

AUXILIARY SIGNALS

INSTALLATION AND MAINTENANCE

1. 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 This section is reissued to update information.

2. 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 two sensitivity terminals. Use the high sensitivity terminal on manual service or where loop resistance would cause the relay operation to be uncertain. Use the low sensitivity terminal in dial area.

2.04 Where a weatherproof power outlet box is involved, a ground-type outlet box, such as NS-16301, List 18 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 When planning the installation, take care to:

- 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
- Place signal in location (open stairs, moving machinery, etc) that is not hazardous to workmen.

THINK *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. 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. The relays must be in the horizontal position as shown in Fig. 6.

3.03 To avoid inductive interference, use a full cable pair for each signal circuit when signalling 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.

NS-16301 Signal

3.04 The use of backboards is not necessary for these types of signals. The backbox has two slotted holes and one regular hole for mounting purposes.

3.05 Where a conduit installation 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.

Note: Remove the power cord and bushing.

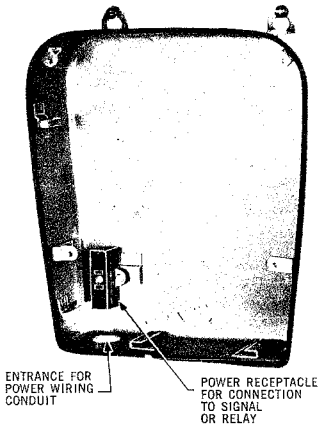


Fig. 1 — NS-16301-Type Back Box, Conduit Installation

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 indoor or outdoor 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

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

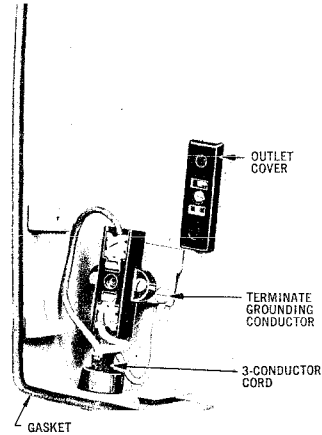


Fig. 2 — Power Cord Termination

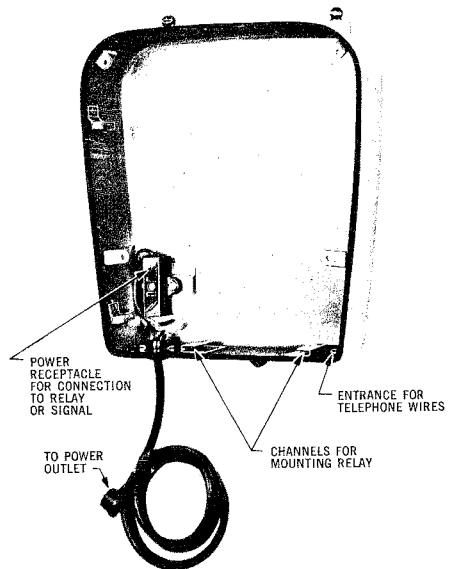


Fig. 3 — NS-16301-Type Back Box, Using Flexible Cordage Installation

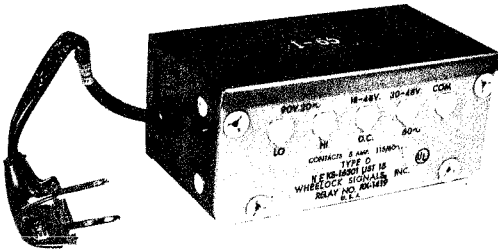


Fig. 4 - NS-16301, List 15 Relay

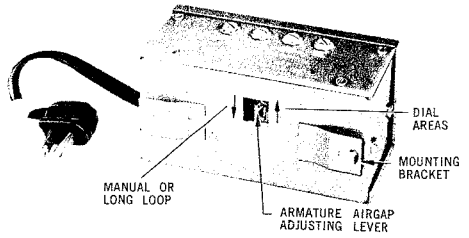


Fig. 5 - NS-16301, List 7 Relay
(Wheellock Signals Co)

3.09 The NS-16301, List 15 Relay is provided with two sensitivity terminals designated "HI" and "LO". The superseded NS-16301, List 7, which may be substituted, had an armature airgap adjustment located on the bottom. (See Fig. 5.)

3.10 The armature airgap adjustment on the NS-16301, List 7 Relay corresponds to the two sensitivity terminals of the NS-16301, List 15 Relay.

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. Be sure that the gasket on the back box is in place. For outdoor use, the rain hood mounts on the cover with three machine screws.

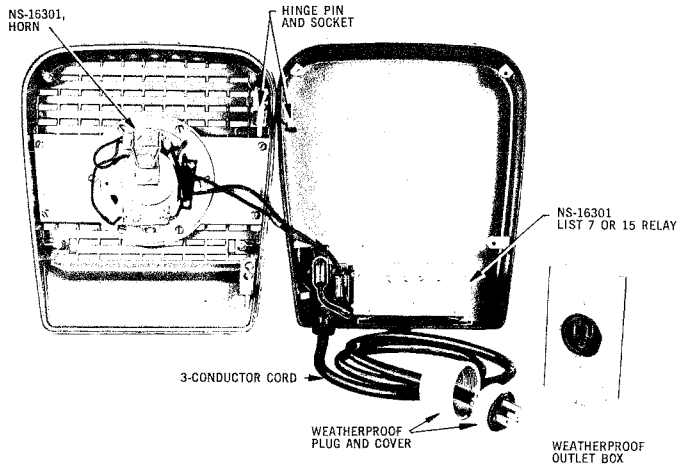


Fig. 6 - Complete Assembly, Outdoor Dual Potential, Horn

4 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.

NS-16301 Signal

4.01 The vibrating bell is provided with a volume adjustment. The volume is controlled by a screw adjustment on the back of the bell resonator. The direction of adjustment is stamped near the adjusting screw.

4.02 The volume of the 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 appropriate list number should be ordered. (See the Catalogue of Supplies for ordering information.)

4.04 The List 7 and 15 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
- Minimum contact pressure, 6 grams, measured with relay operated either electrically or manually; use 70H Gauge
- The contacts should make almost simultaneously; gauge by eye

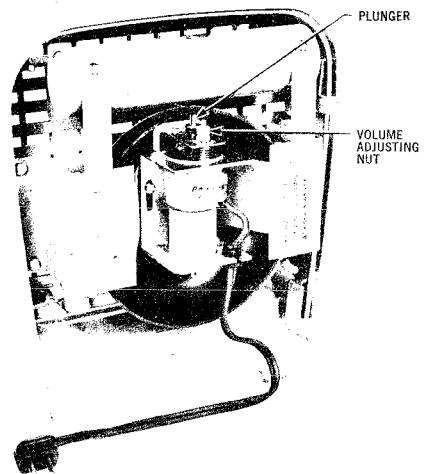


Fig. 7 — NS-16301 - Type Bell, Vibrating

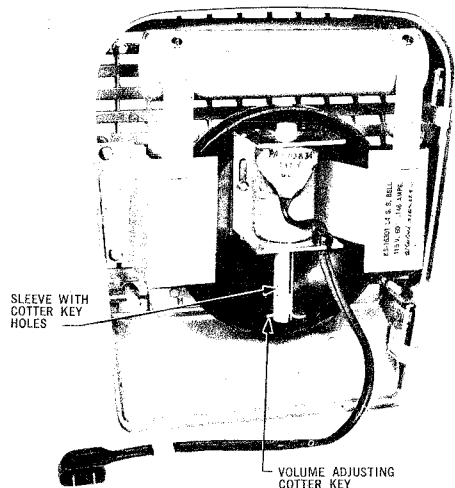


Fig. 8 — NS-16301, Type Bell, Single Stroke

- The armature and pole piece should be free of dirt or metal filings; gauge by eye. Clean with 1/2-inch relay cleaning strips or equivalent
- List 7 or 15 Relays used as a ringing bridge should not chatter on dial pulsing sufficiently to cause the contracts to make. Check position of H or L sensitivity adjustment, i.e., H for long loop or L for dial area. If relay meets all requirements but chatters on dial pulsing, replace in accordance with local instructions.

Explosive Atmosphere Signals

5. INSTALLATION

5.01 The NS-8547, List 1 and 3 Bells and the NS-16763, List 4 Power Relay Set are intended for use in explosive atmosphere areas, Class 1B, C, D and 2F, G respectively.

Note: The general information and safety requirements described in Section 502-415-100, entitled "Telephone Sets - Explosive Atmospheres - General Requirements", shall be adhered to when installing or performing maintenance on this equipment.

5.02 No maintenance should be performed on these components. Direct replacement is recommended. Follow the general safety requirements described in the section listed above before working on this equipment.

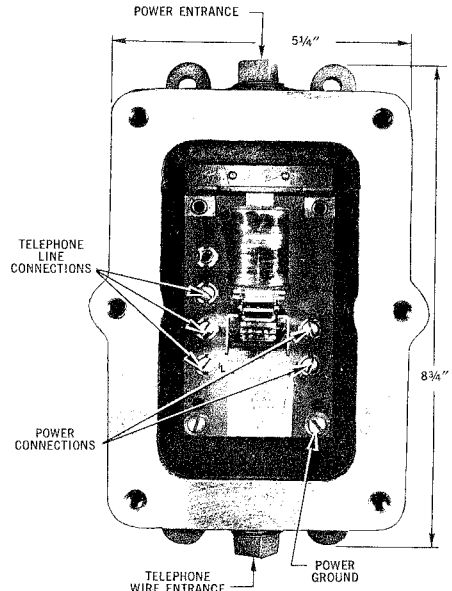
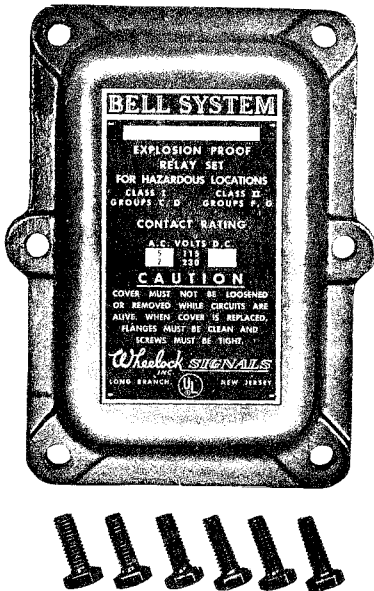


Fig. 9 – NS-16763 Relay Set