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CARmax
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THE AUTO SUPERSTORE

Installation Guide

CHAPTER 1

General description

The CARmax gate control system consists of the following major components (see figure 1-1):

- Host computer. The computer maintains the database of vehicle stock codes and sales associate's ID codes.
- Fiber-to-digital multiplexer. This unit splits the single input/output (I/O) data line from the host computer into eight I/O fiber-optic lines that are connected to the pedestals.
- Fiber-optic patch panel. This unit provides a means for an operator to switch a defective transmit or receive fiber-optic cable out of circuit and exchange it with a spare.

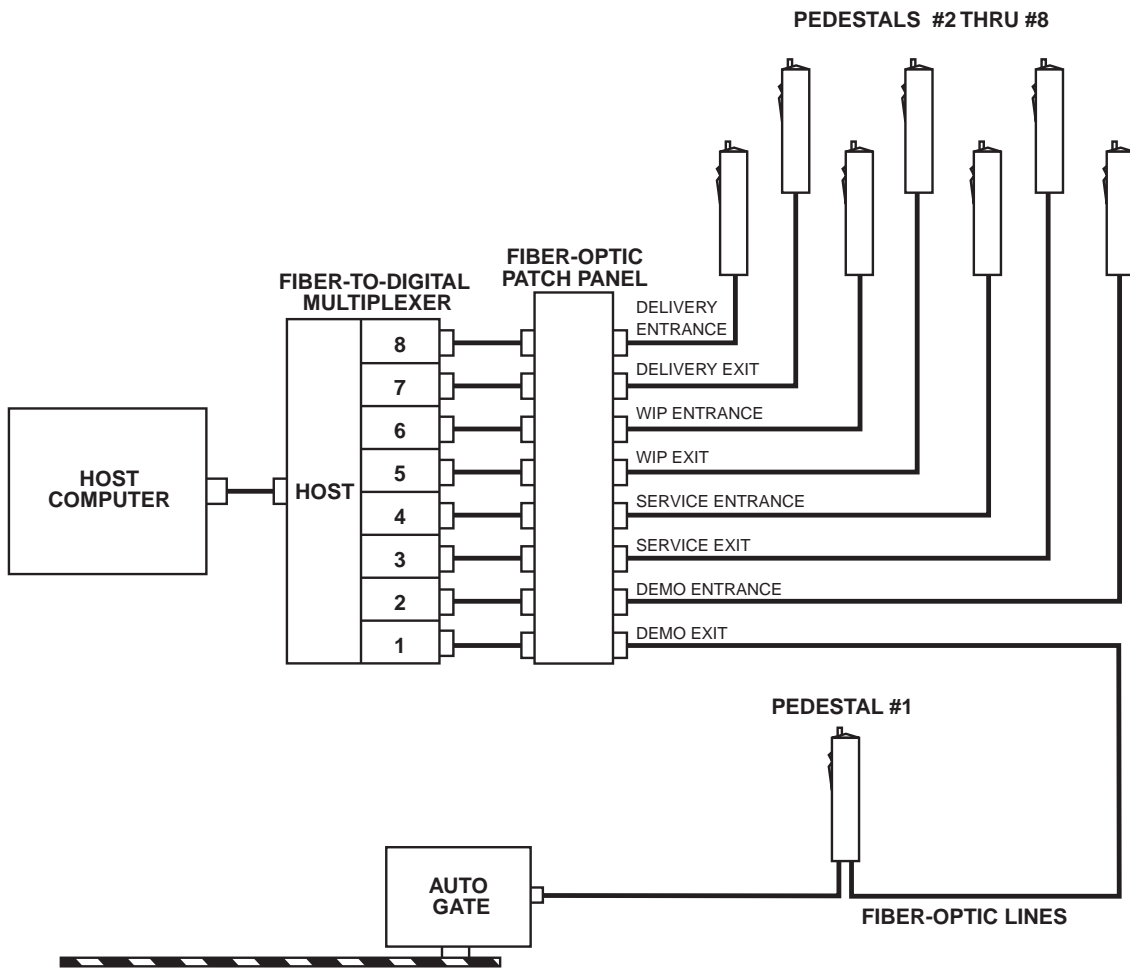


Figure 1-1. System diagram

- Vehicle transmitter. This transmitter sends vehicle's stock code to the pedestal which relays the data to the host computer for verification.
- Employee transmitter. This transmitter sends the sales associate's ID code to the pedestal which relays the data to the host computer for verification.
- Pedestal. The pedestal communicates with the host computer and controls the auto gate. An antenna attached to the pedestal is used by the pedestal to transmit and receive signals from the employee and vehicle transmitters.
- Auto gate. The auto gate consists of a gate arm or crash beam barrier, the gate housing, and two detector loops (see figure 1-2).

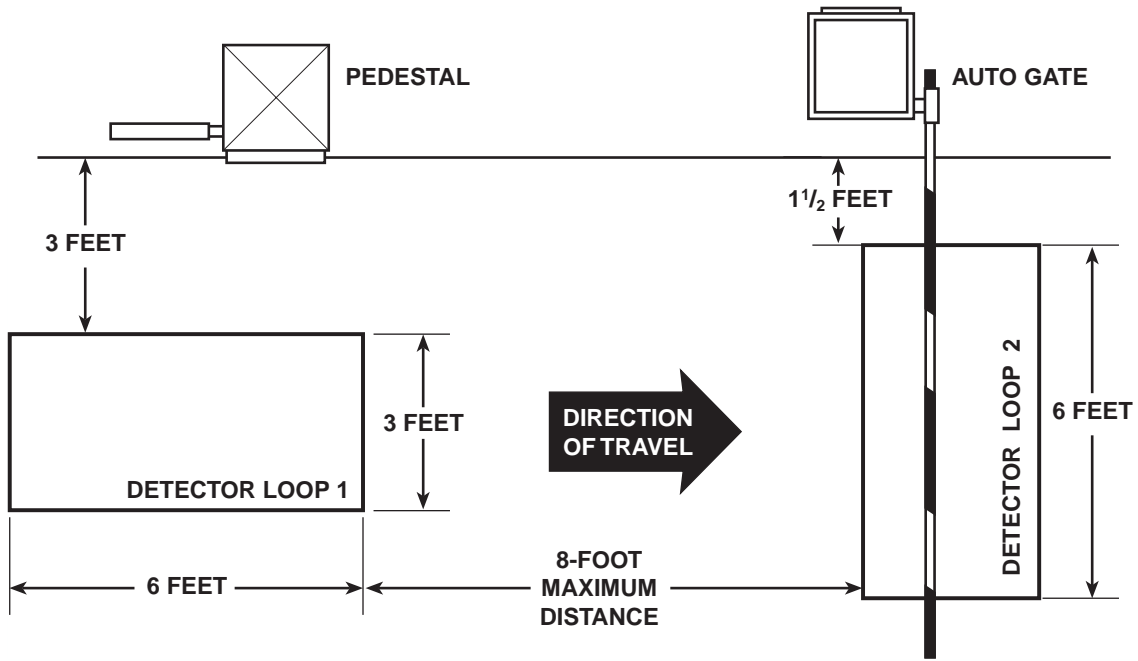


Figure 1-2. Typical pedestal, auto gate, and detector loops configuration

When a vehicle approaches an auto gate, it passes over the input detector loop embedded in the roadway (detector loop 1). The loop, upon sensing the car, alerts the pedestal which reads the RF transmissions.

As the vehicle draws near the pedestal, the employee transmitter and vehicle transmitter inside the automobile begin transmitting. The vehicle transmitter sends information containing the automobile's stock code; the employee transmitter sends the sales associate's ID code. The pedestal receives this information, and relays it to the host computer, which verifies the data and signals the pedestal to open the auto gate.

Installation procedures

2.1 Materials inspection and inventory

1. Inspect the shipping containers for external damage. Any damage should be noted before opening the container. Report damaged equipment to the shipping carrier immediately for claim purposes. Save all packing materials until installation has been completed.
2. Table 2-1 lists the components you will be installing.

Table 2-1. CARmax installation parts kit #6635-01

Gate pedestal equipment	Computer interface equipment	Auto gate equipment
Gate pedestal Gate Controller Module	Fiber-to-digital multiplexer Qty: 1	Spade lugs, 18-22 AWG wire, #8 stud, Qty: 15 per gate
Cable, (50 feet between pedestal and gate, Qty: 50 feet per pedestal	Fiber-optic patch panel, Qty: 1	Spade lugs, 14-16 AWG wire, #8 stud, Qty: 5 per gate
	Fiber-optic patch panel cables	Antenna mounting hardware

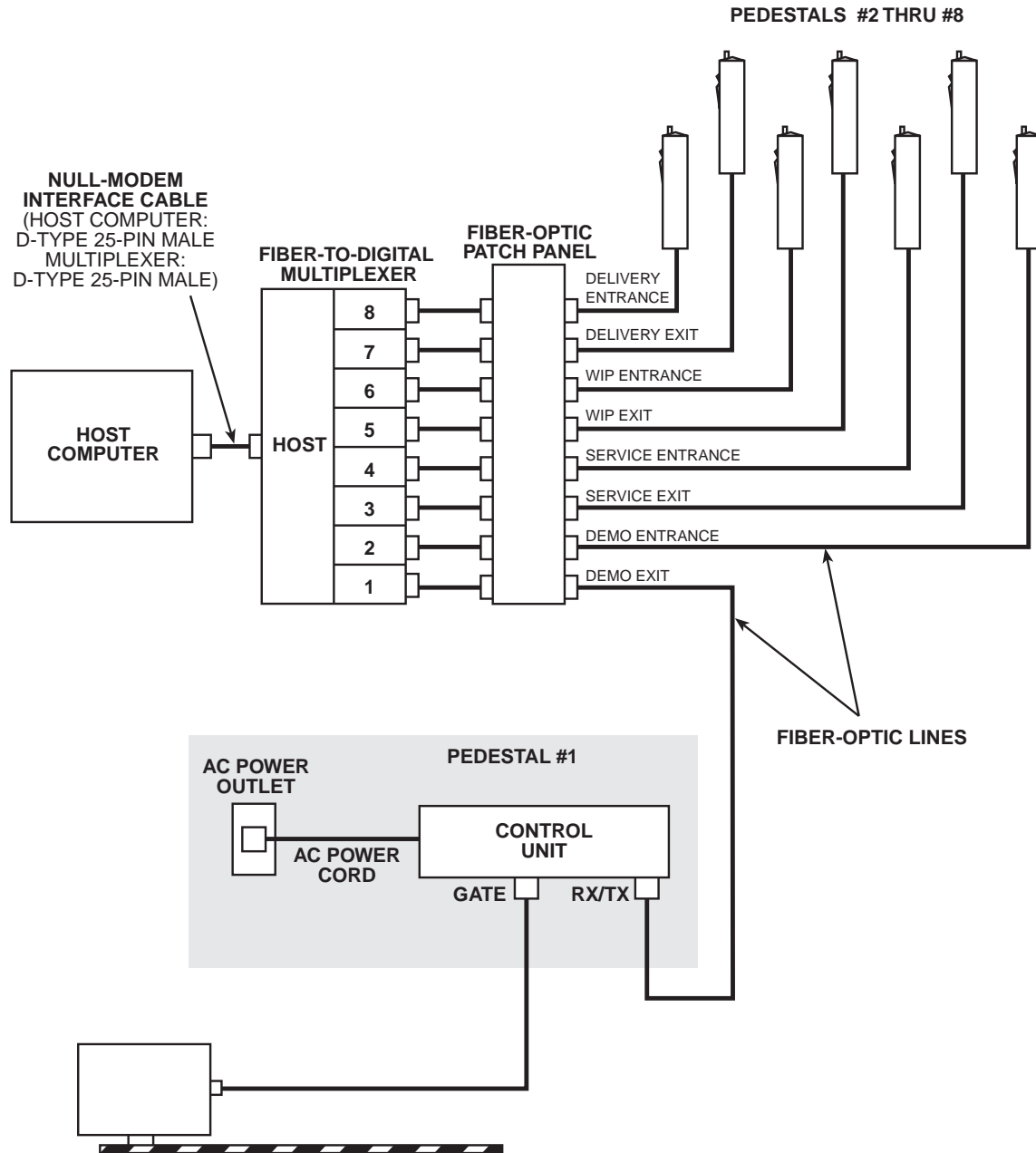


Figure 2-1. System diagram

2.2 Gate pedestal installation

This section describes installing the gate pedestals where they will operate with the following types of gates and crash beam barriers:

- AG812 gates
- TT212H single crash beam barriers
- TT212H double crash beam barriers

Before installing each gate pedestal, verify that the following have been completed:

- Serial-data-lines 1-inch conduit installed between main building and pedestal enclosure containing 4 strands of fiber-optic cable.
- Main-building-to-pedestal $\frac{3}{4}$ -inch conduit containing power lines installed between the main building and the pedestal.
- Pedestal-to-gate-controller 1-inch conduit containing sense lines installed between the pedestal and the gate controller.

Installing gate pedestal on concrete curb

1. Uncrate the gate pedestal.
2. Leave the pedestal on the bottom pallet until ready for installation.
3. Open the access panel (see figure 2-2).

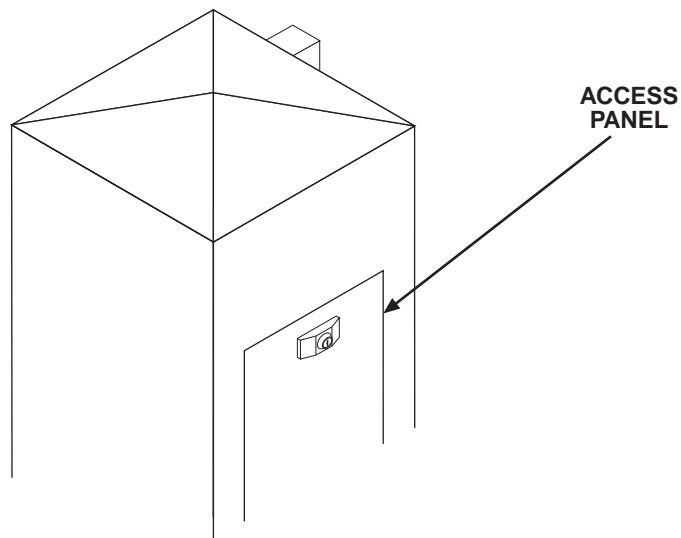


Figure 2-2. Pedestal access panel

4. Remove the bolts holding the pedestal onto its pallet.

5. Place the unit in position on the curb. Verify that the keypad shield (see figure 2-3) is facing the curb, and that the pedestal is far enough back from the curb line (see figure 2-4) so as not to present a hazard to motorists. Also verify that the unit is mounted upright, not at an incline. If the lane slopes, place the unit onto a concrete pad to maintain a level surface (see figure 2-5).

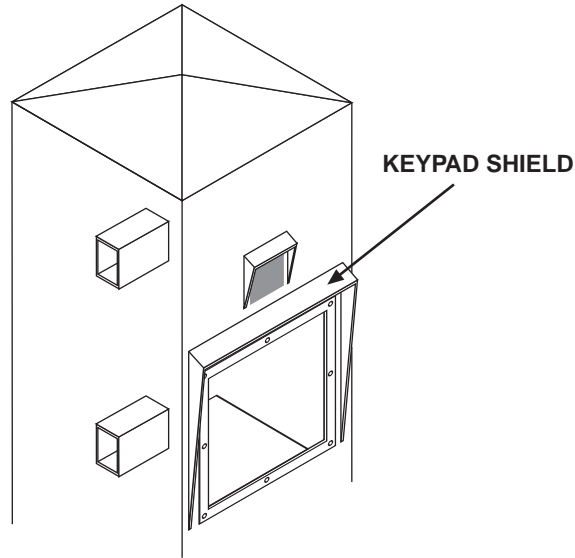


Figure 2-3. Pedestal keypad shield

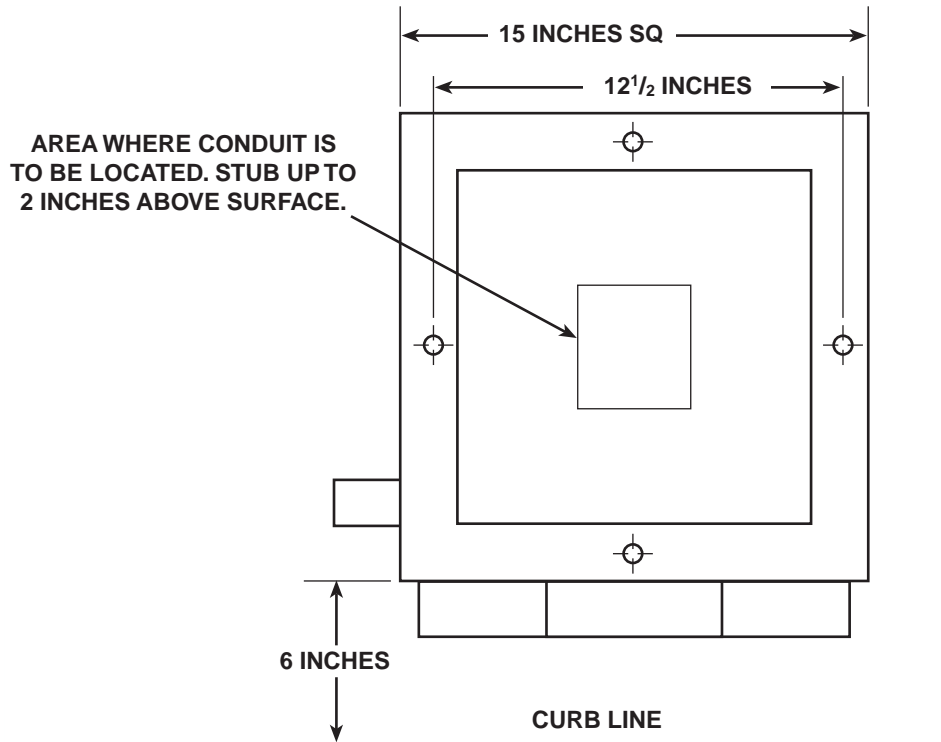


Figure 2-4. Placement of gate pedestal

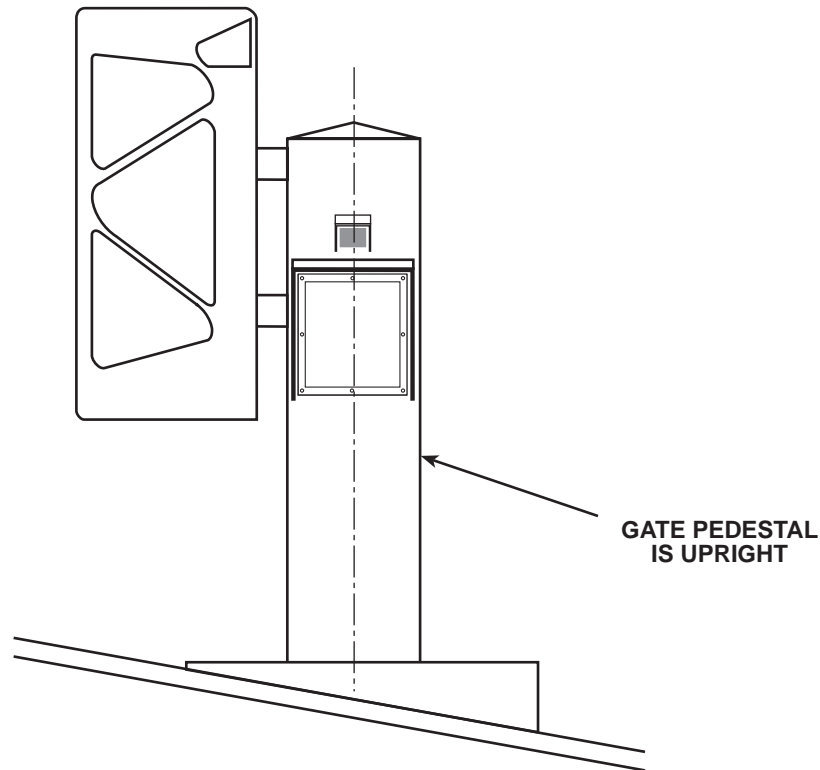


Figure 2-5. Mounting gate pedestal level in sloping lane

6. Using the pedestal gasket (located inside the pedestal) as a template, mark the locations of the holes on the concrete with a pencil.
7. Using a hammer and center punch, mark the center of each hole to be drilled.
8. Set the enclosure aside. Using the center-punched marks as a reference, drill all four mounting holes with a $\frac{3}{8}$ -inch masonry drill bit. Drill each hole $2\frac{1}{2}$ inches deep.
9. Clean out the holes, then insert a $\frac{3}{8}$ -inch wedge anchor into each hole. Using the hammer, tap each anchor to set it in its hole.
10. Place the pedestal gasket in position.
11. Place the pedestal in position on top of the gasket.

12. Secure the pedestal in position using $\frac{3}{8}$ -inch mounting hardware (see figure 2-6).

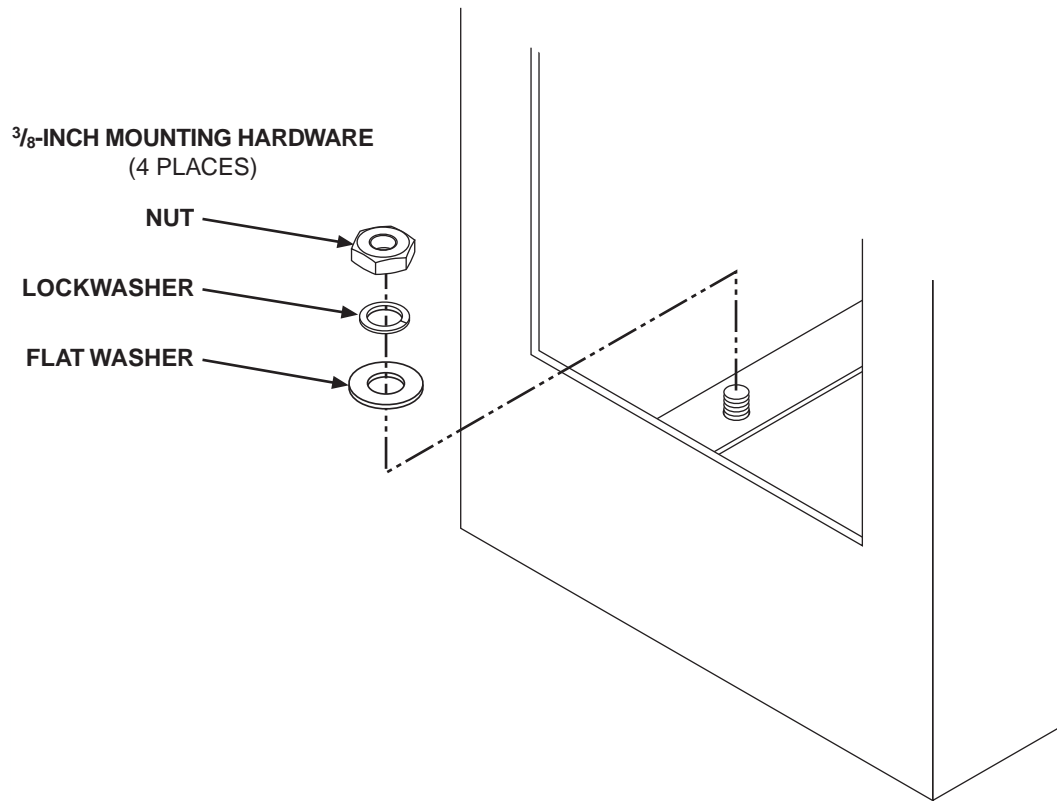


Figure 2-6. Installing base mounting hardware

Installing the antenna

1. Route the antenna wiring harness through the top antenna support tube on the pedestal (see figure 2-7 for locations).

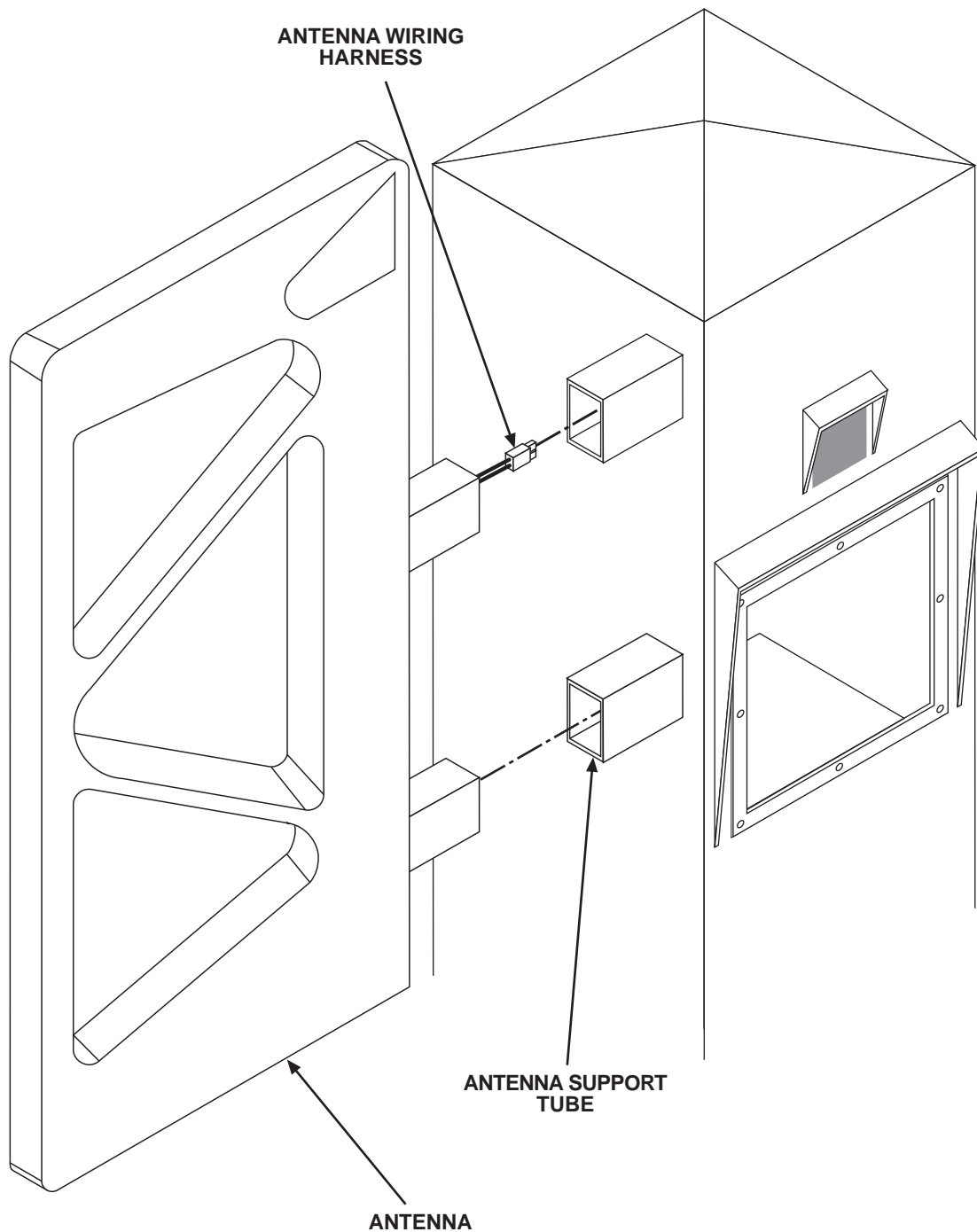


Figure 2-7. Installing the antenna onto the pedestal

2. Insert the antenna arms onto the support tubes.
3. Install the $\frac{1}{4}$ -inch antenna mounting hardware into the top support tube as shown in figure 2-8, then install mounting hardware into the bottom support tube.

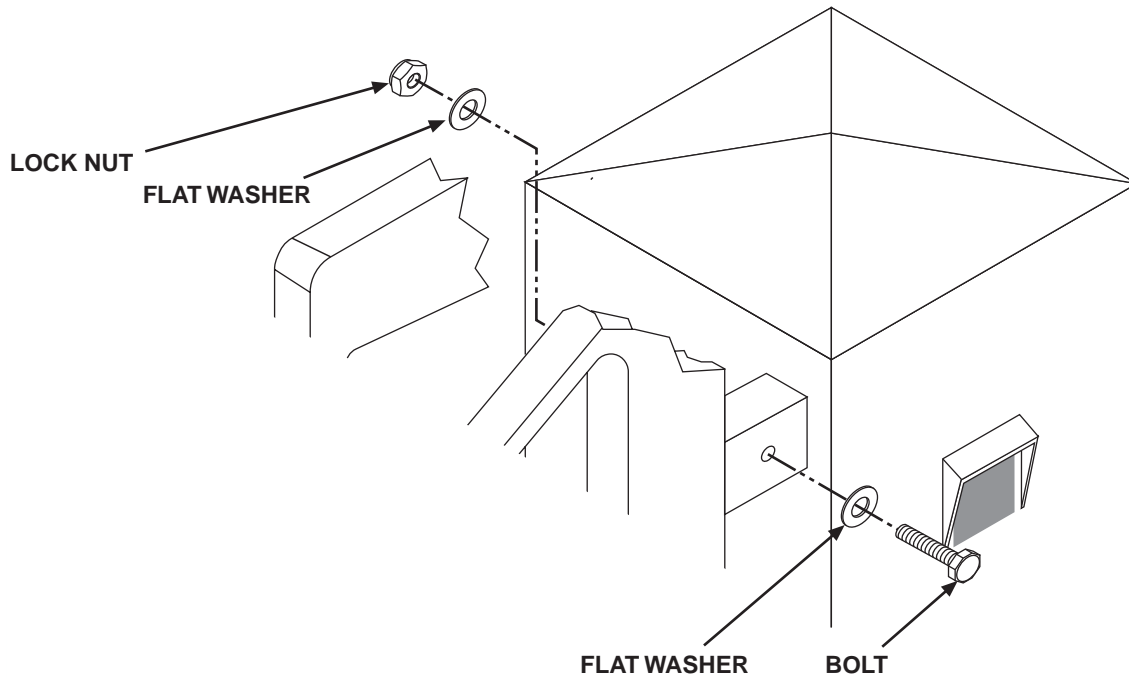


Figure 2-8. Installing antenna mounting hardware

Installing the control unit chassis

1. Slide the control unit chassis into the pedestal (see figure 2-9).
2. Using a flat-blade screwdriver, tighten the 8 captive fasteners (see figure 2-9) to secure the control unit to the pedestal.

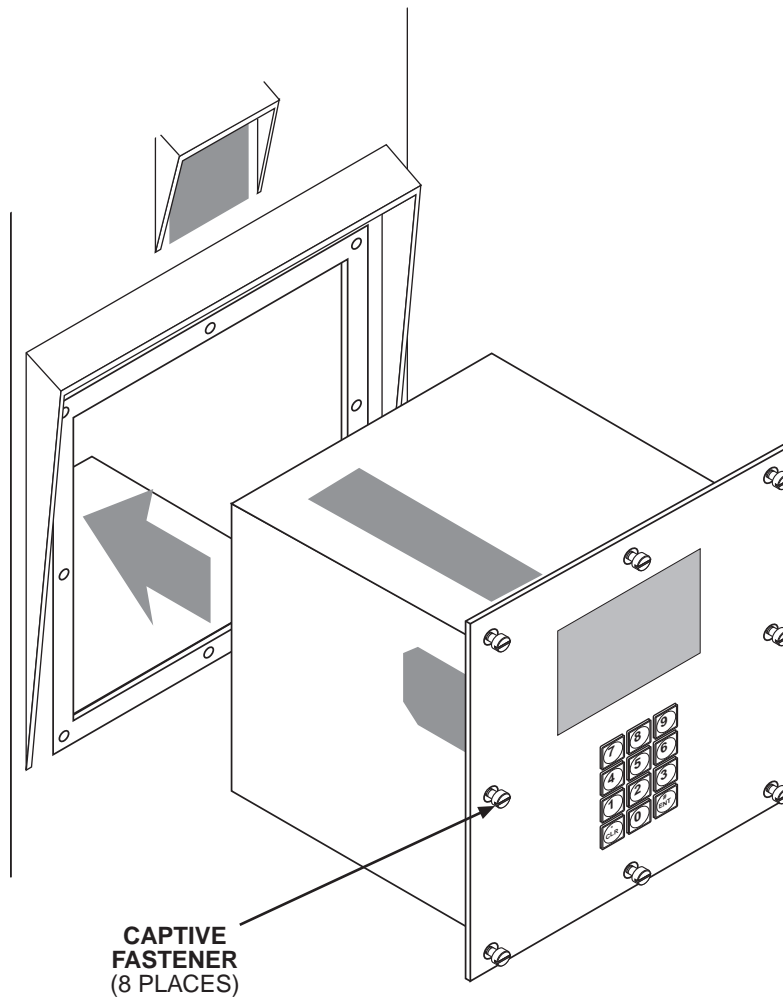


Figure 2-9. Control unit chassis location

3. Plug the female end of the ac power cord into the control unit chassis receptacle (see figure 2-10); plug the other end into the outlet (see figure 2-11).
4. Install the antenna cable connector onto the rear of chassis (see figure 2-10).

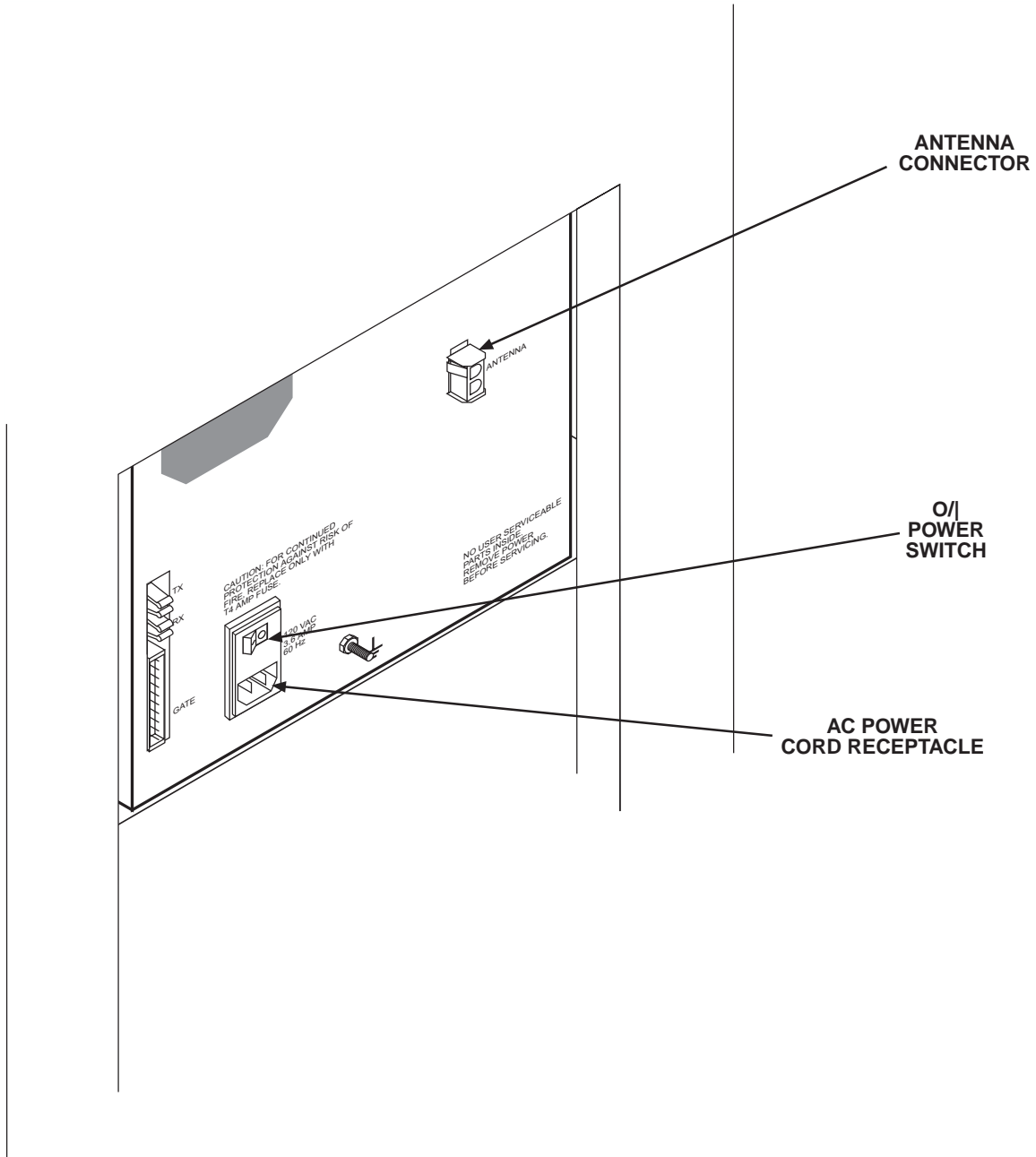


Figure 2-10. Antenna connector, O/I power switch and ac power cord receptacle locations

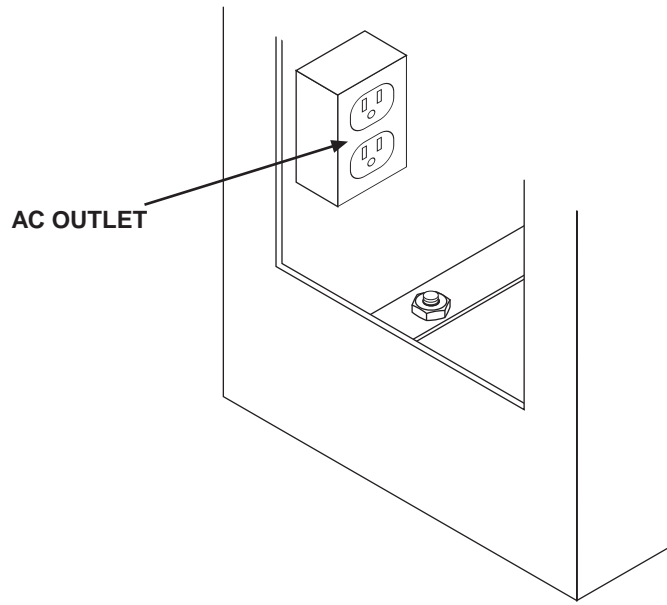


Figure 2-11. Pedestal AC outlet location

5. Install the ground strap onto the control unit's ground stud using the grounding hardware as shown in figure 2-12.

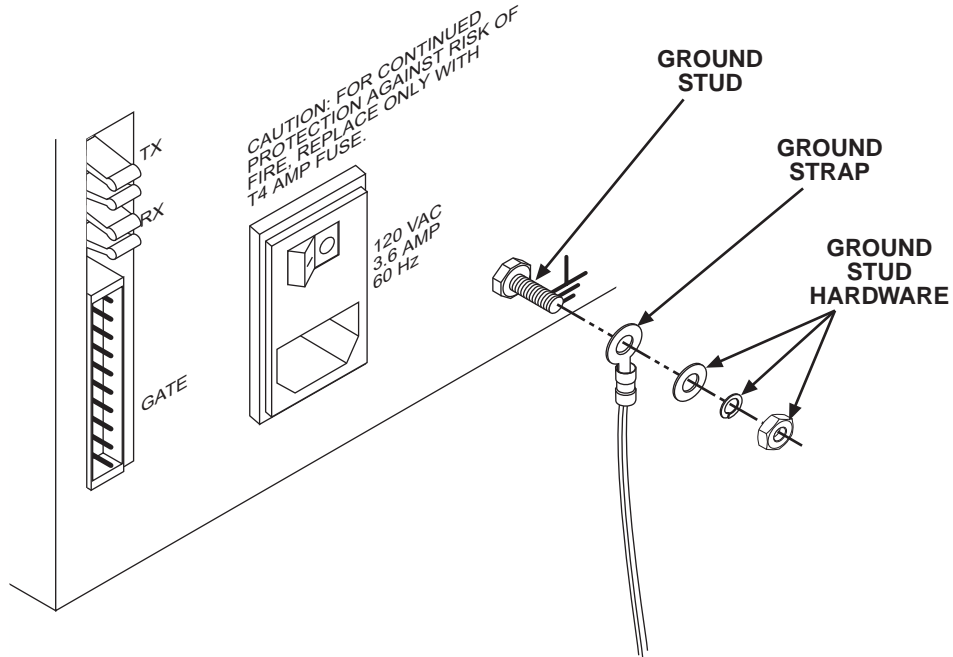


Figure 2-12. Grounding the control unit