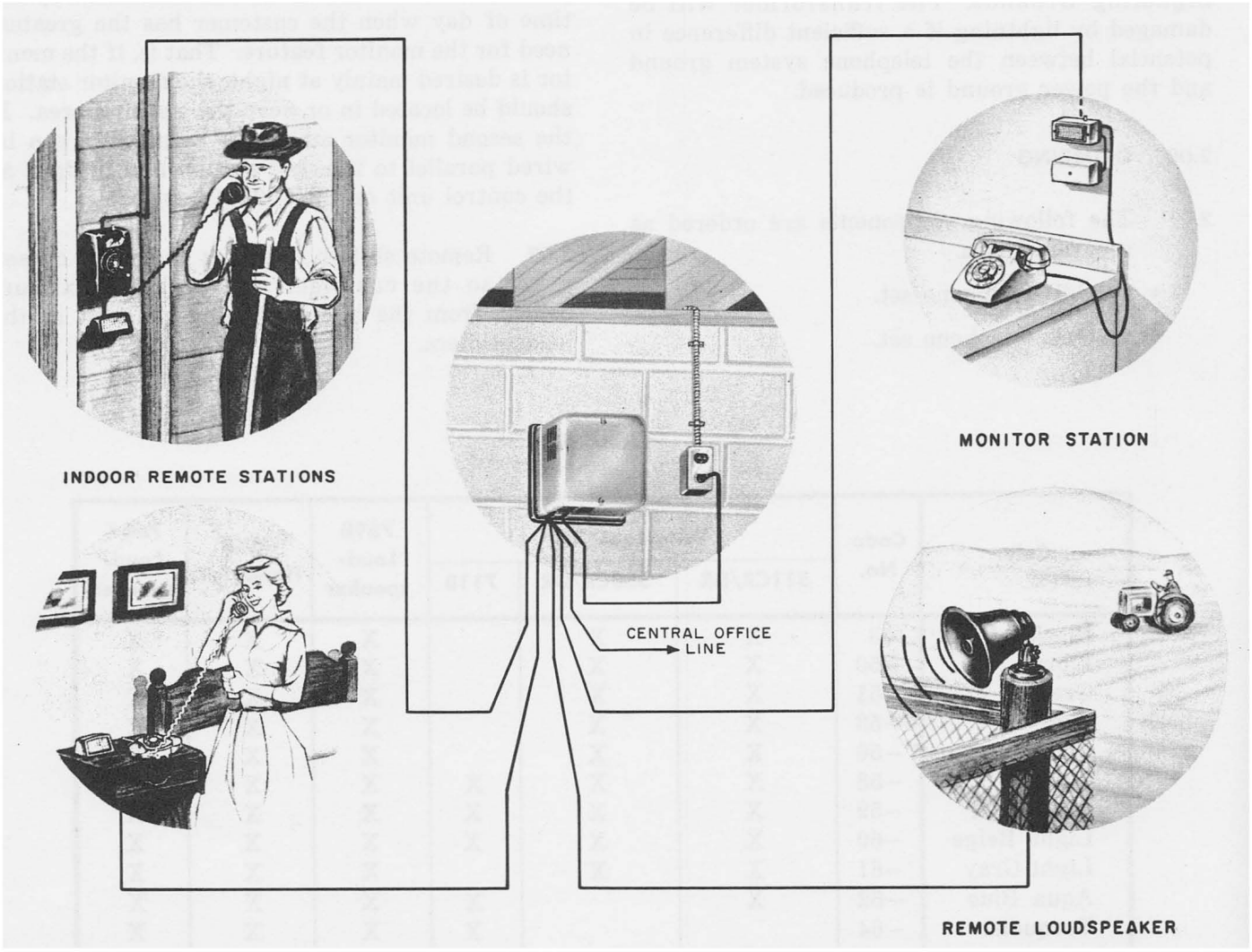

Fig. 1 — 2A Farm Interphone

1.05 Although other stations may be connected to the central office line, stations which are connected to the farm interphone system should not exceed the following limits:

- Any combination up to a total of six loudspeakers, no more than three of which are outdoor speakers, and no more than two, monitor speakers.
- A telephone set should normally be associated with each speaker except the outdoor type.
- Loop resistance from the control unit to the speakers should not exceed 100 ohms.

1.06 When installing this system make certain that station protector or signaling ground conductor is connected to best ground available as outlined in C Section entitled Protector and Signaling Grounds. The transformer will be damaged by lightning if a sufficient difference in potential between the telephone system ground and the power ground is produced.

2.00 ORDERING

2.01 The following components are ordered as separate items.

- 511C/D telephone set.
- 558C/D telephone set.
- 711B telephone set.
- G5KR hand set—one per telephone set.
- 759B loudspeaker.
- 760A loudspeaker.
- KS-16846, List 1 loudspeaker.
- 54A control unit—one per system.
- E1B ringer—one per system.

2.02 The components are available in colors as listed in Table A.

3.00 LOCATION AND MOUNTING

3.01 The monitor station is the major location in the system. Therefore, this station should be located in an area that is usually occupied. This location may also be influenced by the time of day when the customer has the greatest need for the monitor feature. That is, if the monitor is desired mainly at night, the monitor station should be located in or near the sleeping area. If the second monitor station is required it can be wired parallel to the first station and bridged at the control unit or the 759B loudspeaker.

3.02 Remote station locations should be chosen so the customer can obtain maximum benefit from the telephone usage as well as the loudspeakers.

TABLE A

Color	Code No.	Telephone Set			759B Loud-speaker	G5KR Hand Set	760A Loud-speaker
		511CR/DR	558CR/DR	711B			
Black	−3	X	X		X	X	X
Ivory	−50	X	X		X	X	X
Green	−51	X	X		X	X	X
Red	−53	X	X		X	X	X
Yellow	−56	X	X		X	X	X
White	−58	X	X	X	X	X	X
Rose Pink	−59	X	X	X	X	X	X
Light Beige	−60	X	X	X	X	X	X
Light Gray	−61	X	X		X	X	X
Aqua Blue	−62	X		X	X	X	X
Turquoise	−64			X	X	X	X

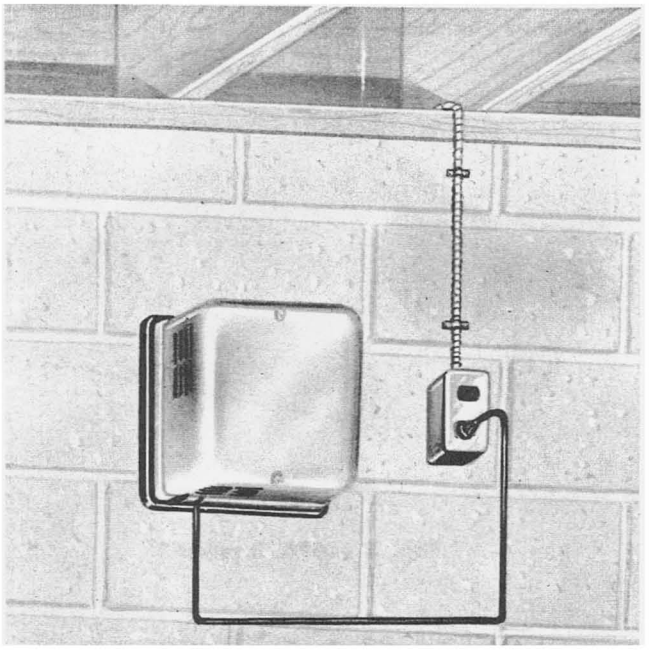

Fig. 2 — 54A Control Unit

3.03 The 54A control unit is mounted vertically in a manner similar to 105 apparatus boxes, etc (see Fig. 2). Care should be exercised to avoid a location that is subject to dust, extremes of temperature or humidity, or abuse. This unit will normally be installed in the vicinity of the monitor station. The ac power outlet supplying power to the control unit should be on a circuit that is ***NOT*** controlled by a switch. The ac cord is 6 feet long. Make all terminations in a proper manner using the screw-type terminals. Close off unused portion of cable entrance openings by breaking plastic cap P-12E990 on indented marks, with long nose pliers, and then snapping into position.

3.04 The 759B loudspeaker (Fig. 3) may be mounted vertically or horizontally and does not require a backboard. Four mounting holes are provided in the metal base. The base is also drilled for mounting on a 63A bracket or a standard electric outlet box by using a 146A adapter assembly. The cord and cable enter through two holes provided in the base or through the knockouts at the end of the base. The 12-terminal connecting block serves as a bridging point between the cable from the 54A control unit and the telephone set cord or cable. A hook slot is provided in the connecting block to anchor the set cord. The loudspeaker is an integral part of the station location. It should be installed as near as practicable to the telephone set. The volume control knob should be readily accessible. When there are two monitor stations, the SA lead shall be connected and run to only one of the 759B loudspeakers.

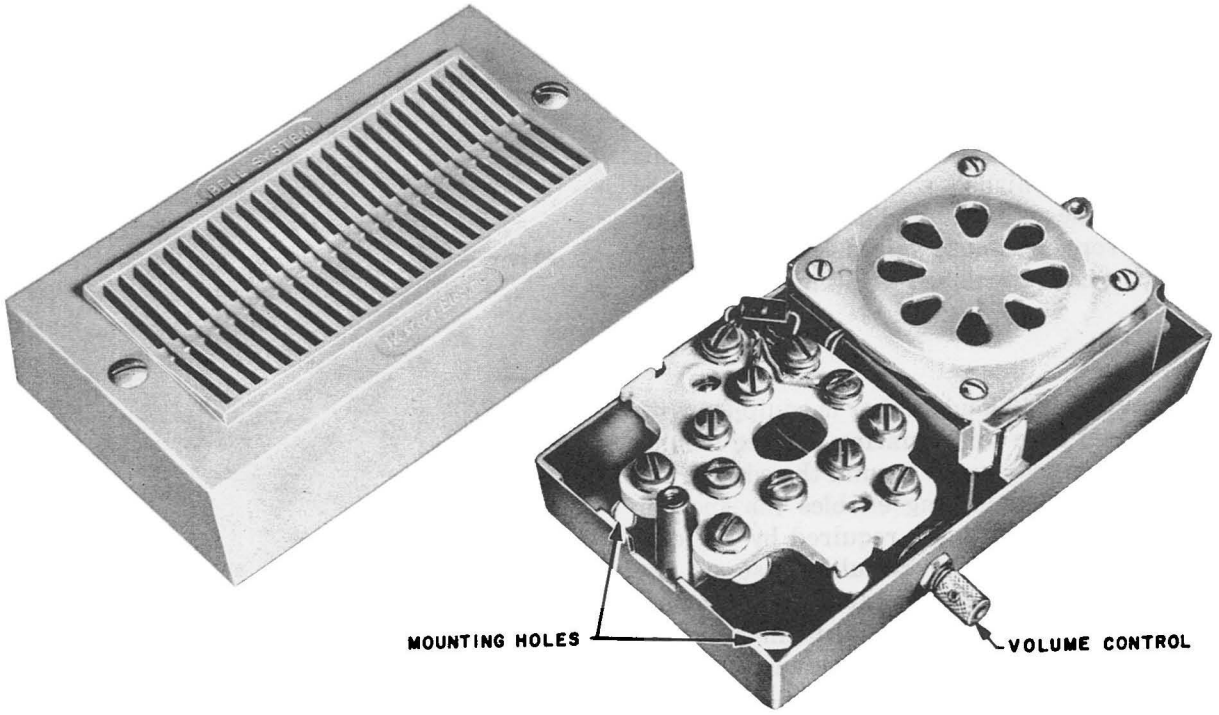

Fig. 3 — 759B Loudspeaker

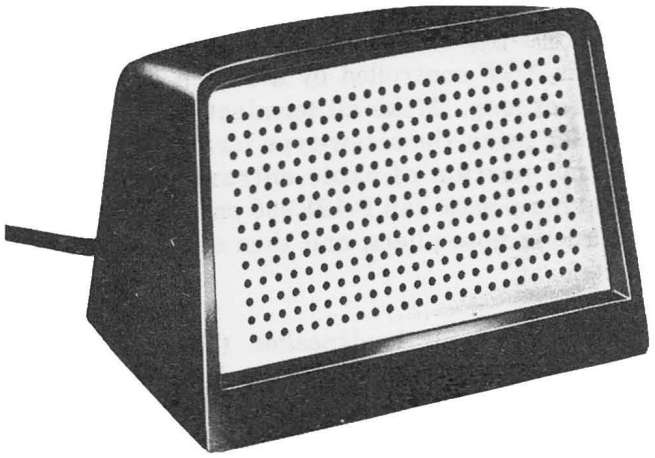

Fig. 4 — 760A Loudspeaker

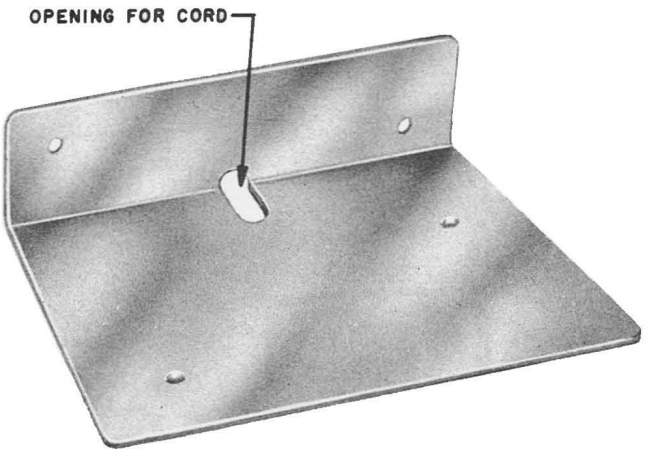

Fig. 5 — 69A Bracket

3.05 The 760A loudspeaker (Fig. 4) may be installed in either of two ways. As shipped from the factory, it is equipped with a 5-½ foot cord and a base pad so that it may be placed on a table, counter top, shelf, etc. The cord is connected to the same connecting block as the associated telephone set cord. When the associated telephone is a wall type, the cord from the loudspeaker is terminated in the wall set. When a wall mounting is required, a 69A bracket (Fig. 5) may be attached to the wall, or other vertical surface, and the 760A loudspeaker fastened to it by means of two screws furnished with each bracket (see Fig. 6). On some wall-mounted installations it may be more appropriate to use paired JKT inside wire instead of the cord furnished with the loudspeaker.

3.06 The KS-16846 loudspeaker is equipped with a swivel base for mounting. Three mounting holes are spaced evenly around the edge of the base. This swivel mounting enables the speaker to be mounted at any angle required by the customer. By removing the circular base of the mounting, the speaker can be attached to the end of a 1/2-inch pipe. No additional fittings are required. The speaker effectively covers an area that extends 60 degrees on each side of the center line of the speaker. Therefore it should be aimed toward the activity area where coverage is desired.

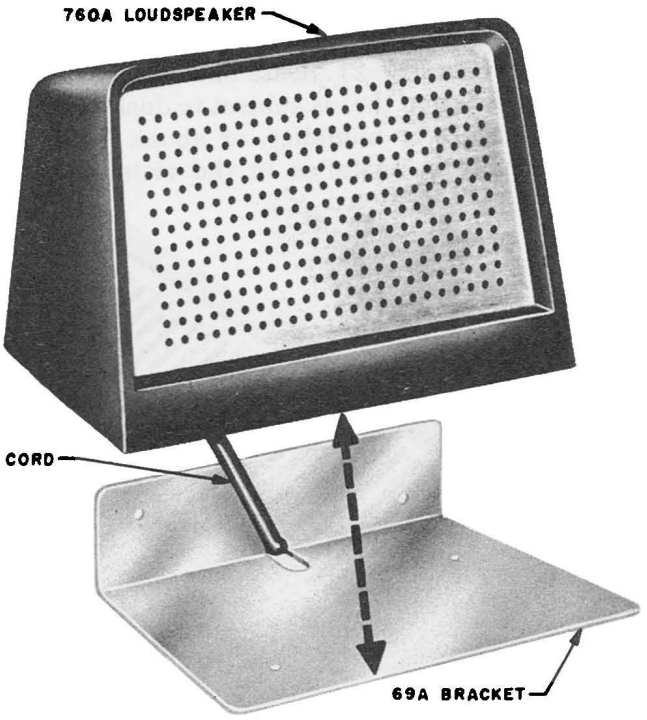

Fig. 6 — 760A Loudspeaker with 69A Bracket

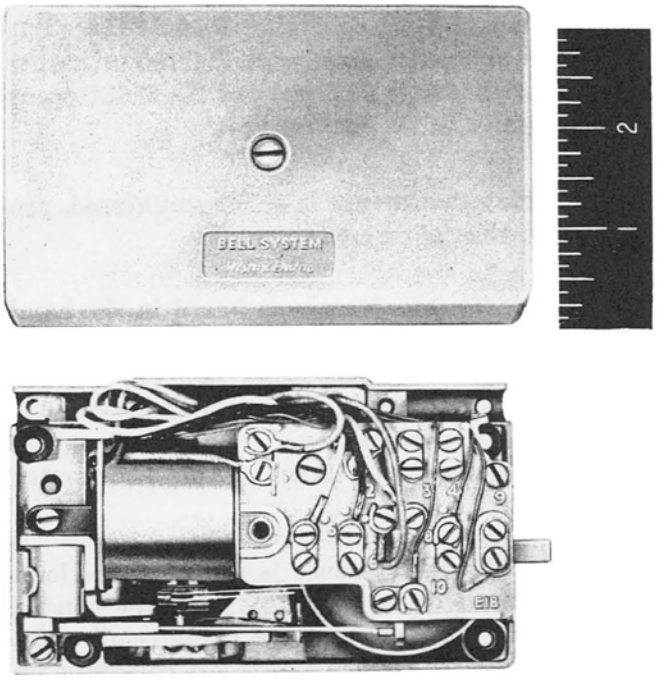

Fig. 7 — E1B Ringer

3.07 The E1B ringer is used at the monitor station. It is used external to the telephone set, and has the following functions.

- It presents the only ringing bridge to the central office line. (Other ringers may be added, not to exceed the limits of the line, if condition warrants.)
- When actuated by ringing on central office line, the clapper of the bell actuates contacts which cause the amplifier to transmit an interrupted tone (called tone ringing) over all loudspeakers, except that which is used as monitor speaker.
- The normal volume control associated with the ringer functions so that when in the high volume position, the tone ringing feature is disabled and only the monitor station receives an audible signal on an incoming call from the central office line; conversely, when in any lower position, the tone ringing feature is in operation at all stations equipped with loudspeakers.
- A strap can be placed between J1 and J2 terminals in the control unit, and a tone signal will be reproduced in all loudspeakers on incoming calls from the central office line.

It is recommended that a quad JKT inside wire be run from the E1B ringer to the 54A control unit, or through the 687B subscriber set if required. In other sections bridging with connectors is shown in the 759B loudspeaker, but there is not room for these connections in this installation so the above procedure is suggested.

3.08 The E1B ringer connections are shown in the connections and modifications section of this practice.

4.00 SYSTEM ADJUSTMENT

There is no provision for any field adjustment to be made on the 2A farm interphone.

5.00 TESTS AFTER COMPLETING INSTALLATION

5.01 In addition to the regular tests prescribed for the installation of standard telephone sets, each station in the system should be tested for proper operation of the following:

- Central office line pickup.
- Central office line hold.
- Tone signaling on receiving central office calls.
- Intercommunicating line pickup.
- Push to talk (user should be heard at all other locations).
- Quieting relay operation (all ambient noises picked up by loudspeakers should be removed from the line). After this test, replace all handsets on hook to restore the circuit to normal condition.
- Voice calling to monitor station via loudspeaker pickup.

5.02 All loudspeaker-only locations should be tested for operation as a loudspeaker when any station is using the push-to-talk feature. A voice call to the monitor station will test the microphone pickup feature of the loudspeaker.

6.00 MAINTENANCE

6.01 Some troubles and checks for possible causes are as follows:

- Crosstalk between central office line and intercom line: Make sure all pairs in cables are used straight as shown on schematics.
- Weak or noisy output on all speakers: If caused by defective amplifier, replace 54A control unit.
- Individual speakers not operating properly: If inside wire tests clear, replace loudspeaker.
- System out of order: Check the main ac supply, and the 3/4-amp Littelfuse supplying dc to the amplifier. If these are functioning properly, and all telephone sets, speakers, and external wiring are in working condition, replace 54A control unit.
- Any other trouble proved to be in the 54A control unit: Replace unit.

6.02 In case of radio frequency interference proceed as follows:

- If a series one amplifier is used: Place 0.05 mf capacitor, voltage rating 150 or higher, across terminals 3 and 4 of the 2563C transformer in the control unit.

When radio interference is still encountered, proceed with the following:

- If radio interference is heard in the handset, when it is used for monitoring, with neither the push-to-talk nor the quieting relays actuated: Connect an additional 0.05 mf capacitor between terminals C and S1 on the terminal strip of the 54A control unit.
- If radio interference is heard on the loudspeakers or on a handset when the handset is off the hook and the push-to-talk relay is actuated: Place a 0.05 mf capacitor between terminals 2R and 2T on the terminal strip in the 54A control unit.
- If radio interference is heard on the handset after the quieting relay has been actuated: Connect one or two 0.05 mf capacitors or a 0.1 mf capacitor between terminals J1 and 2T on the terminal strip in the 54A control unit.

Suitable capacitors for the above operations are: KS-13814, List 1 (0.05 mf) and KS-13814, List 4 (0.1 mf), or 542L (0.1 mf).