

## AUXILIARY SIGNALS

### INSTALLATION AND MAINTENANCE

#### 1.00 INTRODUCTION

1.01 This section covers installation and maintenance of various auxiliary signals which may be associated with telephone stations to meet special requirements for loud or distinctive tone signals.

1.02 Due to extensive changes marginal arrows have been omitted.

#### 2.00 GENERAL

2.01 Prior to installation, a definite agreement covering the provision of any necessary power wiring must be made with the customer.

2.02 Any telephone station using auxiliary signals (except a PBX extension) must be equipped with an audible signal (ringer or loud-ringing bell) connected to the line at all times to ensure a ringing signal, should commercial power fail.

2.03 Relays which operate on telephone ringing current have a 2-position armature airgap. Use the close setting on manual service or where loop resistance would cause the relay operation to be uncertain. Normally, use wide gap in dial areas.

2.04 Where a weatherproof power outlet box is involved, a ground-type outlet box, such as that supplied as a part of the KS-16301, List 10 signal, will be furnished by the telephone company. The outlet box should be installed by the customer's electrical contractor, who will be advised that this fixture shall be grounded.

#### 2.05 Planning the installation:

- Place signal where sound will be distributed as evenly as possible over the area to be served.
- Use surfaces where signal can be securely fastened.
- Locate where it will not be damaged or made inaccessible by objects piled near or against it.
- Do not place signal in location that might be hazardous to installers or repairmen (open stairs, moving machinery, etc).



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

#### 3.00 INSTALLATION

3.01 Equipment mounted outdoors should be securely mounted with rustproof fasteners such as galvanized screws or bolts.

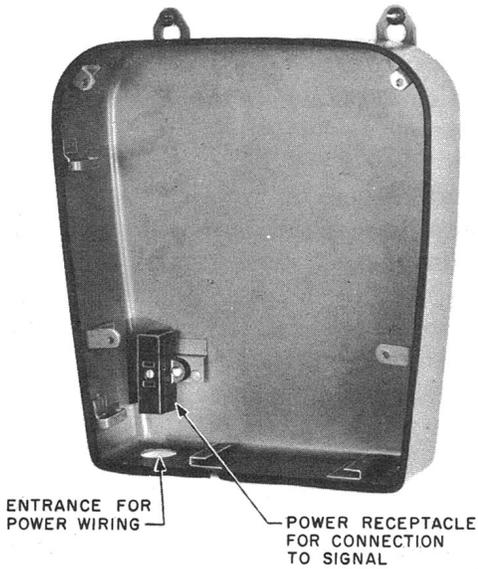
3.02 The armature on relays associated with auxiliary signals restores to normal (open contacts) by gravity. Always mount signal on a vertical surface.

3.03 To avoid inductive interference, 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.

**KS-16301 Signal**

**3.04** The use of backboards is not necessary for these types of signals. Each back box is equipped with two slotted holes and one regular hole for attaching signal to desired surface.

**3.05** Where a single potential signal is involved, the back box should be installed so that the customer may have the commercial power connected (see Fig. 1). Install signal after power connection has been made.

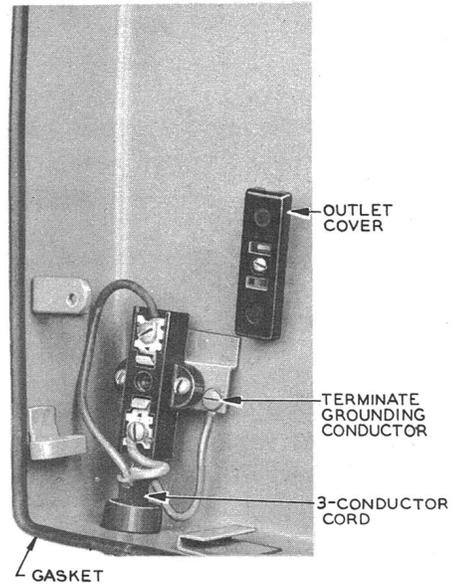


**Fig. 1 - KS-16301, List 9 Back Box, Indoor Single Potential**

**3.06** Power connection can be made on the power receptacle in the back box, by the customer's electrical contractor, by removing the screw located in the center of the receptacle cover (see Fig. 2). The terminals for terminating the power wiring are located directly under this cover.

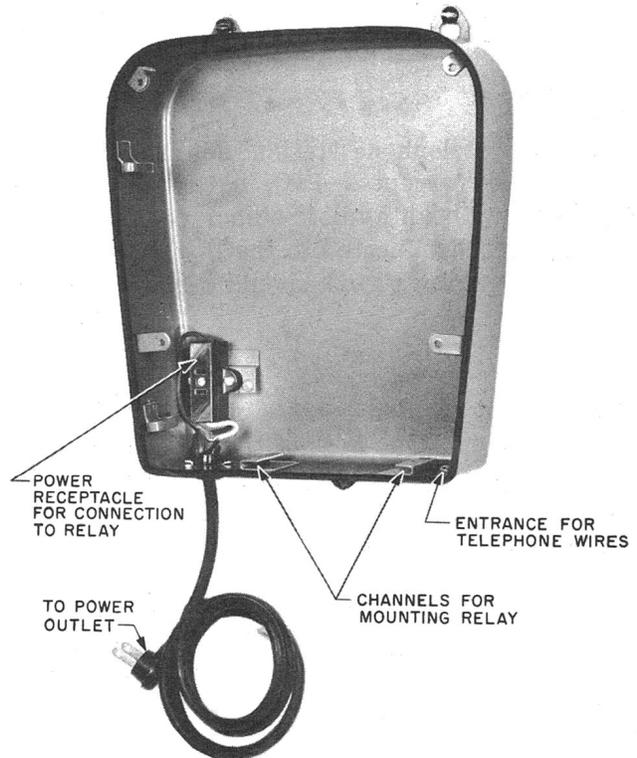
**3.07** When a 3-conductor cord is used on an outdoor weatherproof installation, the green wire, which is ground, should be terminated under the screw located to the right of the power receptacle (see Fig. 2).

**3.08** An entrance hole for the telephone wires (control voltages) is located in the base of each back box (see Fig. 3). For dual potential signals, the telephone wire is connected directly

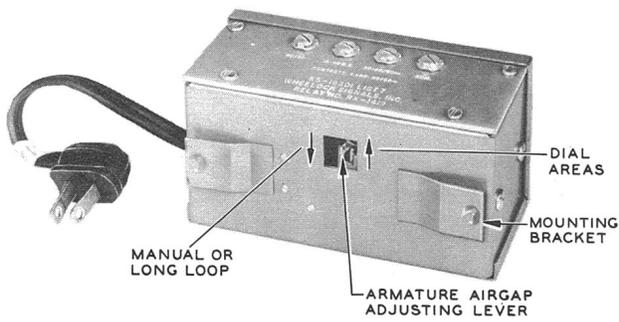


**Fig. 2 - Power Cord Termination**

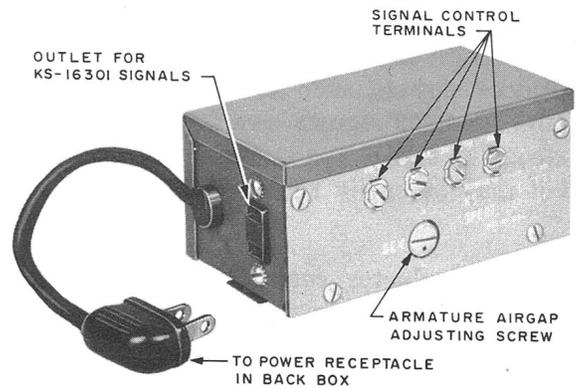
to the relay. The installer must connect to the proper terminals on the relay to operate the relay from the control voltage.



**Fig. 3 - KS-16301, List 8 Back Box, Indoor Dual Potential**



**Fig. 4 – KS-16301, List 7 Relay  
(Wheelock Signals Co)**



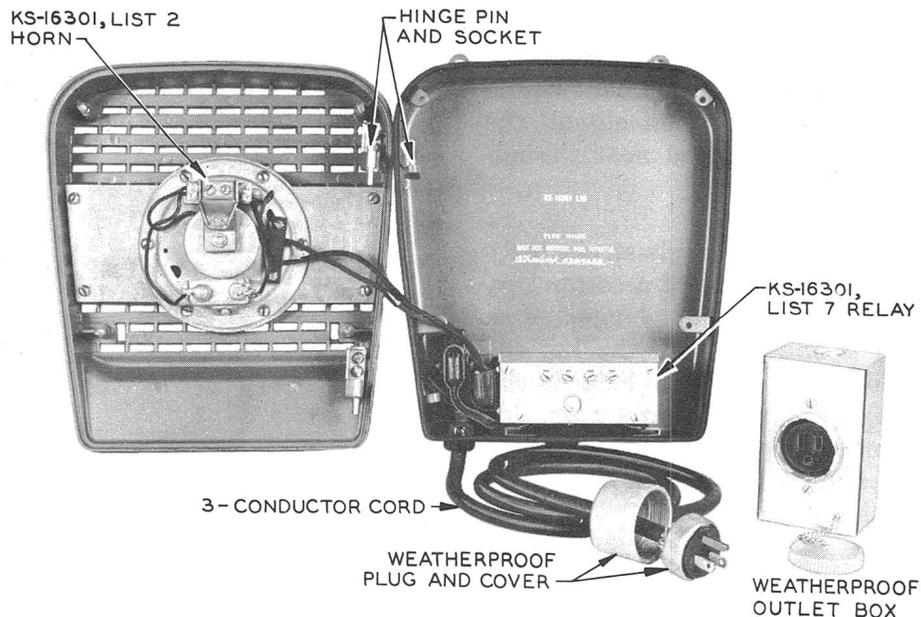
**Fig. 5 – KS-16301, List 7 Relay  
(Sperti-Faraday Co)**

**3.09** The KS-16301, List 7 relay is manufactured by two suppliers: The Wheelock Signals Co and the Sperti-Faraday Co. The armature airgap adjustment is located on the bottom of the Wheelock relay, as shown in Fig. 4, and on the front terminal board of the Sperti-Faraday relay, as shown in Fig. 5. Either may be installed in a KS-16301 back box.

**3.10** Adjust armature airgap as shown in Fig. 4 for the relay manufactured by the Wheelock Signals Co. On the relay manufactured by the Sperti-Faraday Co, the armature airgap is adjusted by turning the armature adjusting screw

one-half turn for low or high position. The dot (Fig. 5) on the face of the screw should be above the **L** for low and below the **H** for high.

**3.11** Each back box is equipped with two sockets which engage with two pins of each front cover to form a hinge (see Fig. 6). The signal fastens to the back box with four machine screws which are furnished with the grilled cover. Observe that the gasket on the back box is in place. For outdoor use, the rain hood mounts on the cover with three machine screws.



**Fig. 6 – Complete Assembly, Outdoor Dual Potential, List 2 Horn**

**KS-8000 Series Signals**

**3.12** Indoor signals, such as KS-8227, KS-8228, and KS-8229 signals, are furnished with a backboard. The signal has slotted mounting holes so that it may be easily removed from the backboard.

**3.13** The 2-conductor cord, which is provided for telephone line connection on indoor signals, should be terminated on a 42-type connecting block, or equivalent.

**3.14** The telephone wires enter into the signal relay of these outdoor signals through a bushed hole in the base of the set.

**4.00 MAINTENANCE**

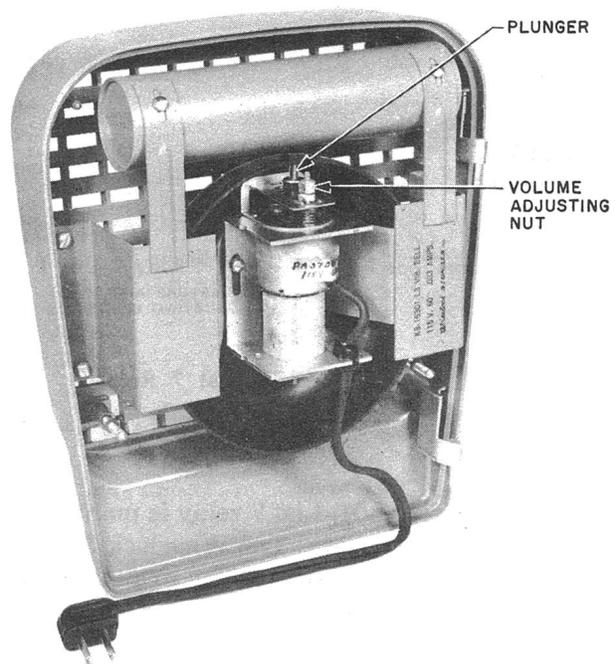
**THINK** *Before performing any work on equipment connected to commercial power, the power supply circuit shall be de-energized. The customer shall arrange for power disconnection and reconnection on power circuits other than plug and outlet.*

**KS-16301 Signal**

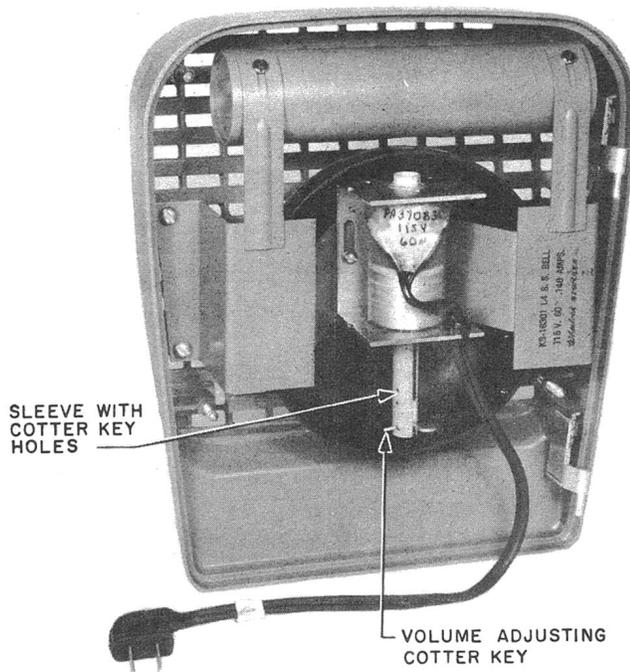
**4.01** The list 3 (vibrating bell) is provided with a volume adjustment. In the signal of one supplier, the volume is controlled by turning a hexagonal nut on the rear of the signal (see Fig. 7). In the product of the other supplier, the volume is controlled by a screw adjustment on the back of the bell resonator. In each signal, the direction of adjustment is stamped near the adjusting nut or screw.

**4.02** The volume of the list 4 (single-stroke bell) may be adjusted by means of a cotter key, which is the backstop for the plunger (see Fig. 8). The signal is shipped with the key inserted through the lowest of the three holes in the sleeve that contains the plunger, thereby providing maximum volume. To decrease volume, move cotter key to intermediate or top hole in the sleeve. This adjustment was not provided on some bells of initial manufacture.

**4.03** If a signal becomes defective, the complete list number should be replaced. This includes signal and front cover.



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

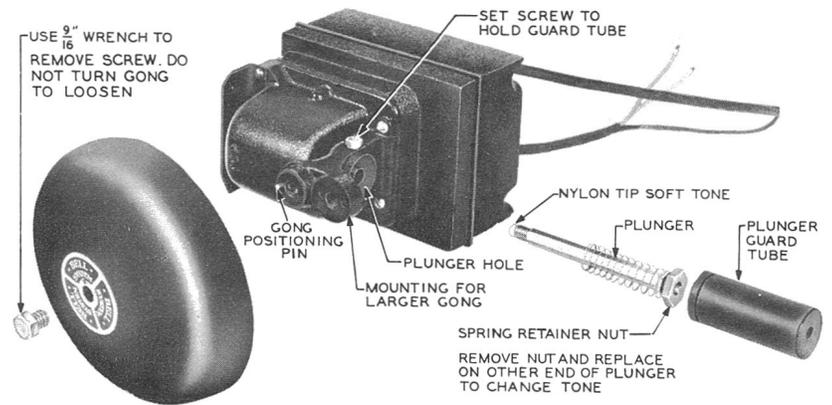


**Fig. 8 — KS-16301, List 4 Bell, Single Stroke**

**KS-8000 Series Signals**

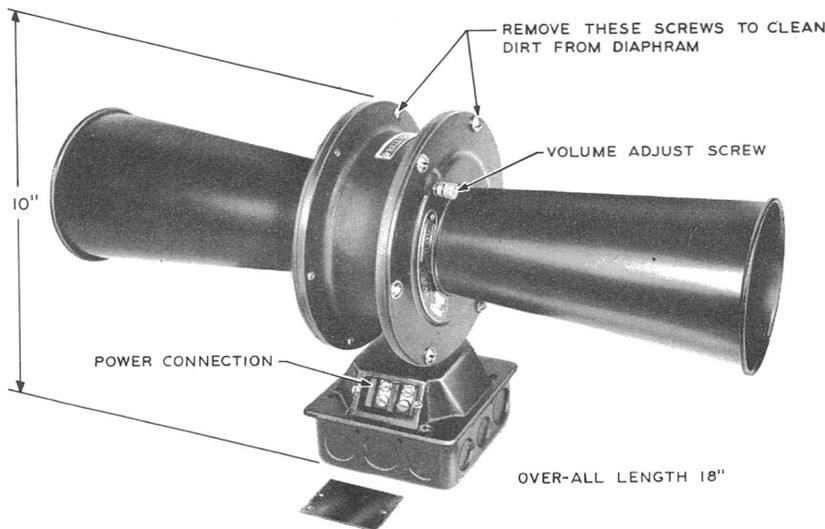
**4.04** The KS-8227 6-inch and 10-inch single-stroke bells are equipped with a reversible plunger which has a steel tip on one end and a nylon tip on the other. This may be reversed in the field to change volume. The steel tip has the loudest tone.

*Caution: The plunger is a hollow shaft and may be damaged by pliers. When reversing the plunger, an 11/16-inch open-end wrench should be used on the spring retainer nut, and a 7/16-inch open-end wrench on the locknut. (See Fig. 9).*



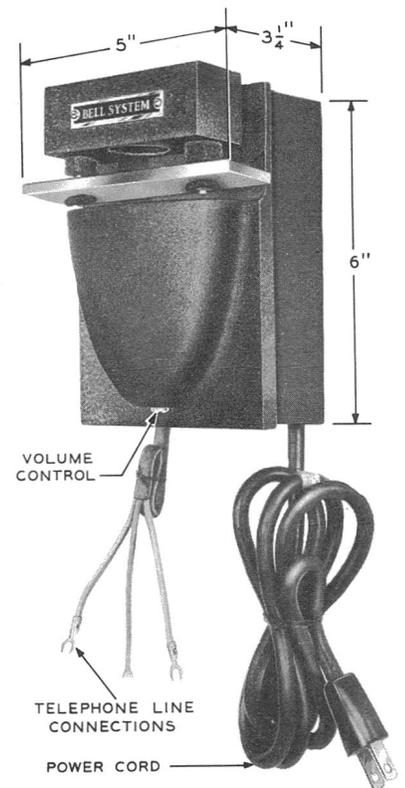
**Fig. 9 – KS-8227 Signal Bell with Reversible Plunger**

**4.05** The volume of the KS-8228 signal horn may be adjusted by a screw and locknut (see Fig. 10). Dirt may collect between the diaphragm and front plate. In these cases, remove the front plate and brush out dirt. Note horn plate position before removal so that it may be replaced in its identical position. Defective horns should be replaced.



**Fig. 10 – KS-8228, List 1 Signal Horn**

**4.06** The volume of the KS-8229 chime signal may be adjusted by a screw (see Fig. 11). 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. 11 – KS-8229 Signal Chime**