INTERPHONE SYSTEM—1A HOME
INSTALLATION AND MAINTENANCE

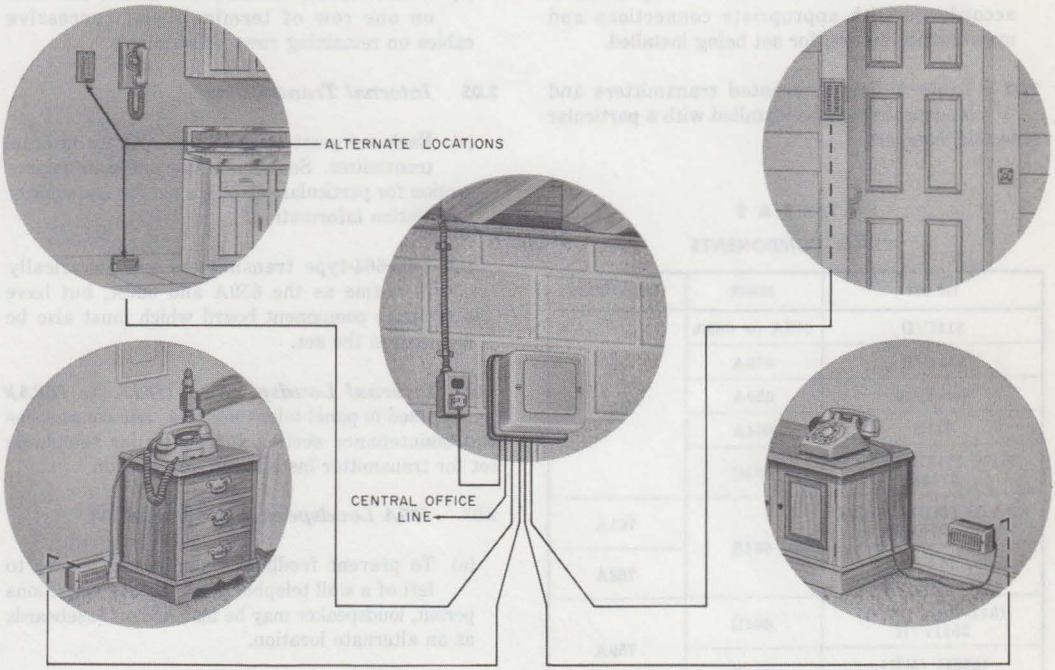

Fig. 1—1A Home Interphone Installation

1. GENERAL

1.01 This section is reissued to:

- Add 1013A test set and show 1011B test set MD
- Revise Table A to include additional telephone sets

Changes or additions in the body of tables is indicated by shaded areas.

2. INSTALLATION

Planning

2.01 When planning 1A home interphone installations, consider the following:

(a) Avoid placing apparatus with plastic covers or parts in direct sunlight or in locations

where ambient temperature may exceed 140 degress F.

(b) The transformer must operate from a power outlet not controlled by a switch.

(c) Use connecting blocks, inside wiring cable, and station wire to connect components in accordance with appropriate connections and maintenance section for set being installed.

2.02 Table A lists associated transmitters and loudspeakers to be installed with a particular type telephone set.

TABLE A

SYSTEM COMPONENTS

TEL SET	TRMTR	LOUDSPEAKER
511C/D	678A or 660A	759A
511F/H	678A	
558-Type	659A	
711B	664A	
712B, 1712B (MD), 2712B	664C	
751A/D (MD), 751C/D 1751-, 2751-Type	664B	761A
752-, 754-, 1752-, 2752-, 2754-Type		762A
1511-Type (MD), 2511F/H	664E	759A
1558D (MD), 2558D	664D	

Unpacking

2.03 Use care in unpacking system components to prevent damage to plastic covers and delicate components.

2.04 ***51A Control Unit:***

(a) Loosen two screws and remove cover.

(b) Mount upright on a vertical surface in the same manner as a 105-type apparatus box. See appropriate section in Division 463 for installation procedures for this box.

(c) Make connections as shown in Fig. 6 and appropriate connections and maintenance section and replace cover.

(d) To facilitate maintenance, terminate one cable on one row of terminals and successive cables on remaining rows of terminals.

2.05 ***Internal Transmitters***

(a) Each set must be equipped with an internal transmitter. See connections and maintenance section for particular telephone set for transmitter installation information.

(b) The 664-type transmitters are electrically the same as the 659A and 660A, but have a separate component board which must also be mounted in the set.

2.06 ***Internal Loudspeakers (761A or 762A):*** Used in panel telephone sets. See connections and maintenance section for particular telephone set for transmitter installation information.

2.07 ***759A Loudspeaker*** (room speaker):

(a) To prevent feedback, install loudspeaker to left of a wall telephone set. Where conditions permit, loudspeaker may be installed on baseboards as an alternate location.

(b) Four mounting holes are provided in the base for securing to the mounting surface (Fig. 2). Cord and cable enter through two holes in base or through the end after removing the knockouts.

(c) Drilled to mount on a 63A bracket or, by using a 146A or B adapter assembly, may be mounted on a standard electrical outlet box. A backboard is not required for mounting.

(d) Contains a 12-terminal connecting block which can serve as a junction for the telephone set mounting cord and a 6-pair cable from the 51A control unit. A cord hook is provided on the connecting block to anchor the set cord.

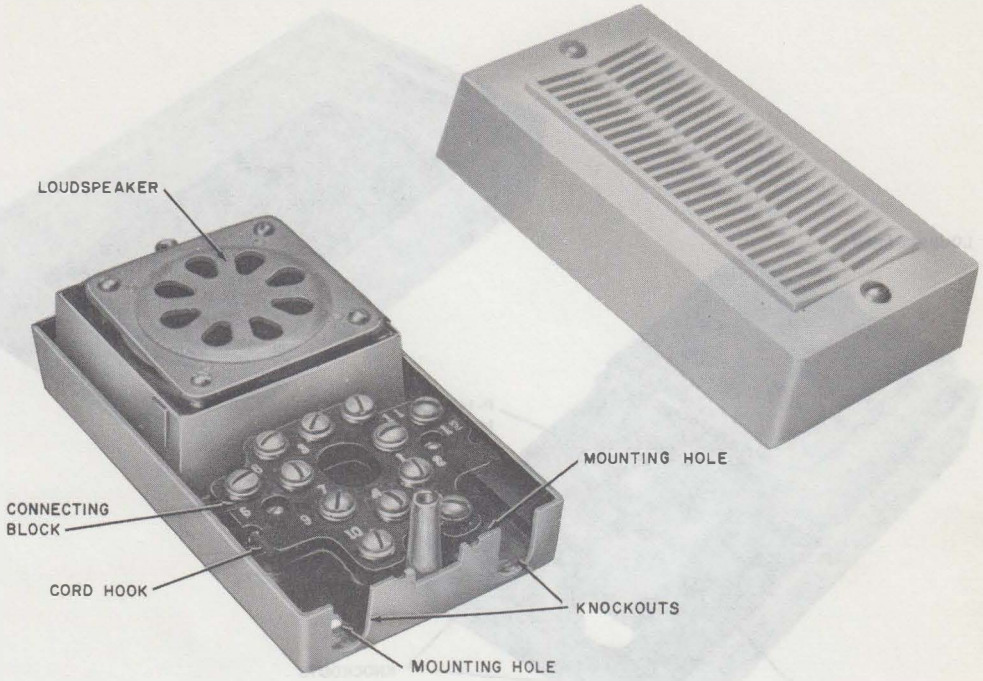

Fig. 2—759A Loudspeaker

2.08 ***730A Receiver*** (door answering unit):

(a) Mounted on door casing or outside wall at a convenient height for microphone pickup and out of reach of children. May also be mounted overhead just above the door.

(b) Four mounting holes are provided in the base (Fig. 3). Wiring may enter through two holes in base or through the end after removing one of the knockouts. A backboard is not required for mounting.

(c) Can be mounted on a standard electrical outlet box with a 146A or B adapter which is drilled, tapped, and provided with screws.

(d) Two cable pairs, as in D-Station Wire, are run directly to the 730A receiver from the 51A control unit. One pair connects to screw terminals on the P-14A464 receiver unit and the other pair connects to the 2-terminal connecting block.

(e) The 730A receiver is weatherproof. No additional weather protection is required.

2.09 ***2012A or KS-16184 Transformer:*** Plugs directly into a standard 105- to 130-volt 60Hz convenience outlet. The 6- to 8-volt 60Hz power for the 51A control unit appears on the two screw terminals.

2.10 ***Tests and Adjustments:*** Microphone and loudspeaker amplifier gain controls should be adjusted to satisfy customer requirements. When properly adjusted there should be no "sing" or "squeal" when any handset is removed.

(1) Place all station handsets in the on-hook position.

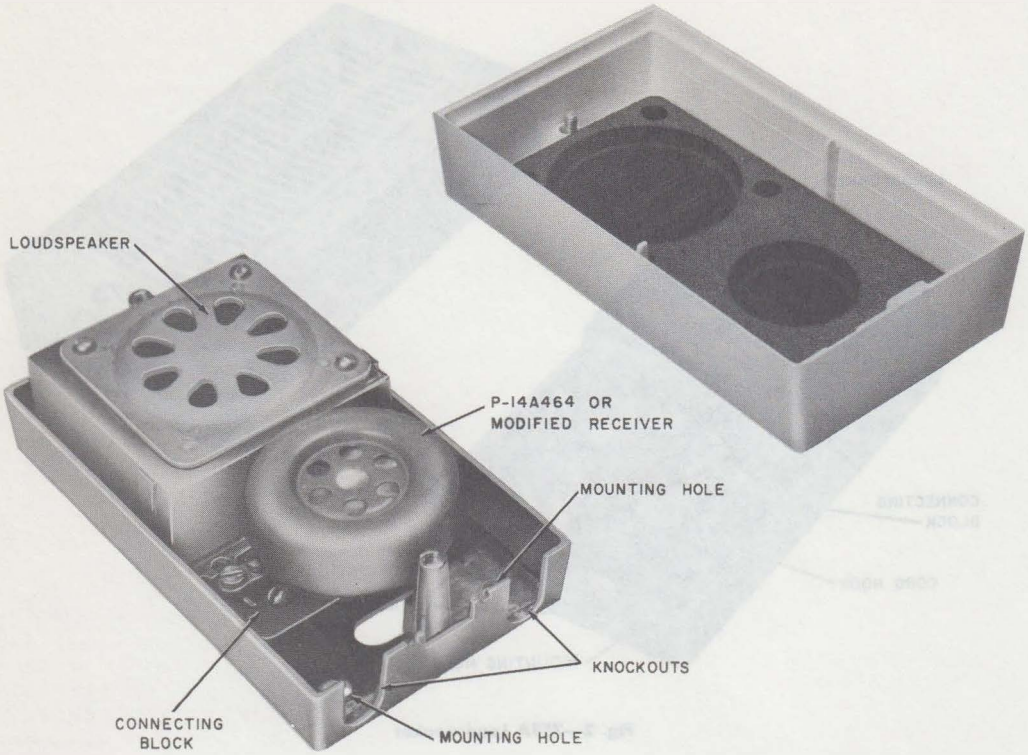

Fig. 3—730A Receiver

(2) Turn microphone and loudspeaker gain controls (Fig. 4) fully counterclockwise (minimum gain).

(3) Connect ◗1013A or 1011B (MD)◖ test set with switch in TALK position to terminals 2R and 2T on the 51A control unit.

(4) Turn loudspeaker gain control clockwise 1/4 turn.

(5) Turn microphone gain control slowly clockwise until feedback occurs in the test set and then counterclockwise until feedback just stops.

(6) Make final check of interphone and door answering feature as follows:

- Operate line key at station being tested to interphone line.
- Remove handset.
- Test microphone sensitivity and loudspeaker volume at all locations in the house.
- Momentarily depress door answering button.
- Test each door answering unit for satisfactory microphone sensitivity and loudspeaker volume.

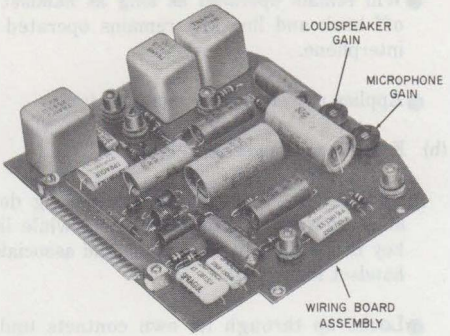

Fig. 4—Amplifier Gain Controls

- When possible, have customer check operation to ensure satisfactory adjustment.

(7) If gain is not at a satisfactory level after performing steps (1) through (6), it may be increased somewhat by the following method:

- Turn microphone and loudspeaker gain controls fully counterclockwise.
- Lift handset from one of the interphone stations. Be sure line key is operated to pick up the interphone line.
- Connect ◗1013A or 1011B (MD)◖ test set with switch in MONITOR position to terminals 2R and 2T on the 51A control unit.
- Proceed with adjustments as in steps (4) and (5).
- Remove ◗1013A or 1011B (MD)◖ test set and restore station handset to on-hook position.
- Check as in step (6).

3. MAINTENANCE

Remove power from 51A control unit before attempting any maintenance to the interphone components.

Cleaning

3.01 When cleaning the 51A control unit housings, use a water-dampened KS-2423 cloth or equivalent. Do not allow excess water to enter grills of loudspeakers.

3.02 Do not use scouring powders or cleansers. If cleaning does not produce the desired appearance of components, replace components.

Inspecting

3.02 Housings and covers should not be discolored or warped. Line keys should operate freely without binding or sticking. Check mounting cords and cables for damaged insulation and place so as not to present a hazard to customer or equipment.

Troubleshooting

3.03 Table B provides a list of troubles, causes, tests, and corrections commonly encountered in the 1A home interphone system.

Caution: Tests on 51A control unit must be confined to the terminal board. Use the ◗1013A or 1011B (MD)◖ or equivalent, test set. Refer to section on procedures to be followed when working on circuits containing diodes, varistors or transistors.

Replaceable Apparatus

3.04 To replace a defective 51A control unit (P-11E655 wiring board assembly) remove four mounting screws and pull board away from jack connector (Fig. 5).

3.05 The 730A receiver, P-14A464 receiver unit may be replaced with a U1 receiver unit which has had the 44A varistor removed.

Radio Interference

3.06 Radio interference encountered may be suppressed in the following manner:

(1) P-11E655 printed wiring boards, series 1 and 2, dated prior to May 1960 can be corrected by connecting a KS-13814L1 capacitor (0.1 mf, 150 volt) between terminals M1 and M2. Connect a second capacitor between M3 and M4. The series number is stamped at the

top of the board after the P-number near the transformers and the date is stamped at the bottom of the board.

(2) Boards dated May 1960 or later, in series other than 1 and 2, have had the radio interference controlled by a manufacturing change. However, if radio interference is encountered, determine the lead that is acting as the antenna and then connect a 1542A inductor as described in the section on radio signal suppression.

Relay Operation

3.07 For test purpose; the relays in the 51A control unit (Fig. 6) operate as follows:

(a) K1A (supervisory relay)

- Operates when the line key on any telephone set is operated to interphone and associated handset is off-hook.
- Will remain operated as long as handset is off hook and line key remains operated to interphone.
- Applies power to interphone system.

(b) K1B (door answering relay)

- Operates by momentarily depressing door answering key on telephone sets while line key is operated to interphone and associated handset is off hook.
- Locks up through its own contacts under control of K1A relay.
- Transfers amplifiers from loudspeakers and telephone set microphones to door answering units.
- Releases only if K1A relay is momentarily released by depressing line switch or operating line key momentarily off the interphone line.

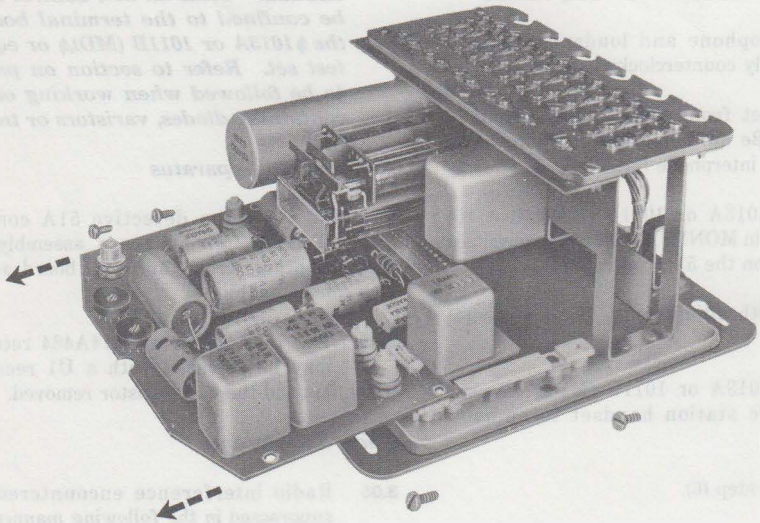

Fig. 5—Wiring Board Assembly Removal

TABLE B

TROUBLE LOCATION INFORMATION

TROUBLE INDICATION	TROUBLE CAUSE	TEST FOR	TEST EQUIPMENT	TROUBLE CORRECTION
Interphone dead	AC power failure	105 to 130V ac at outlet	Trouble lamp	Refer to customer
	2012A or KS-16184 transformer	6 to 8V ac at terminals P1-P2 (51A)	Voltmeter ac scale	Replace transformer or wire from transformer
	Power supply or amplifiers	Interphone talk battery	1013A or 1011B (MD) test set on terminals 2T-2R (51A)	Replace amplifier board
	K1A relay			Clean relay contacts or replace 51A control unit
Microphones and/or loudspeakers dead	K1B relay			Clean relay contacts or replace 51A control unit
	Amplifier board			Replace amplifier board or 51A control unit
Door units dead, interphone dead				Clean relay contacts or replace 51A control unit
Howling or feedback	Excessive amplifier gain			Adjust gain controls per 2.10, Tests and Adjustments
	Improper component placement			Provide adequate transmitter-loudspeaker separation

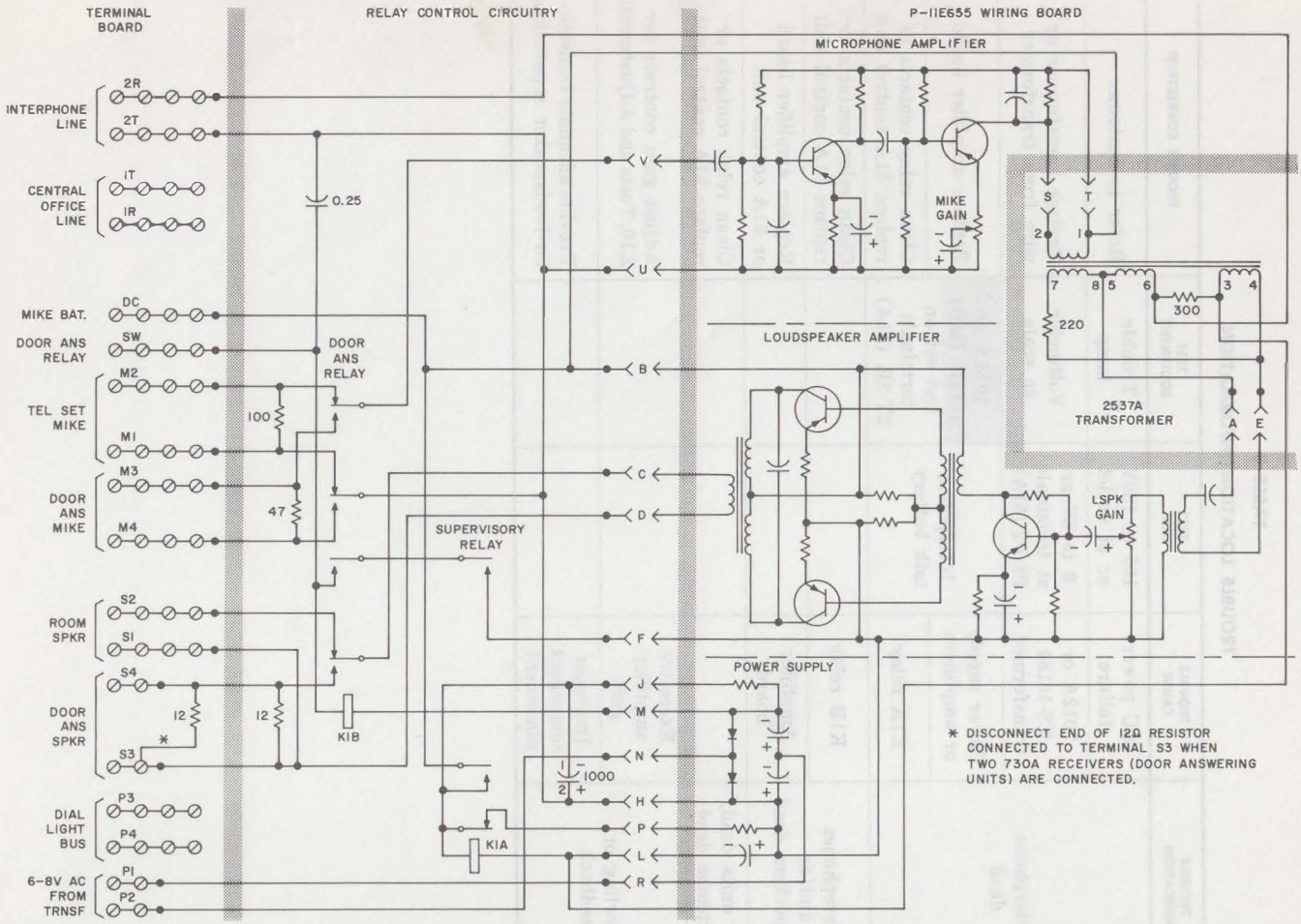

Fig. 6—51A Control Unit