



GAI-TRONICS®  
A HUBBELL COMPANY

# 234/234SBA **RED ALERT**®

## Tower Assemblies

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## Tower Assemblies

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### Confidentiality Notice

This manual is provided solely as an installation, operation, and maintenance guide and contains sensitive business and technical information that is confidential and proprietary to GAI-Tronics. GAI-Tronics retains all intellectual property and other rights in or to the information contained herein, and such information may only be used in connection with the operation of your GAI-Tronics product or system. This manual may not be disclosed in any form, in whole or in part, directly or indirectly, to any third party.

### General Information

The Model 234 RED ALERT Tower Assembly is part of a completely integrated emergency communications station. The Model 234SBA RED ALERT Broadcast Tower Assembly helps ensure public safety by combining two-way communication with one-way public-address broadcasting.

The Model 234 RED ALERT Tower and Model 234SBA RED ALERT Broadcast Tower are designed to house a GAI-Tronics 39x or 27x series flush-mount telephone and a Model 540-001 or 541-001 strobe. Both tower assemblies are over 9 feet tall, making them easily located by potential users. The Model 234SBA Tower can be equipped with up to four public address speakers.

GAI-Tronics enhanced emergency telephones are designed for isolated high-risk areas requiring emergency communication equipment. Emergency telephone users simply press the emergency push button for immediate connection to a user-programmed central security telephone number.

The strobe creates added visibility to emergency telephone locations by providing a constant-on lamp that automatically flashes when the emergency button is pressed. A panel light mounted in the tower shines on the front of the telephone to illuminate the telephone for nighttime use.

The complete emergency communication tower assembly, with or without public address, is shipped in two stages. The No. 84504-301 Hardware Kit is usually shipped in advance, followed by the remaining assemblies (No. 84501-201 or No. 84509-201 Tower Body, No. 84502-201 Clear Lens, and No. 84503-30x LED Panel Light Assembly). Both the Model 234 and Model 234SBA use the same hardware kit.

### Tower Components

Each tower model includes components that are shipped separately for field assembly. The included components are:

## Model 234 Tower

Table 1. Model 234 Tower Components

Quantity	Part Number	Description
1	84501-301	Tower Body, (bronze color)
1	84502-201	Clear Lens
1	84503-301 or 84503-302	Panel Light Assembly, 120 V ac or Panel Light Assembly 10–33 V dc

## Model 234SBA Tower



Table 2. Model 234SBA Tower Components

Quantity	Part Number	Description
1	84509-201	Tower Body, (bronze color)
1	84502-201	Clear Lens
1	84503-301 or 84503-302	Panel Light Assembly, 120 V ac or Panel Light Assembly 10–33 V dc
1–4	12538-201	Speaker Kit (quantity of kits determines audio coverage)
1–4	12538-201	Vacancy Kit (required when a speaker kit is not utilized; i.e., facing a building)

The following components must be ordered separately:

- | <b>Model</b> | <b>Description</b>  |
|--------------|---------------------|
| • 540-001    | Strobe (120 V ac)   |
| • 541-001    | Strobe (12–24 V dc) |
| • 84804-301  | Installation Kit    |

## Installation

 **ATTENTION**  —Installation should be performed by qualified personnel and only in accordance with the National Electrical Code and applicable local codes.

The following information provides guidelines to install the various components of the emergency station. The grounding electrode conductor (not depicted in the illustration) must be constructed in accordance with the National Electrical Code and applicable local codes.

A concrete pier is required to support the tower assembly. The pier must be strong enough to support the 9-1/2 feet tall structure that weighs 250 pounds. The specific GAI-Tronics installation requirements outlined in this manual provide a 140-mph wind speed rating ( $V_{ULT}$ ). \*Reference AASHTO LTS6 Risk Category II International Building Code.

The GAI-Tronics No. 84504-301 Hardware Kit contains four anchor mounting bolts, a mounting template, and mounting nuts and washers needed for installation. Additional materials required to install the pier are not provided by GAI-Tronics but are shown in the installation drawings for reference. Determine all conduit entries before pouring the pier.

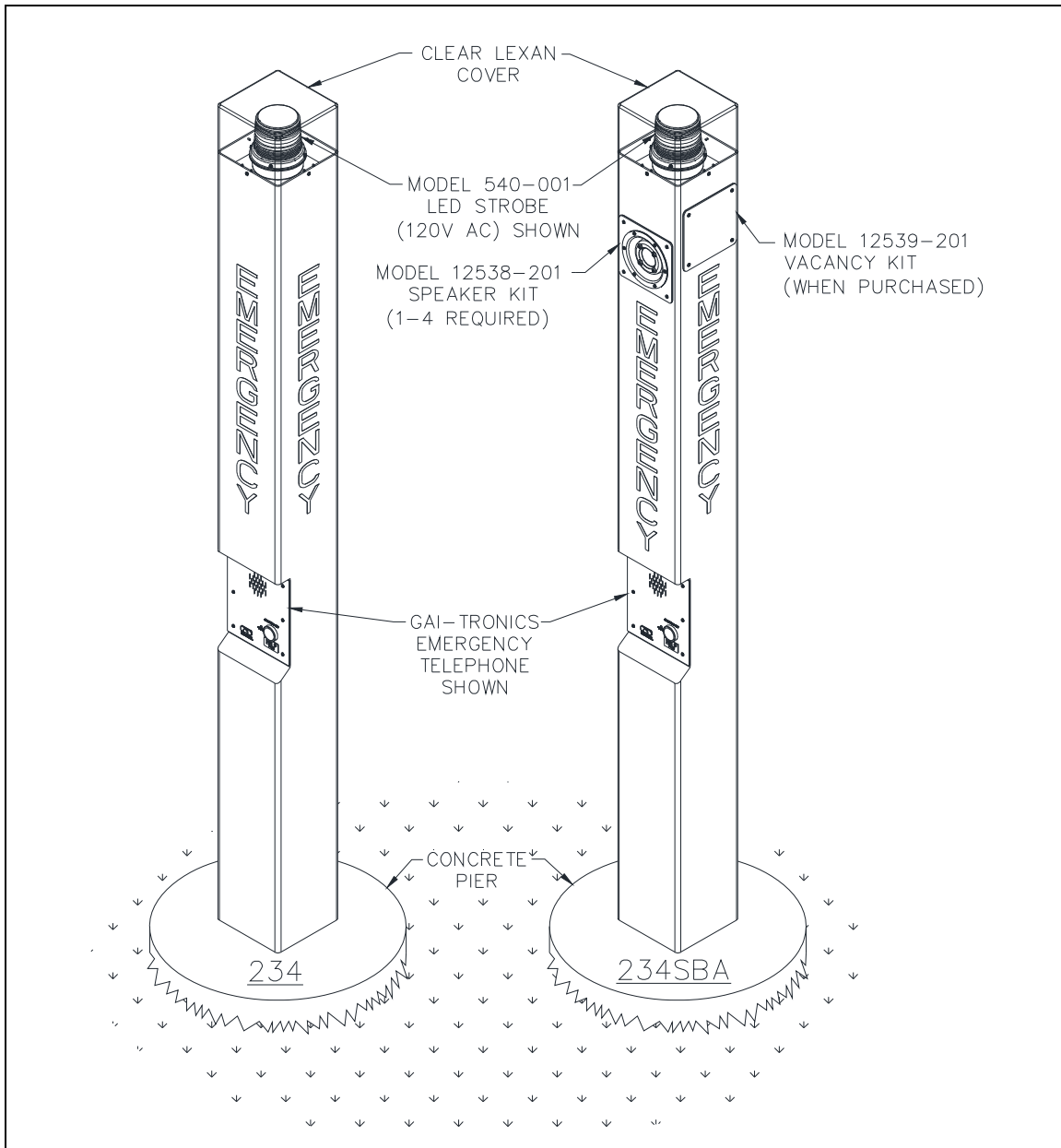


Figure 1. Model 234 & Model 234SBA shown

Tower assembly installation requires the construction of a concrete pier with a rebar reinforcement cage using 3,000 psi minimum grade concrete. Installation of the anchor bolts within the concrete is simplified by using the provided template. Once the concrete has properly cured, the tower body is installed with the nuts and washers included in the hardware kit. Leveling and spacing of the tower body is required for proper installation. Detailed information on each of these items is provided in this manual.

## Pier Foundation Depth and Conduit Entry

The pier should protrude a minimum of one inch above the finished grade when the surrounding area is not concrete or asphalt. Determine the required length of concrete form tube by adding the height desired above grade to the required 42-inch below grade pier depth.

Install conduits in the pier as needed for installation.

- Conduit is not supplied by GAI-Tronics.
- Consideration for power, Ethernet, telephone, 75-ohm RG6 cable, and any other customer wiring determines the number and size of the conduit entries (see [Figure 2](#) for typical conduit arrangements).

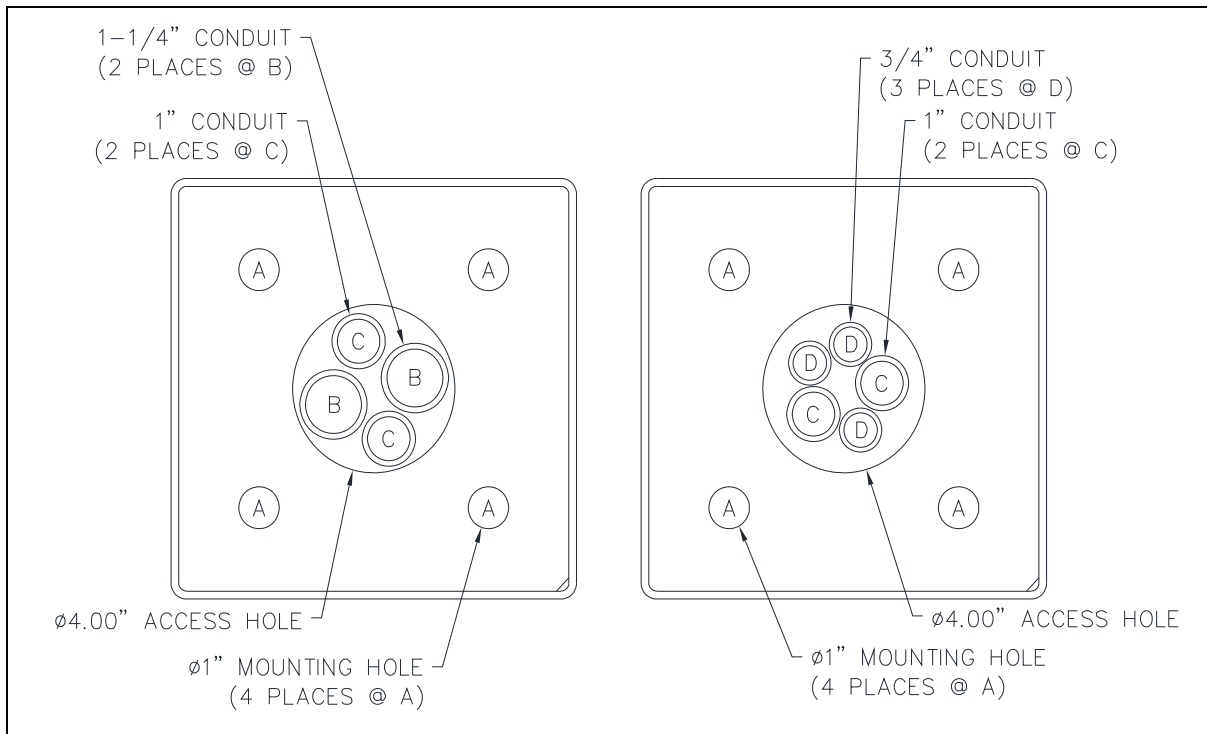


Figure 2. Sample conduit arrangements within tower

## Concrete Form Construction

1. Place the 24-inch diameter concrete form tube on a bed of crushed stone in the excavated hole.
2. Place an 18-inch diameter by 38-inch long rebar reinforcement cage into the concrete form tube before pouring the concrete.

The following materials are necessary to construct the reinforcement cage:

- Four 38-inch long #4 rebar rods
- Three 18-inch diameter #4 rebar stirrups
- Precut wire ties

To construct the reinforcement cage:

1. Tie a horizontal stirrup at the center of the four 38-inch rebar rods.
2. Tie the two remaining horizontal stirrups 18 inches above and below the center point (see [Figure 3](#)).
3. Place the cage on one-inch block spacers, centering the cage within the concrete form tube.

The top of the cage should be at least three inches below the top of the pier.

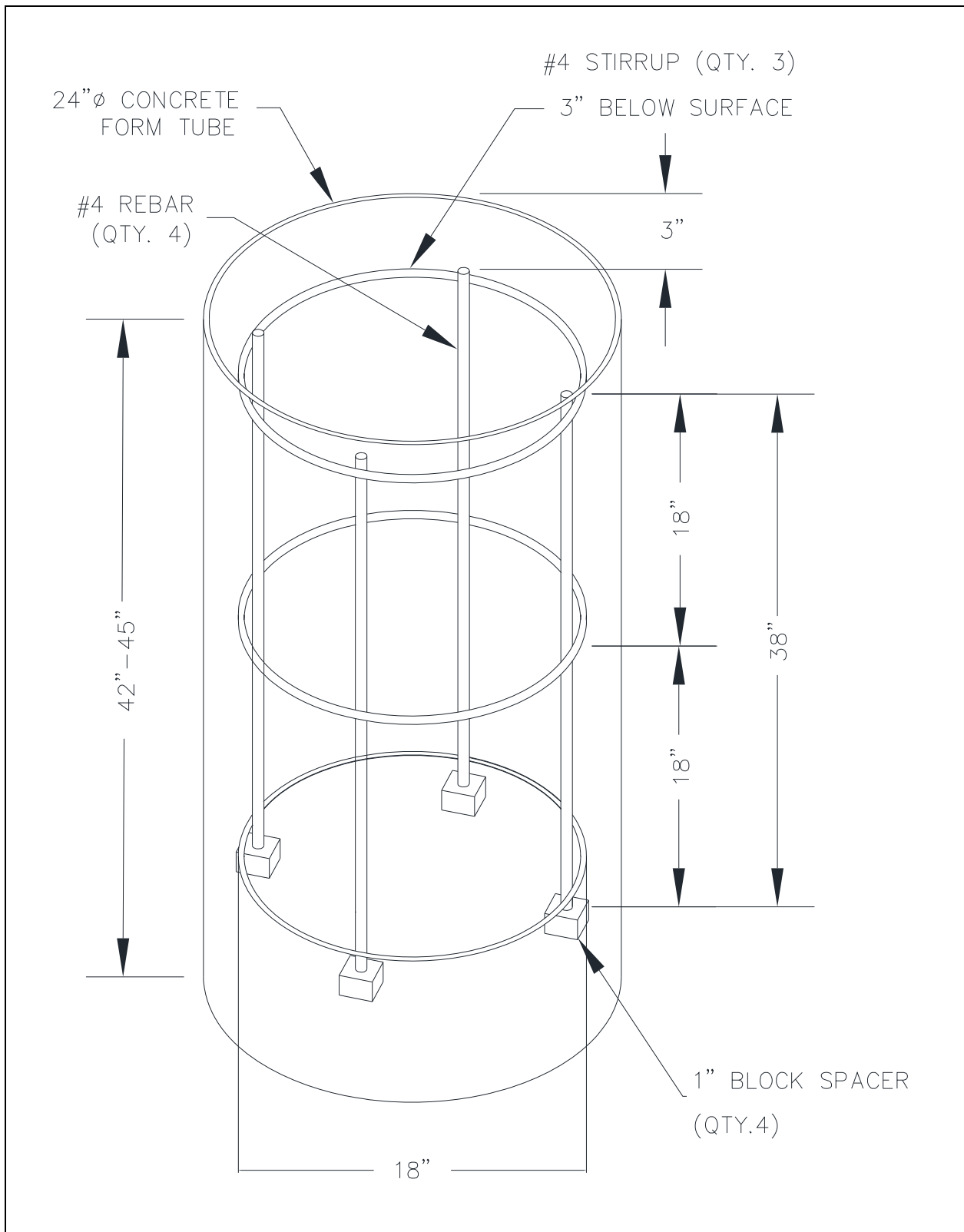


Figure 3. Reinforcement Cage Detail

## Anchor Bolt Location

**⚠ ATTENTION ⚠** —Embed the anchor bolts a minimum of nine inches into the concrete. Anchor bolt positioning is critical for tower body mounting.

1. Immediately submerge the anchor bolts into the concrete pier after pouring the concrete.
2. Use the template provided in the hardware kit to position the anchor bolts at the correct height and in the proper locations (see [Figure 4](#)).

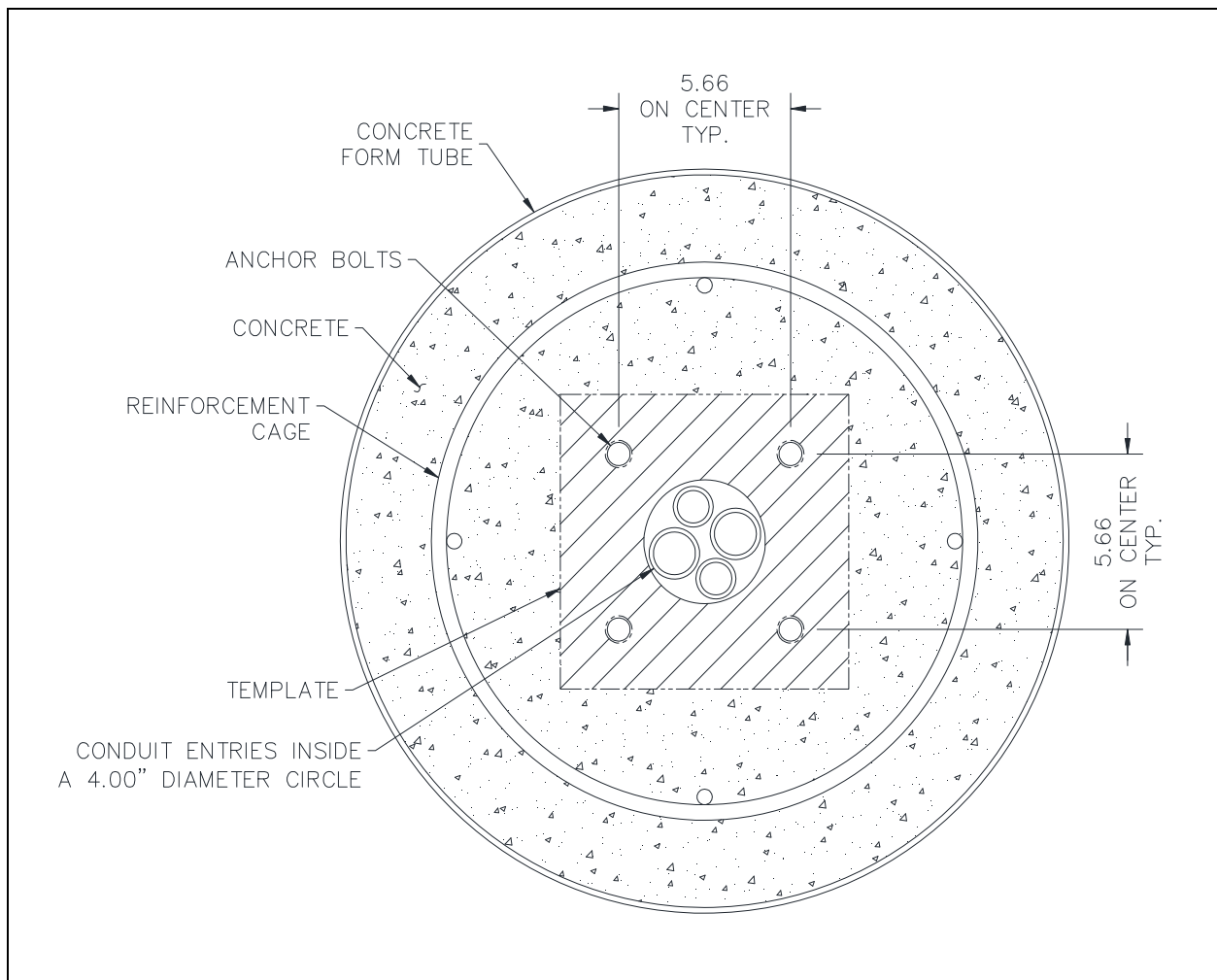


Figure 4. Anchor Bolt Location—Pier Top View

3. Install the four anchor bolts so that they extend at least three inches above the top surface of the pier (see [Figure 5](#) for the bolt protrusion dimension).

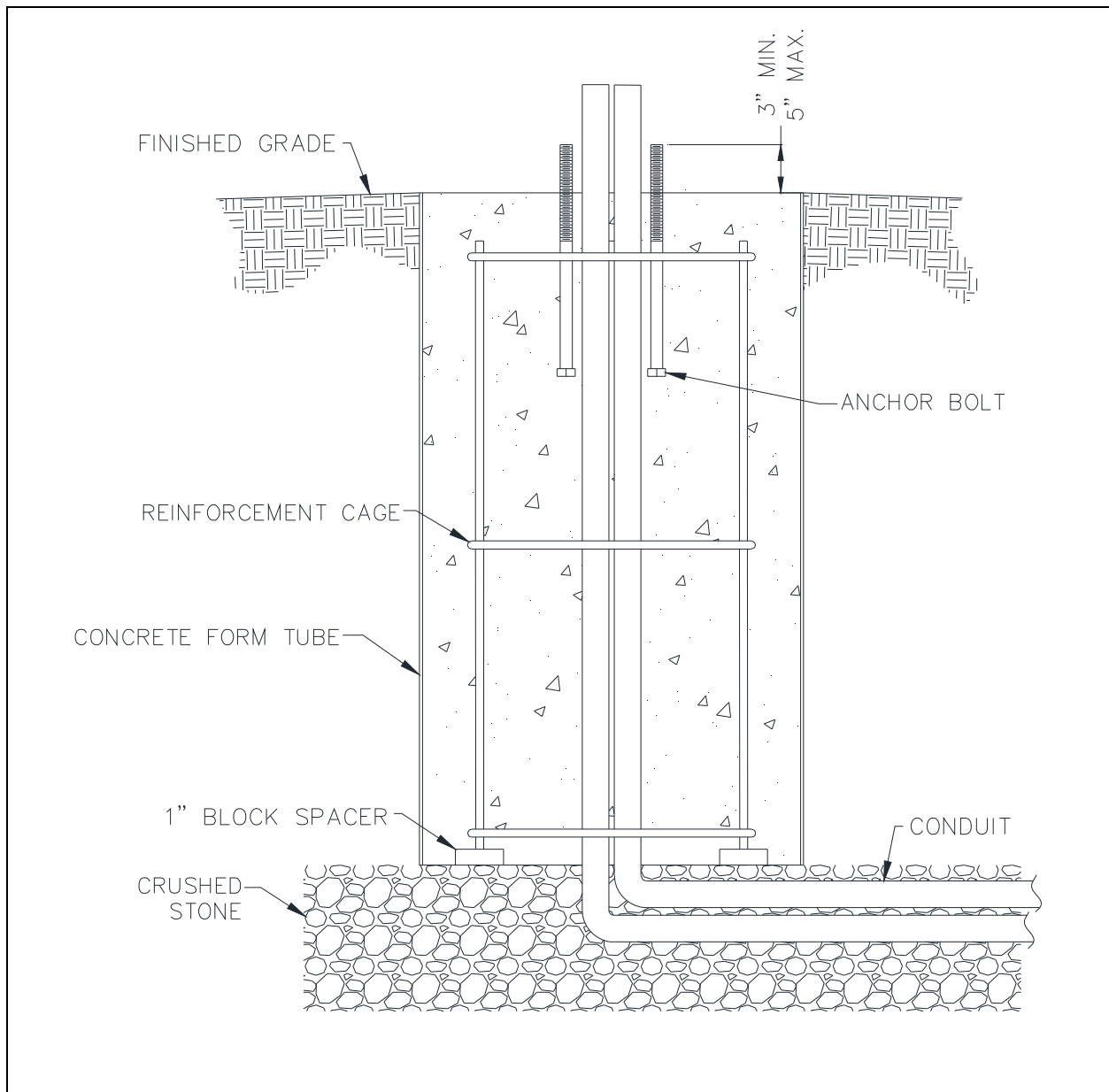


Figure 5. Concrete Pier Cross Section

## Tower Mounting

**⚠ ATTENTION ⚠** —Do not mount the tower body until the concrete has been allowed to cure for a minimum of 24 hours.

1. Thread the  $\frac{3}{4}$ -inch hex nuts onto the anchor bolts until the tops of the nuts are 1-1/8 to 1-3/8 inches above the top of the pier.

Verify that the nuts are level.

2. Place one washer over each nut (see [Figure 6](#)).
3. Place the tower on top of the four level hex nuts with washers.



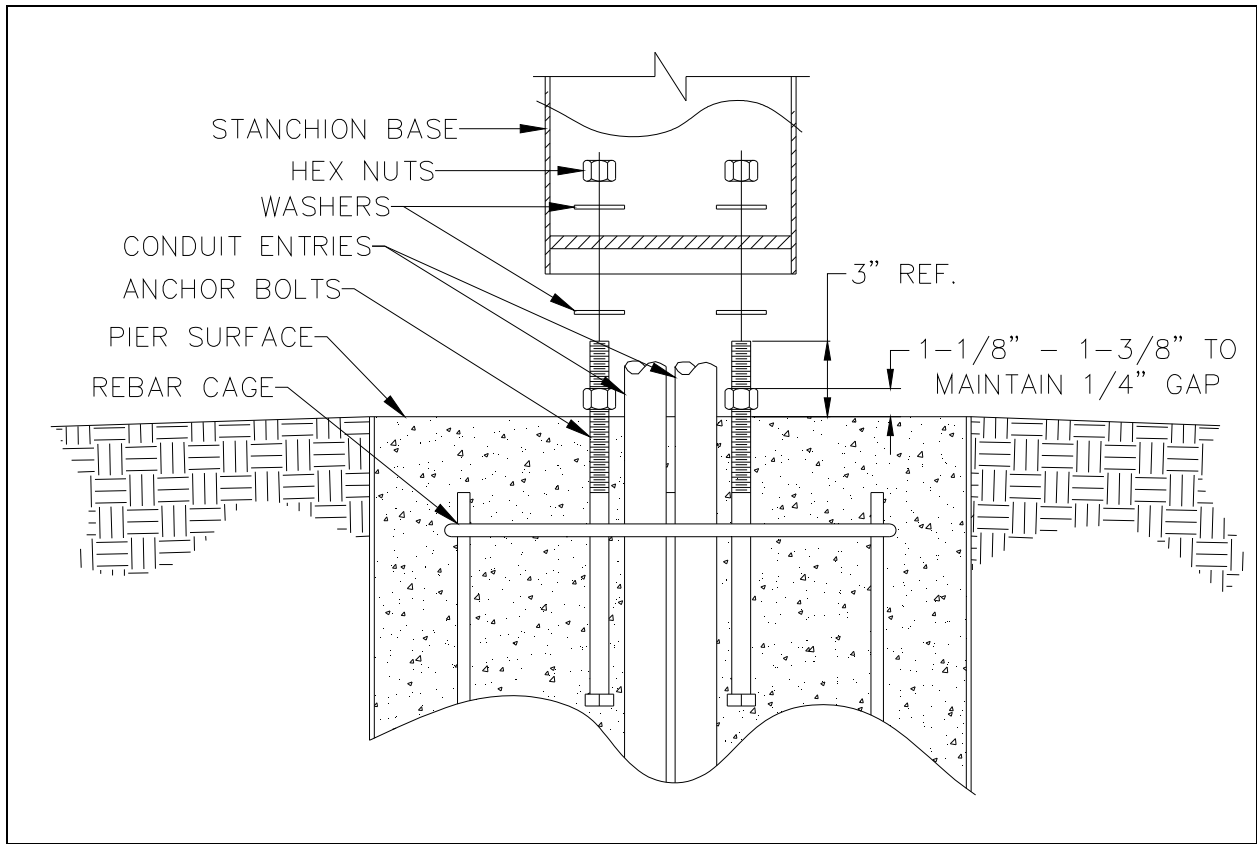


Figure 6. Exploded View

- Verify that a 1/4-inch minimum air gap exists between the base of the tower and the top of the concrete pier (see Figure 7).

**NOTE:** The air gap must not be obstructed with soil, mulch, stone, etc. Failure to maintain the air gap will cause moisture entrapment that will result in corrosion.

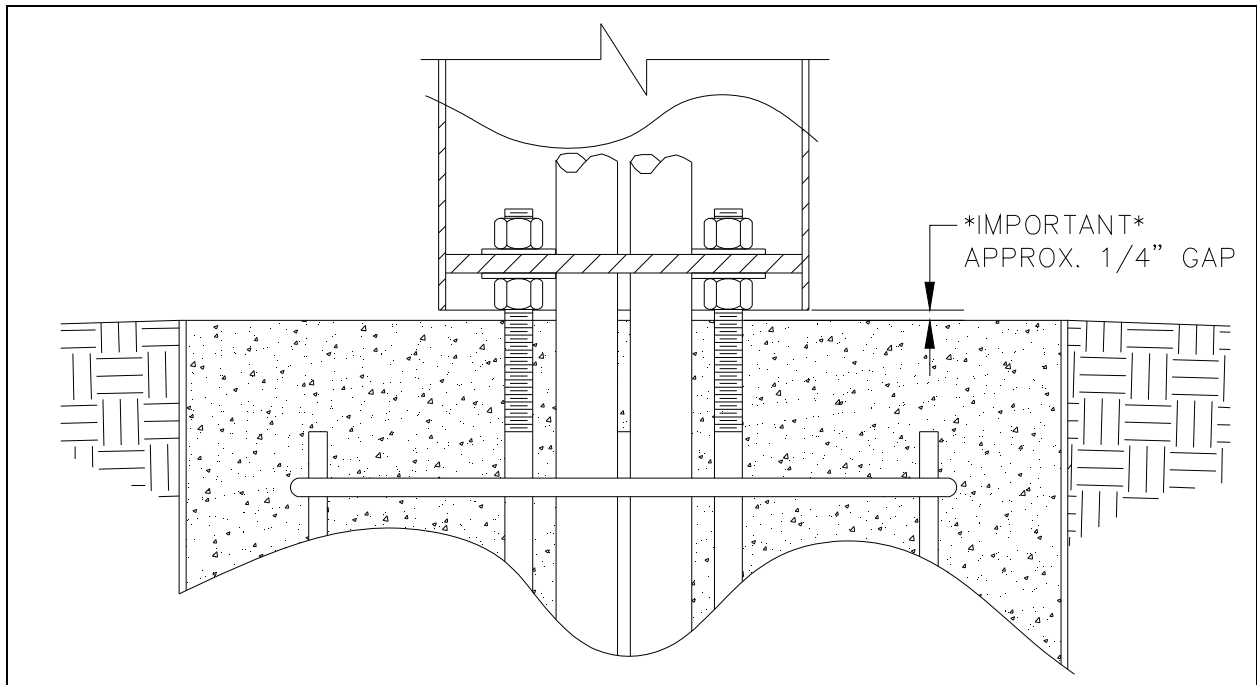


Figure 7. Assembled View

5. Entering through the rear access panel cutout, place the four remaining washers on the anchor bolts and secure with the 3/4-inch hex nuts.
6. Torque the 3/4-inch hex nuts to 85 ft·lb.

**NOTE:** The unit must be installed and grounded in accordance with national and local electrical codes.

### Increased Windspeed Rating (Optional)

Increase the buried concrete pier depth from 42 inches to 48 inches to obtain a wind speed rating ( $V_{ULT}$ ) of 160mph.

### Model 54X-001 Strobe and No. 84502-201 Lens Cover Installation

**NOTE:** A 3/4-inch by 3/4-inch M/F extension is provided for installation of the 540-001 or 541-001 strobe. It is highly recommended that this extension be installed. The extension increases the installation height of the LED strobe for maximum visibility.

1. Thread the extension onto the tower and tighten.
2. Insert the strobe's 15-foot wires through the extension (when installed) and the tower's threaded nipple and allow the wires to extend to the base of the tower (see Figure 8).
3. Screw the strobe onto the threaded nipple/extension.
4. Apply a small amount of clear RTV silicone sealant or equivalent to the threads of each security screw to reduce the possibility of rust forming in the screw threads.
5. Secure the No. 84502-201 Lens Cover with the four security screws.
6. Refer to GAI-Tronics Pub. 42004-499 (Model 540-001) or 42004-529 (Model 541-001) for detailed strobe installation instructions (see Figure 11 and Figure 12 for general wiring instructions).

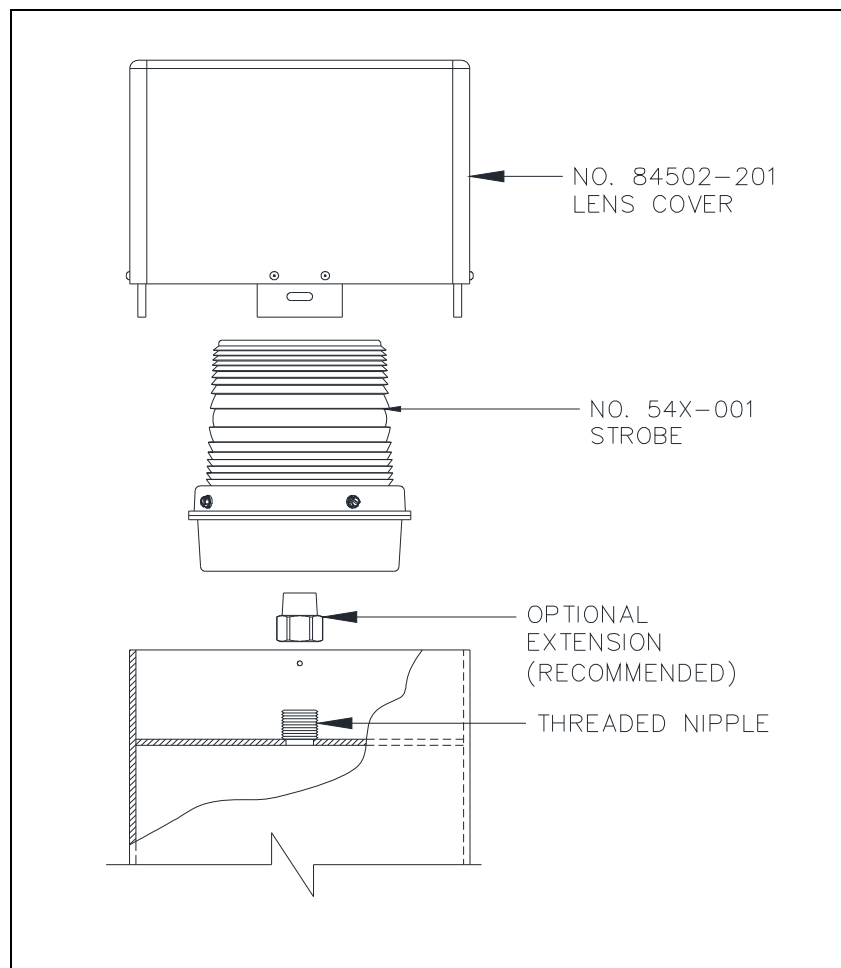


Figure 8. Strobe Assembly

**NOTE:** Pay careful attention to the wire colors for correct wiring.

## Model 84503-30x Tower Panel Light

1. Align the panel light assembly inside the tower (see Figure 9).
2. **Model 84503-301 (120 V ac):** Extend the black (hot), the white (neutral), and the green (ground) wires to the base of the tower (these wires, along with the strobe wires, will be connected later to the incoming power conductors in accordance with applicable electrical codes).

**Model 84503-302 (10–33 V dc):** Extend the black (–) and the white (+) wires to the base of the tower (these wires, along with the strobe wires, will be connected later to the incoming power conductors in accordance with applicable electrical codes).

3. Apply a small amount of clear RTV silicone sealant or equivalent to the mounting screw threads to reduce the possibility of rust forming in the threads.
4. Secure the light assembly with the two mounting screws provided.

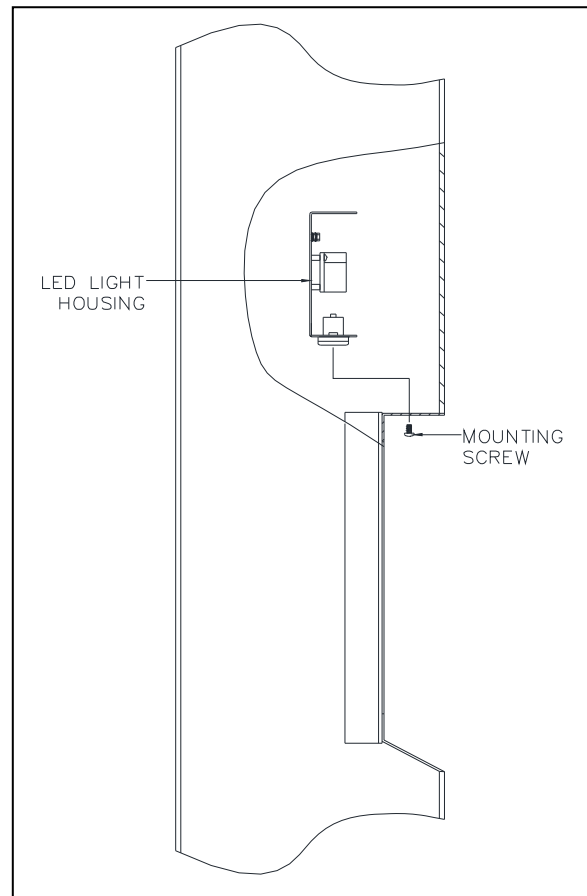


Figure 9 Panel Light Assembly

## Model 40201-010 Battery (Model 234SBA Only)

Refer to Pub. 42004-415, Model 10458-10x Electronics Paging Module Manual, for detailed interconnection and installation instructions.

1. Make the wiring connection to the electronics paging module before placing the batteries into the tower.

**NOTE:** Leave the wires from the paging module to the batteries disconnected until ready to power up the unit.

2. Secure the batteries into the L-brackets inside tower under the telephone opening or at the base of the tower (see [Figure 10](#)).

**NOTE:** If the tower body does not have any L-brackets, the battery must be set in the bottom of the tower to the side, away from the conduit entries and clear of the access panel.

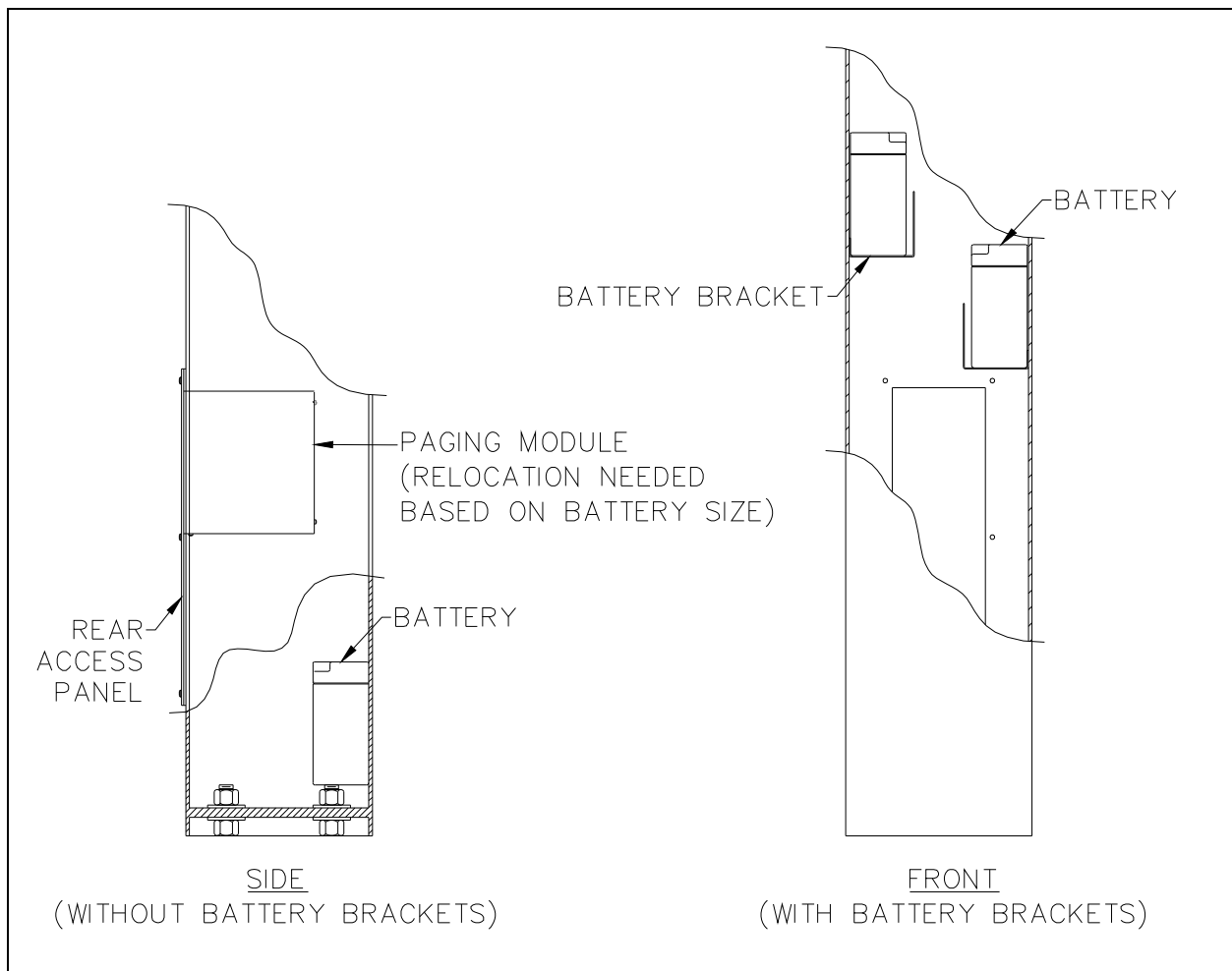


Figure 10. Battery Installation Locations

## Power Connections

For all component wiring, refer to the specific equipment manual and the interconnection diagrams (see [Figure 11](#) and [Figure 12](#)).

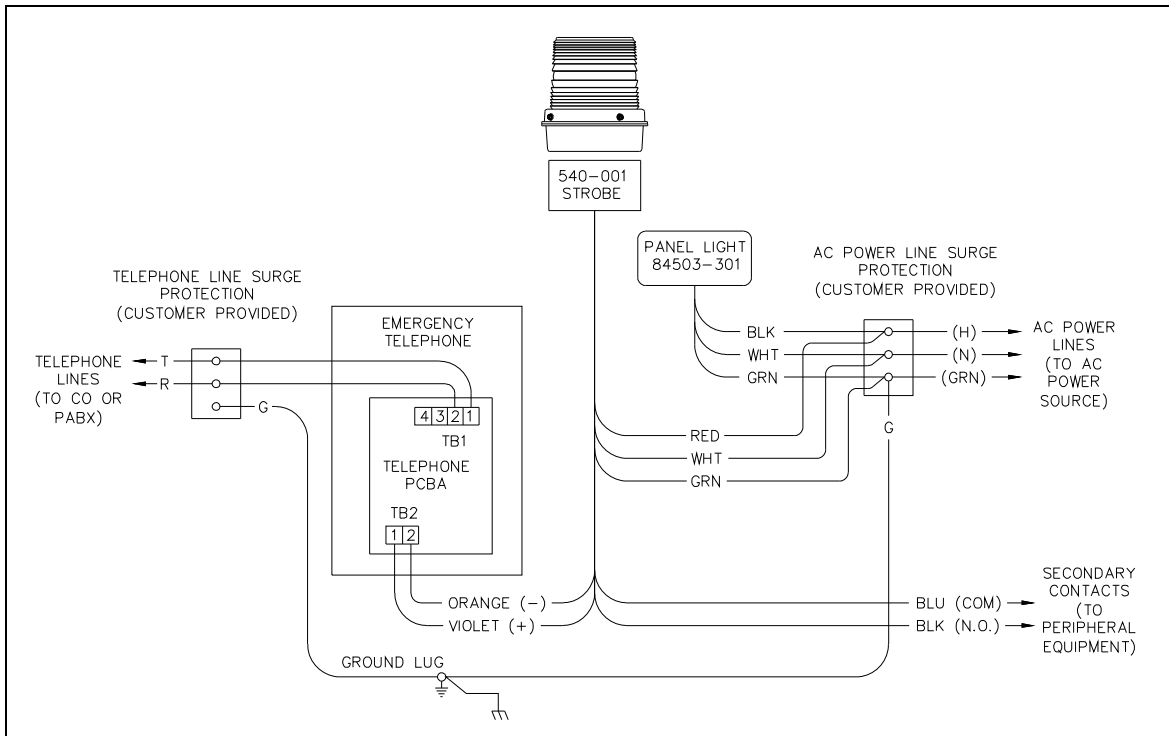


Figure 11. Interconnection Diagram with AC-Powered Strobe

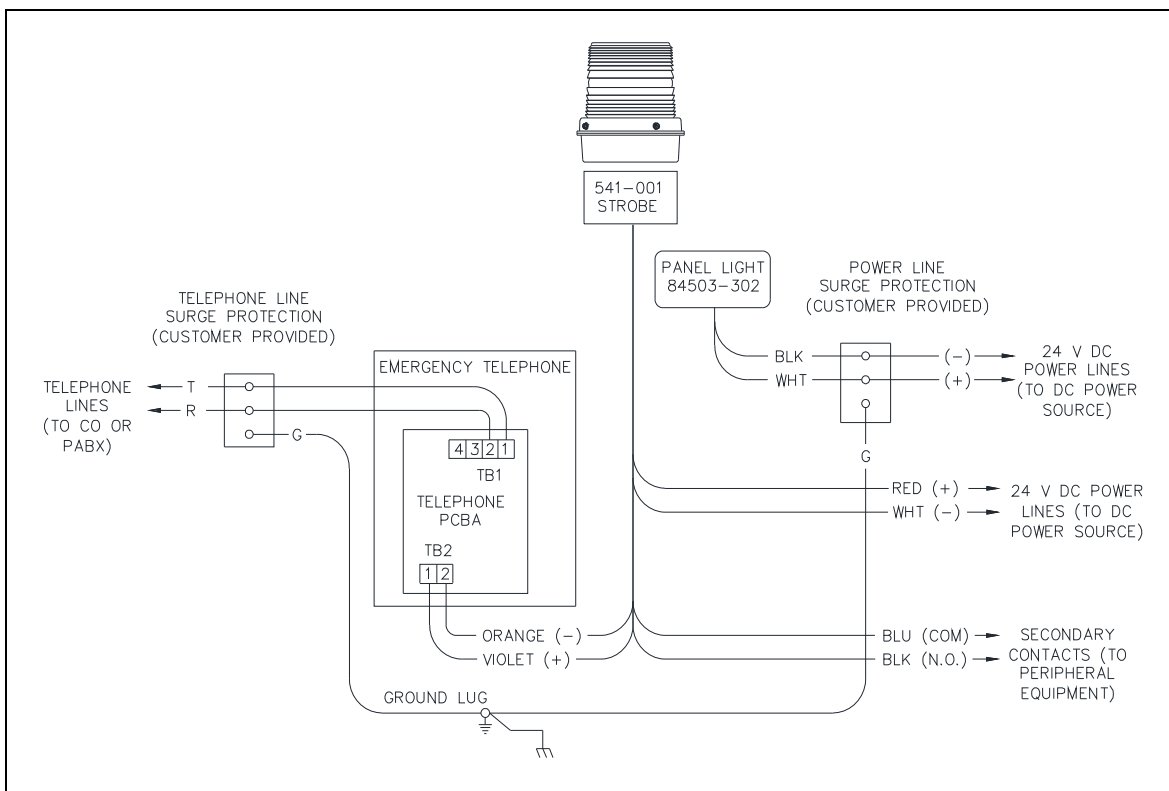


Figure 12. Interconnection Diagram with DC-Powered Strobe

All wiring connections should now be complete, except for the tower panel light and strobe wire connections to the incoming power lines. All connections must be made in accordance with the NEC (National Electrical Code) in the United States or the CEC (Canadian Electrical Codes) in Canada.

1. Terminate the customer ground conductor to the ground stud connection located inside the rear access panel.
2. Terminate the power conductors (see [Figure 11](#) for ac installations or [Figure 12](#) for dc installations).
3. Replace the access panel cover on the tower base using the security screws.

## Maintenance

### Repairing Surface Damage to Powder-Coated Towers

#### Scratch Repair

1. Carefully sand the damaged area to clean and score the base metal, taking care to minimize any additional damage to the surrounding powder coating.
2. Wipe the sanded area with a cleaning solvent, such as DuPont “PrepSol.” Allow the area to dry. This type of product is available at auto parts stores. Denatured alcohol can also be used.
3. Prepare the bare metal surface for painting by treating it with a phosphoric acid solution intended for this purpose. Allow the area to dry.
4. Using a cotton swab or small brush, paint the prepared surface with an automotive enamel or oil base polyurethane enamel such as Red Devil® or Rustoleum®. DO NOT USE Krylon-type paints. Carefully blend the repair enamel into the powder coating at the edges.

**NOTE:** EXACT color matches may not be attainable.

#### Decal Repair

1. Use a sharp instrument, such as a razor blade, to loosen and lift a corner edge of the damaged decal.
2. Carefully peel back and remove the loosened decal.
3. Wipe the area clean with denatured alcohol. Allow the area to dry.
4. Prior to attaching a new decal, dampen the target area with a fine mist of water (fine spray from a plant misting bottle is ideal).
5. Peel the backing from the replacement decal, leaving the decal’s front cover material attached, and carefully align it with the target area.
6. With the cover material still attached, press the replacement decal in place, then squeegee any water from under the new decal starting at the center and working toward the edges.
7. Peel off the front cover material, being careful not to tear or lift the decal. If the decal lifts as the cover material is being removed, push down on the uncovered decal, and squeegee as necessary to remove any large air bubbles; small air bubbles will disappear as the decal dries.

## Replacement Parts and Accessories

Table 3. Parts and Accessories

<b>Model</b>	<b>Description</b>
25398-001	EMERGENCY standard label, white
25398-002	EMERGENCY reflective label, white
25398-003	EMERGENCY standard label, cardinal red
25398-013	EMERGENCY standard label, black
25398-015	HELP large label, white
540-001	Strobe, 120 V ac
541-001	Strobe, 12–24 V dc
84504-301	Hardware Kit

## Specifications

Dimensions ..... 114 H × 10 W × 10 D in (2.89 × 0.25 × 0.25 m)

Wall thickness ..... 3/16 in

Finish ..... powder-coated steel

Power rating:

Model 84503-301 AC Panel Light Assembly ..... 25 mA @ 120–230 V ac

Model 84503-302 DC Panel Light Assembly ..... 40 mA @ 10–33 V dc

# Warranty

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Equipment. GAI-Tronics warrants for a period of one (1) year from the date of shipment, that any GAI-Tronics equipment supplied hereunder shall be free of defects in material and workmanship, shall comply with the then-current product specifications and product literature, and if applicable, shall be fit for the purpose specified in the agreed-upon quotation or proposal document. If (a) Seller's goods prove to be defective in workmanship and/or material under normal and proper usage, or unfit for the purpose specified and agreed upon, and (b) Buyer's claim is made within the warranty period set forth above, Buyer may return such goods to GAI-Tronics' nearest depot repair facility, freight prepaid, at which time they will be repaired or replaced, at Seller's option, without charge to Buyer. Repair or replacement shall be Buyer's sole and exclusive remedy. The warranty period on any repaired or replacement equipment shall be the greater of the ninety (90) day repair warranty or one (1) year from the date the original equipment was shipped. In no event shall GAI-Tronics warranty obligations with respect to equipment exceed 100% of the total cost of the equipment supplied hereunder. Buyer may also be entitled to the manufacturer's warranty on any third-party goods supplied by GAI-Tronics hereunder. The applicability of any such third-party warranty will be determined by GAI-Tronics.

Services. Any services GAI-Tronics provides hereunder, whether directly or through subcontractors, shall be performed in accordance with the standard of care with which such services are normally provided in the industry. If the services fail to meet the applicable industry standard, GAI-Tronics will re-perform such services at no cost to buyer to correct said deficiency to Company's satisfaction provided any and all issues are identified prior to the demobilization of the Contractor's personnel from the work site. Re-performance of services shall be Buyer's sole and exclusive remedy, and in no event shall GAI-Tronics warranty obligations with respect to services exceed 100% of the total cost of the services provided hereunder.

Warranty Periods. Every claim by Buyer alleging a defect in the goods and/or services provided hereunder shall be deemed waived unless such claim is made in writing within the applicable warranty periods as set forth above. Provided, however, that if the defect complained of is latent and not discoverable within the above warranty periods, every claim arising on account of such latent defect shall be deemed waived unless it is made in writing within a reasonable time after such latent defect is or should have been discovered by Buyer.

Limitations / Exclusions. The warranties herein shall not apply to, and GAI-Tronics shall not be responsible for, any damage to the goods or failure of the services supplied hereunder, to the extent caused by Buyer's neglect, failure to follow operational and maintenance procedures provided with the equipment, or the use of technicians not specifically authorized by GAI-Tronics to maintain or service the equipment. **THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES AND REMEDIES, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

## Return Policy

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If the equipment requires service, contact your Regional Service Center for a return authorization number (RA#). Equipment should be shipped prepaid to GAI-Tronics with a return authorization number and a purchase order number. If the equipment is under warranty, repairs or a replacement will be made in accordance with the warranty policy set forth above. Please include a written explanation of all defects to assist our technicians in their troubleshooting efforts.

Call 800-492-1212 (inside the USA) or 610-777-1374 (outside the USA) for help identifying the Regional Service Center closest to you.