

## AUXILIARY SIGNALS

### INSTALLATION AND MAINTENANCE

#### 1. GENERAL

**1.03** All KS-16301 series signaling devices not intended for use with 115-volt, ac power will be provided with two warning tags, one on the signal unit frame and one on the signal unit power cord near the plug. The tags will specify the power source requirements. For example:

**WARNING: FOR USE WITH 48 VOLTS  
DC ONLY**

#### 2. PLANNING

##### (a) *Safety Hazards*

- Place signal in location that is not hazardous to maintenance personnel who may have to work on it; avoid locations such as stairways, or near moving machinery.



*Under no circumstances should the cord provided for commercial power be passed through a hole in a wall or be fastened to a wall.*

##### (b) *Typical Installation Assembly*

- A typical signal (Fig. 1) includes a backbox, a signal premounted to grilled cover, and a control relay.

##### (c) *Location*

- Place signal for best sound distribution.

- Locate signal where it will not be damaged or made inaccessible to repair personnel.

##### (d) *Customer Provided Wiring*

- Prior to installation, make a definite agreement with the customer covering the provision of any necessary power wiring.

- Locate power outlet within power cord reach of backbox.

##### (e) *Limitations*

- Any telephone station having auxiliary signals (except a PBX station) must be equipped with a ringer connected to the line at all times.

##### (f) *Type of Installation*

- The type of the backbox determines the type of installation (see Table A).

#### 3. INSTALLATION

##### (a) *Weatherproof Power Outlet KS-16301 (Fig. 2)*

- Provided to customer as required.

##### (b) *Backbox*

- Mount on a vertical surface.
- Use two slotted holes and one regular hole for attaching backbox to surface.
- Use rustproof fasteners.
- Install backbox, List 9 or 11 so that the customer may have the commercial power connected (Fig. 3).
- Terminate 3-conductor cord as shown in Figure 4. ←

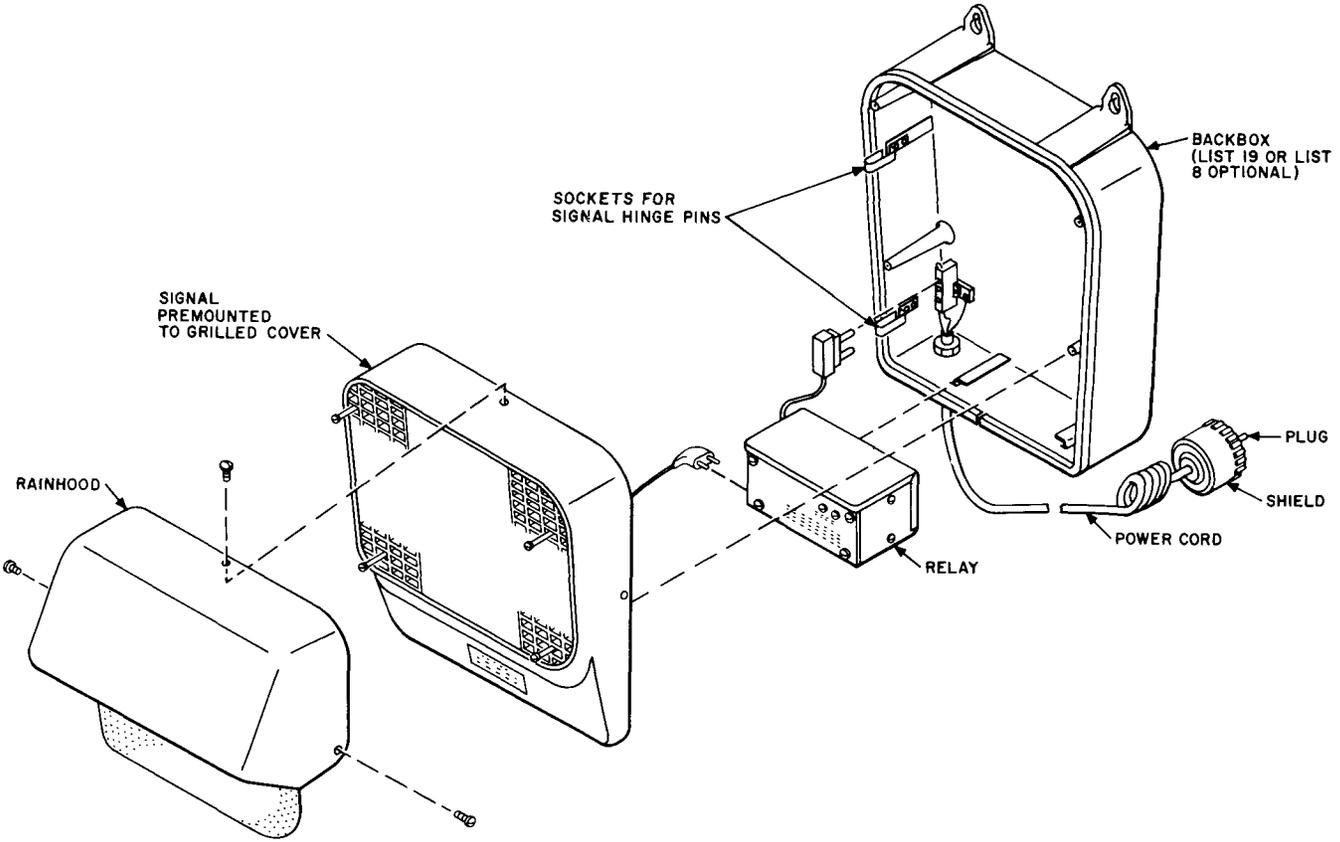


Fig. 1—Exploded View of Assembled Signal Using Relay

TABLE A

BACKBOX	TYPE OF INSTALLATION
L8	Indoor — Power Cord — Use With Relay
L9	Indoor — Conduit — Use Without Relay
L11	Outdoor — Conduit — Use Without Relay
L19	Outdoor — Power Cord — Use With Relay

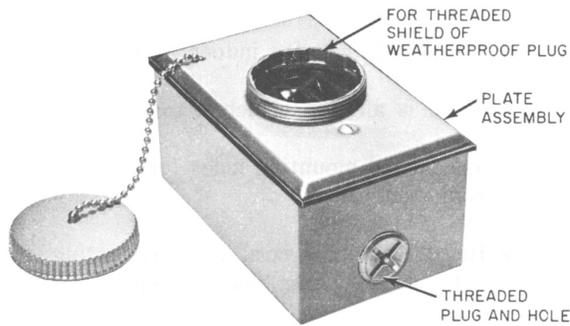


Fig. 2—Weatherproof Power Outlet KS-16301, List 18

- An entrance hole for the telephone wires is located in the bottom of each backbox (Fig. 5).
- Be sure that the gasket on the backbox is in place (Fig. 4).

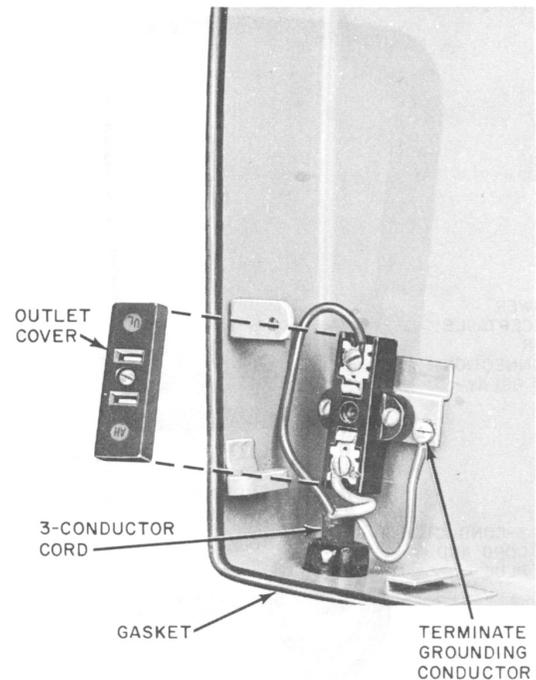


Fig. 4—Power Cord Termination

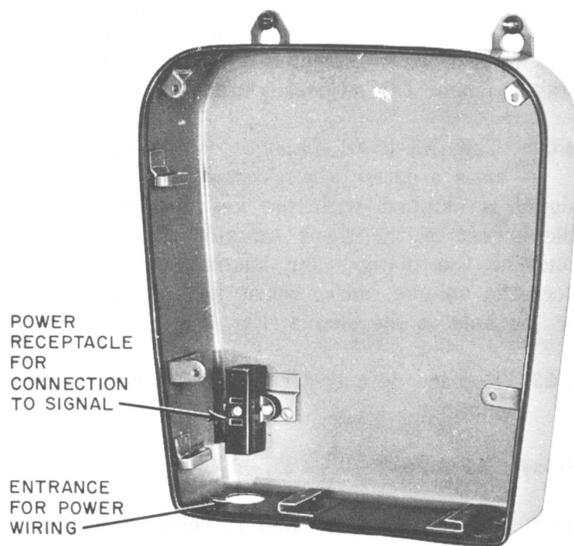


Fig. 3—Backbox, KS-16301, List 9

(c) *Control Relay, KS-16301 (Fig. 6)*

- Mount relay in the horizontal position on mounts provided in backbox (Fig. 1).
- Use a full cable pair for each signal circuit when signaling circuits and talking circuits are in the same cable.
- When no talking circuits are involved, low-voltage signal circuits may use half of a cable pair or inside wire.

(d) *Signals, KS-16301*

- Engage the two pins on front cover to form a hinge with the two sockets which emerge from backbox (Fig. 1).
- Fasten the signal to the backbox with four machine screws which are furnished (Fig. 1).

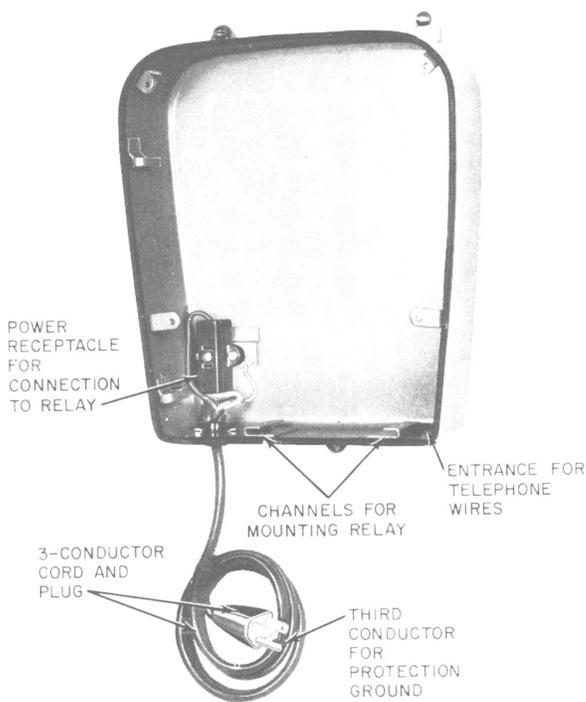


Fig. 5—Backbox, KS-16301, List 8

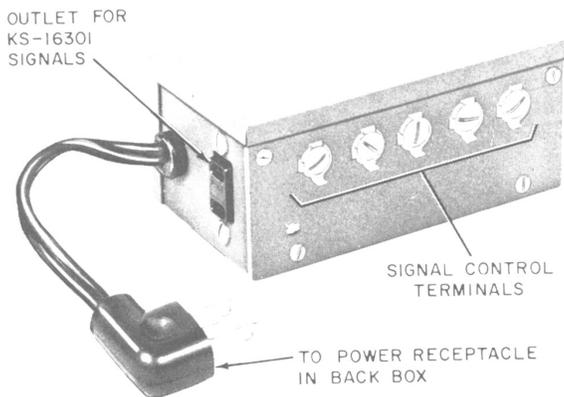


Fig. 6—Control Relay, KS-16301, List 15

(e) **Rainhood**

- For protection against the weather and insects.
- Attach with furnished screws to the signal unit (Fig. 1).

(f) **Signals, KS-8000 Series**

- The signals are for indoor locations.
- Signal is already attached to a backboard.
- Has slotted mounting holes for easy removal from backboard.
- Has 2-conductor cord for terminating on a 42-type connecting block or equivalent.

4. MAINTENANCE



*Before performing any work on equipment connected to commercial power, de-energize the power supply circuit. The customer shall arrange for power disconnection and reconnection on power circuits other than plug and outlet.*

Signals, KS-16301

4.01 The KS-16301, List 3 (vibrating bell) has a volume adjustment. On the Wheelock Signal Company-type, the adjustment is a hexagonal nut on the rear of the signal (Fig. 7). The Sperti-Faraday Company-type adjustment is on the back of the bell resonator. The direction of adjustment is stamped near the adjusting nut or screw.

4.02 The KS-16301, List 4 (single-stroke bell) uses a cotter key volume adjustment. The signal is shipped with the key inserted through the lowest of the three holes in the sleeve that contains the plunger for maximum volume. To decrease volume, move cotter key to intermediate or top hole in the sleeve (Fig. 8).

4.03 Replace defective signals with complete list number.

Relays, KS-16301

4.04 The Lists 15, 16, and 17 relays should meet the following requirements:

- The armature should not chatter when the relay is operated with the specified voltage.
- The armature should not bind or stick; gauge by feel.

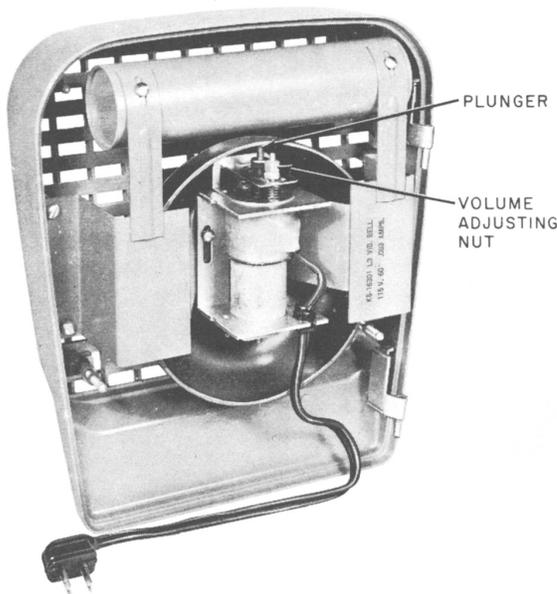


Fig. 7—KS-16301, List 3 Bell—Vibrating

- The armature airgap is adjusted on Wheelock Signal Company relays by moving a lever on the bottom of the relay.
- In Sperti-Faraday Company relay, the armature airgap is adjusted by rotating the armature airgap adjusting screw 1/2 turn to the desired setting.
- Minimum contact pressure is 6 grams, measured with relay operated either electrically or manually; use 70H gauge.
- The contacts should make almost simultaneously; gauge by eye.
- The armature and pole piece should be free of dirt or metal filings. Clean with 1/2-inch relay cleaning strips or equivalent.

4.05 List 15 relays used as a ringing bridge should not chatter on dial pulsing enough to cause the contacts to make. Check position of HI or LO sensitivity adjustment, ie, HI for long loop or LO for dial area. If relay meets all requirements but chatters on dial pulsing, replace in accordance with local instructions.

**KS-8229 Signal Chime**

4.06 The volume of the KS-8229 signal chime may be adjusted by a screw (Fig. 9). No other adjustment should be made. Should the plunger stick in its guide, remove plunger and clean with mineral spirits. If this does not correct operation, replace signal.

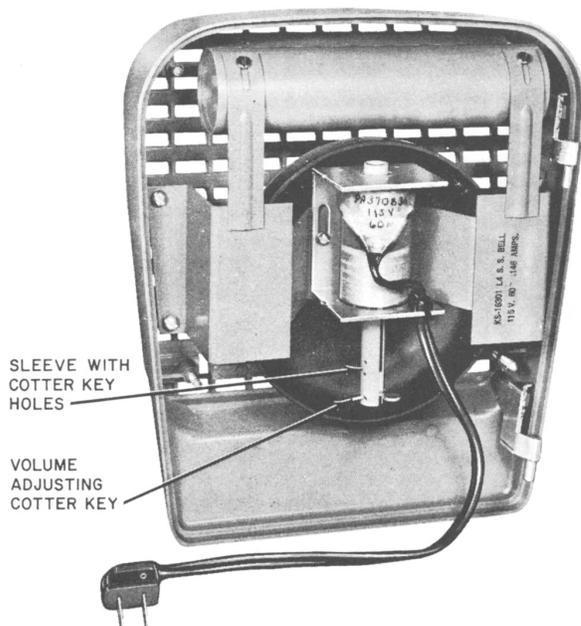


Fig. 8—KS-16301, List 4 Bell—Single Stroke

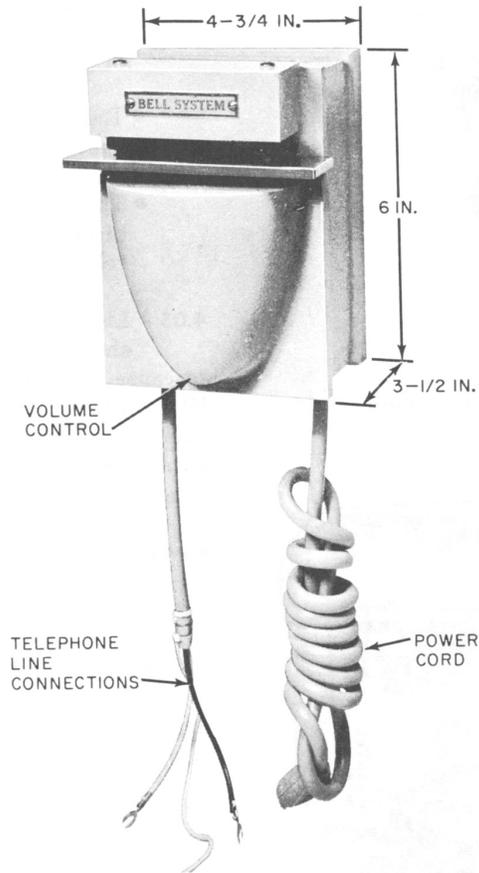


Fig. 9—KS-8229 Signal Chime