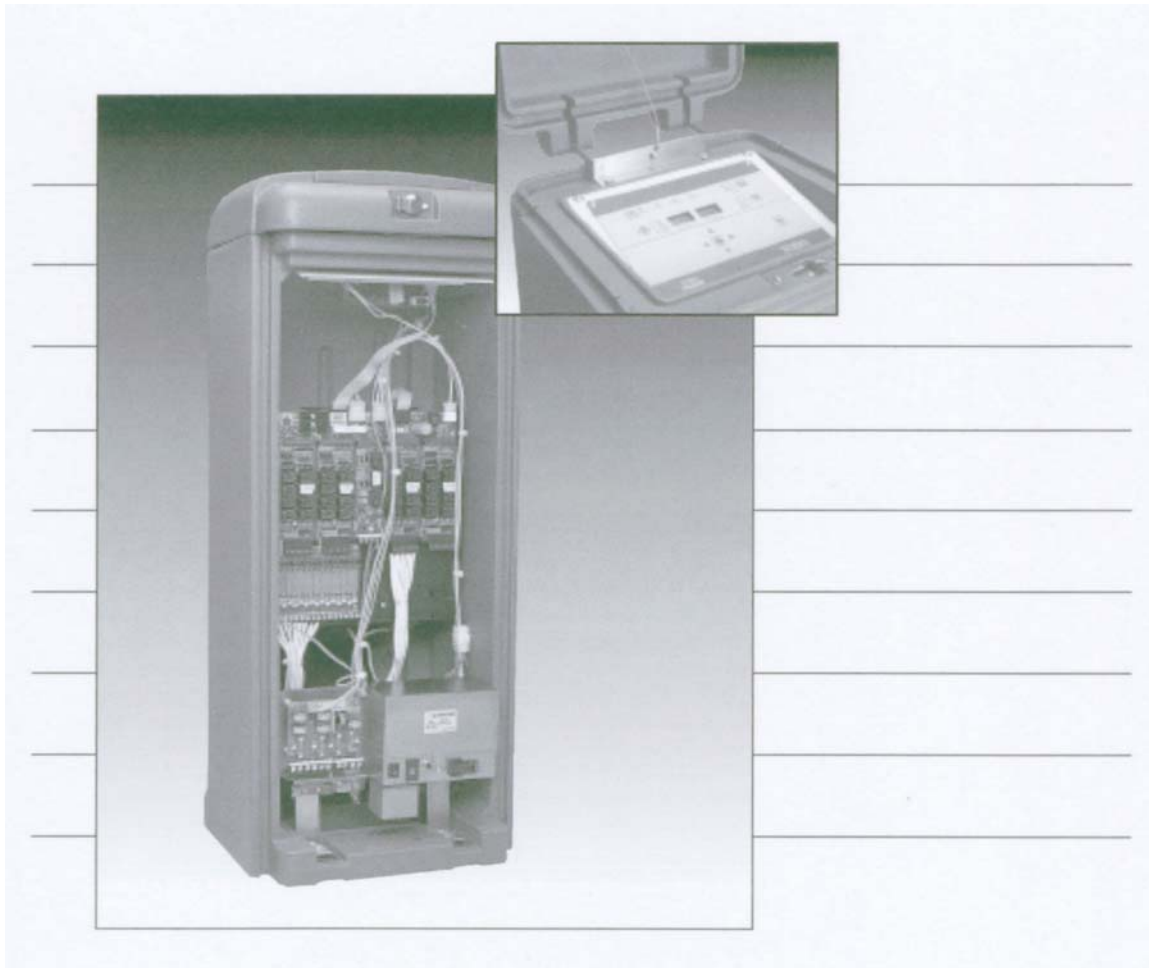
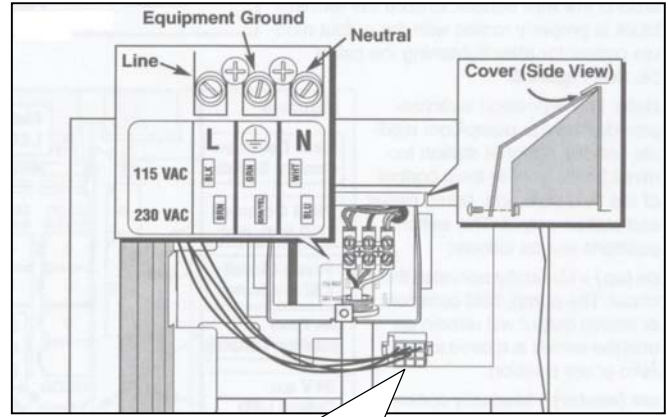
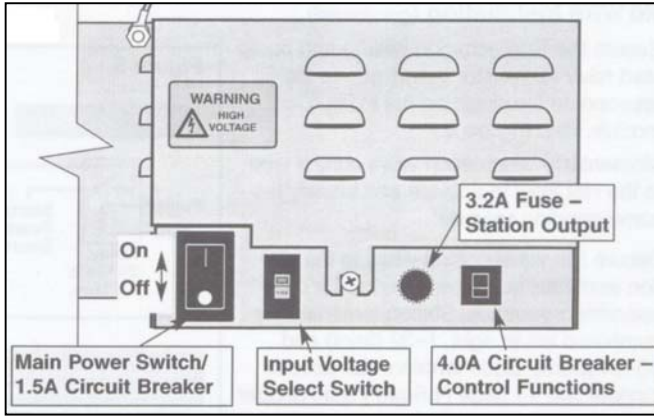
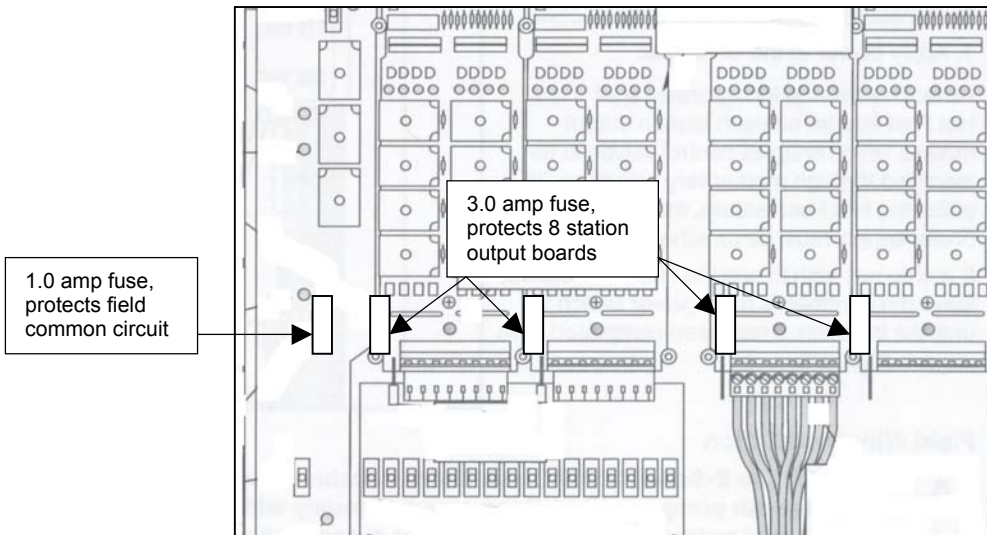


Satellite Troubleshooting Guide



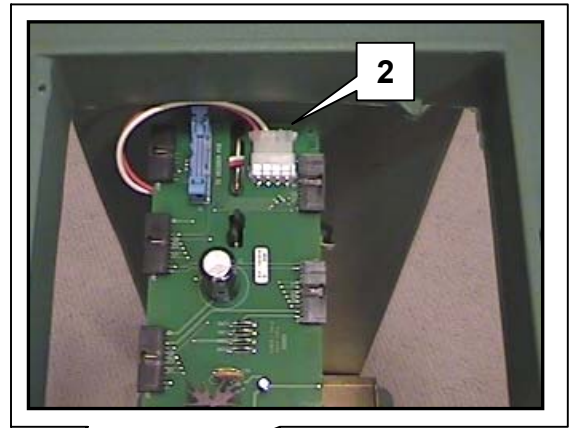
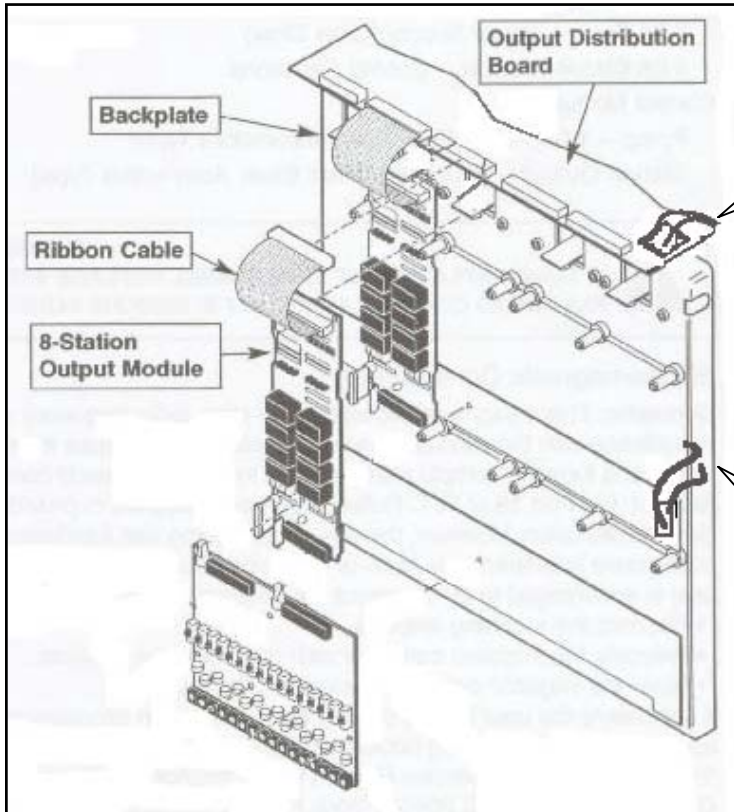


Connection from transformer to power cable which feeds Distribution Board and 24 Vac Buss Bar



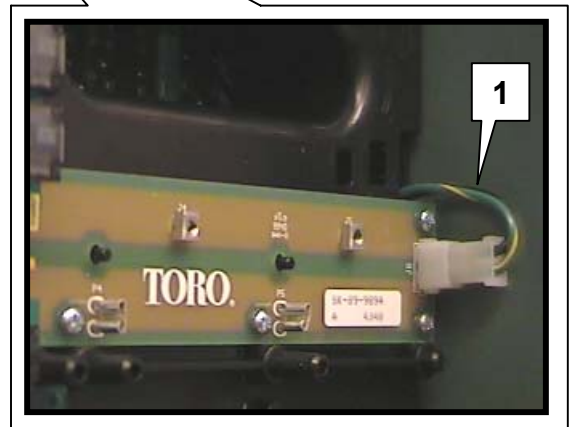
Electrical Protection:

- 1.5A Circuit Breaker: Protects the controller from a short circuit on the incoming power wire.
- 4.0A Circuit Breaker: Protects the controller from a short circuit on boards dealing with controller logic, such as the Decoder Card or Distribution Board.
- 3.2A Slow Blow Fuse: Protects the controller from a short circuit on the 24 Vac field wiring, a shorted solenoid or too many stations running at one time.
- 3.0A Fast Blow Fuse: Protects individual 8-station output boards from a short on the 24 Vac field wiring, a shorted solenoid or too many stations running at one time.



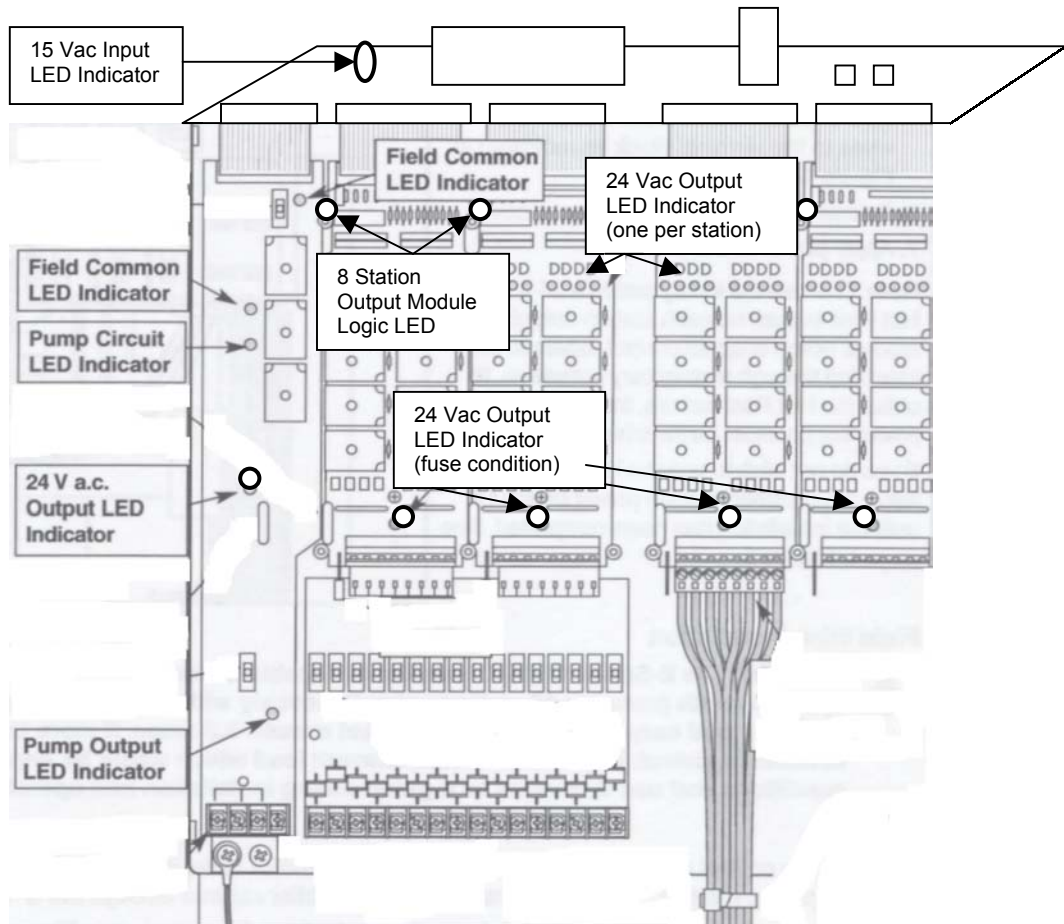
Distribution Board

24 Vac Buss Board



Voltage Checks:

- | | | | |
|---|------------------------------------|-------------|----------------------------|
| 1 | Green and Black from Power Supply: | 24 – 26 Vac | protected by 3.2A fuse. |
| 2 | White and Red from Power Supply: | 14 – 16Vac | protected by 4.0A breaker. |



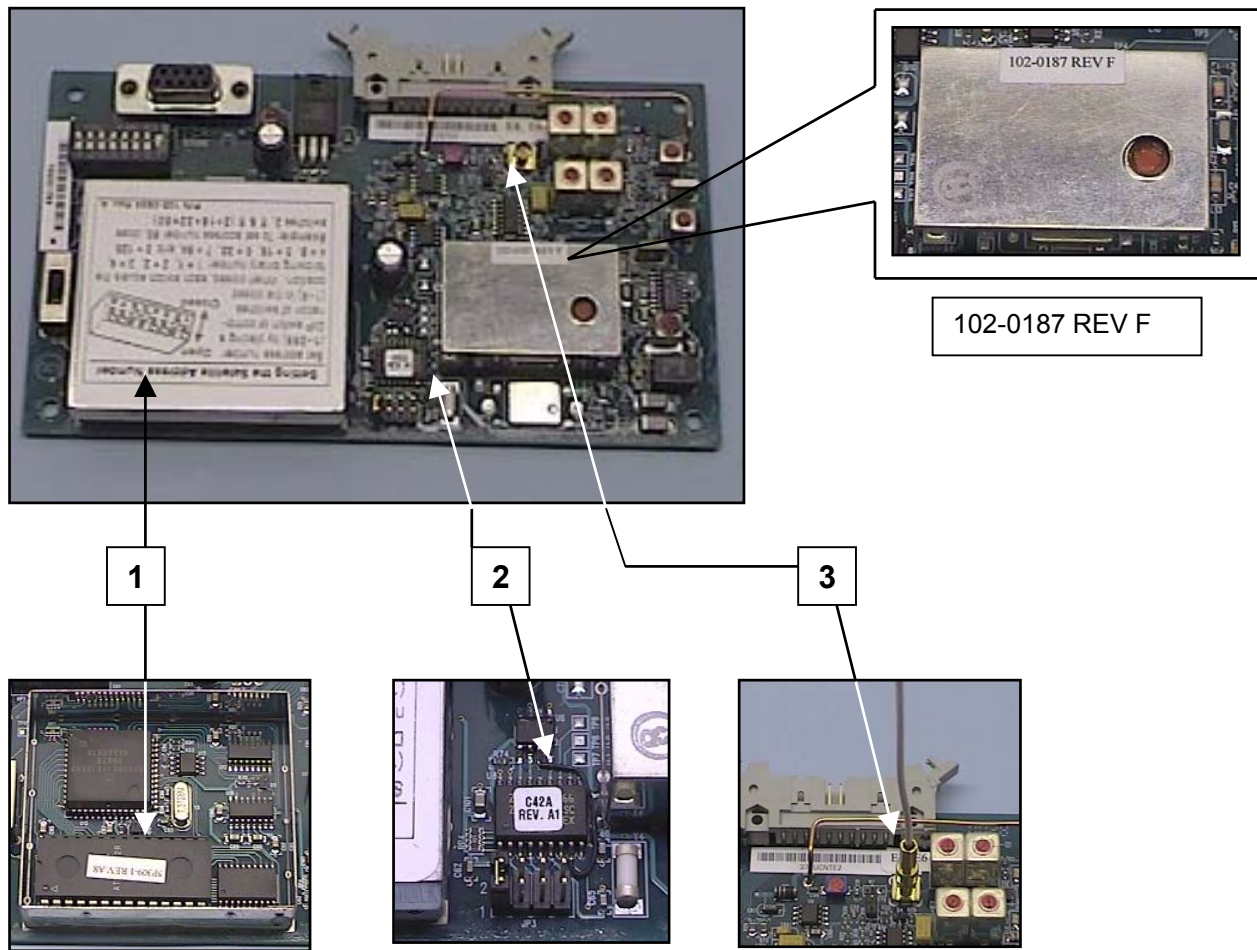
Lights:

The Yellow LED on the Distribution Board when illuminated indicates 14–16 Vac on the White and Red wires coming from the Power Supply. If it is not illuminated check for (1) a tripped 4.0A breaker (2) loss of 115 Vac power (3) a bad transformer. If the breaker is tripped the Distribution Board or Decoder Card likely contains a short circuit. Replace as needed.

The Yellow LED on the 8 Station Output Module when illuminated indicates communication between the Distribution Board and the Module. If one is not illuminated check the Ribbon Cable connection. If all are not illuminated check steps (1), (2) and (3) above.

The Green Station LED will illuminate when a signal is received by the 8 Station Output Module, either by an automatic command or a Handheld command to start that station. It will not illuminate by using the manual switches. It only indicates that the Output Module received a signal. It does not indicate that the station actually came on, but only that the relay activated.

The Red LED on the 8 Station Output Module and the Pump/Common Module when illuminated indicates 24–26 Vac on the Green and Black wires coming from the Power Supply across the 24 Vac Buss Bar. When one Red LED is not illuminated check the individual (automotive) fuse for that module. If the fuse is blown check for a short on the 24 Vac field wire or a shorted solenoid. If all Red LED's are out check for (1) a blown 3.2A fuse (2) a loose Green and Black wire connection on the Buss Bar or (3) broken solder joints where the fuse holder connects to the Buss Bar. If the 3.2A fuse is blown check for too many solenoids operating at one time.



Current Version: REV F

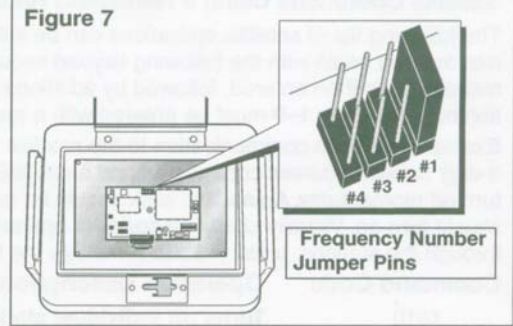
Past issues fixed with REV F

- 1** **Communication failure at ambient temperatures.**
 Solution: firmware bug in EPROM identified and corrected.
- 2** **Loss of frequency due to power outages or surges.**
 Solution: jumper wire added to microprocessor, which allows short delay before rewriting frequency to EPROM.
- 3** **Poor reception**
 Solution: addition of “whisker” antenna.
- 4** **Communication failure in high heat.**
 Solution: voltage regulator reset to specs.

Selecting the Decoder Radio Frequency

The narrow band decoder module assembly stores four user-selectable radio frequencies. The frequencies are programmed at the factory or by the distributor prior to delivery of the satellite. A set of jumper pins, located at the top center of the decoder module, enables the frequency to be selected by simply placing the jumper on the appropriate pin set. In most cases, the jumper will be configured properly by the distributor prior to delivery. However if a frequency change is desired, place the jumper on the pin set as indicated in **Figure 7**.

Important: The base station transmitter and decoder must be set to the same frequency to enable communication.



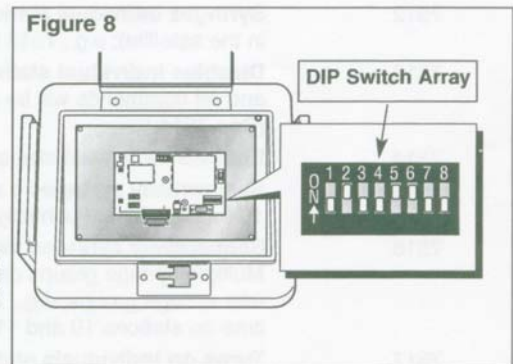
Assigning the Satellite Address Number

Each satellite requires a 3-digit address number to enable communication with the central controller and/or a hand-held radio. The address numbers range from 1 (001) through 255 and are issued to the satellite through an array of eight DIP switches, located on the decoder module assembly. See **Figure 8**. In the down position, the switch is Off (open) and represents a value of 0 (zero). In the up position, the switch is On (closed) and represents the following address number:

Sw 1 = 1 Sw 2 = 2 Sw 3 = 4 Sw 4 = 8
Sw 5 = 16 Sw 6 = 32 Sw 7 = 64 Sw 8 = 128

To set the satellite address number, place the switch or combination of switches to the On position which provides the numerical equivalent of the desired address number.

For example: To set satellite address number 50 (050), start with all eight DIP switches in the Off (open) position, then close switch numbers 2, 5 and 6; i.e., 2 (Sw 2) + 16 (Sw 5) + 32 (Sw 6) = 50.



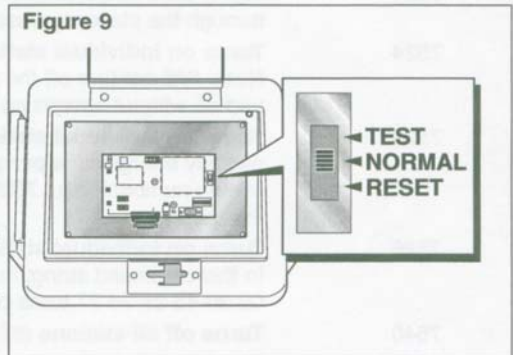
Testing Satellite Operation

• Performing a Control Circuit Self Test

A self-test feature is provided to check the functionality of various key satellite control circuits. Before performing the test, ensure the Field Common, Pump and Station Output control switches are set to the **AUTO** (down) position.

The test is initiated by positioning the **TEST/RESET** switch, located on the decoder module, to the **TEST** position as shown in **Figure 9**. Testing will begin immediately and is indicated by the audible clicks of the control relays and momentary illumination of the LED's on the various PCB assemblies. The test will repeat continuously until the **TEST/RESET** switch is positioned to the center (normal operation) position.

Note: The **RESET** position resets the decoder microprocessor to factory defaults. To take affect, the satellite must be powered up with the switch in the **RESET** position. The switch should be placed in the **NORMAL** position after 15 seconds of operation.



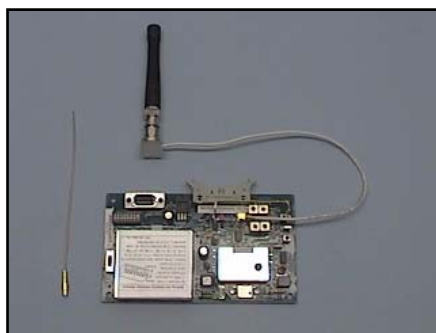
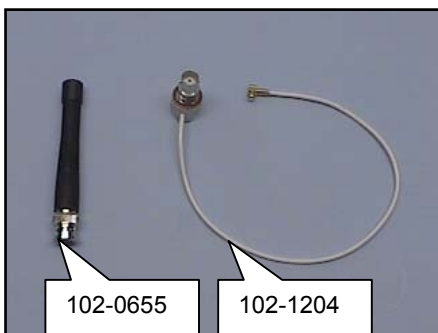
Communication Issues:

Poor communication can result from a variety of issues. The following list outlines steps to try or components to check if you are having sporadic communication or no communication at certain locations on your site.

1. Decoder Card Are they the current version with the “whisker “ antenna installed (REV F)?
2. Base Station Are the Rx and Tx frequencies set correctly?
Is it set to narrow band?
Is it set to high power?
Is the “busy channel lockout” set to disable?
3. Base Antenna & Cable Has a visual inspection been done to determine proper cable connections and cable conditions?
Has a Watt Meter been used to test for proper power output or the existence of Unwanted, “Reflective Power”?
Does the frequency being used for the system match the frequency range of the antenna?
If the antenna is a directional antenna is it aimed properly?
Is the height of the antenna appropriate for the terrain of the site?
Is the antenna obstructed in any way?
4. E-osmac Controller Is the satellite in a location that might restrict dependable communication?
Is the incoming power adequate for proper controller operation (105+ Vac)?
Is the incoming neutral power wire free from any AC voltage?
Is the incoming power stable or is it prone to spikes, surges or brown outs?
Have you tried to reset the decoder card?
5. Radio Interference Is there remote interference from another source? If so is your site properly licensed? Local radio shops generally have the equipment necessary to trace remote interference and if found can be helpful in remedying the situation.

If no problems are found with the condition of the system the problem may lie with one of the following (1) inadequate transmit power at the base station or (2) inadequate reception at the satellite, both will be the result of terrain and/or distance at the site. Solutions may be as simple as a more powerful antenna at the base station and/or satellites or may require the addition of either a wattage power booster at the base location or the addition of a repeater on site. Contact your Field Service Manager for suggestions.

Satellite Antennas:



OSMAC Satellite Plastic Cabinet External Antenna Kit, P/N 102-3126 Installation Instructions

The OSMAC Satellite Antenna is designed specifically for the plastic pedestal cabinet installation. This instruction will guide you through all the necessary steps for proper and complete external antenna installation.

⚠ CAUTION: Severe electro-static discharge (ESD) can render the satellite Timing Mechanism (TM) defective and inoperable. Place one hand on the metal bracket of the satellite to ground yourself before handling the TM.

Step 1 - Unlock and open the satellite pedestal cover. Remove the pedestal front panel to access the power supply and place the power supply switch to **OFF**.

Step 2 - Locate the "whisker" antenna and carefully remove it from the PCB. See **Figure 1**.

Step 3 - Remove the pedestal rear panel. Secure the antenna adapter in the D-shaped access hole with the locking washer and screw nut. Remove the knockout located at the top left corner of the plastic plate and route the antenna adapter cable through it. Install the antenna cable adapter to the PCB board as shown. See **Figure 1**.

Step 4 - Remove the vent cover from the pedestal cover by unscrewing the two mounting screws located underneath. See **Figure 2**.

Step 5 - Slide the external antenna cable through one of the vent holes in the pedestal cover. See **Figure 3**.

Step 6 - Position the external antenna on top of the pedestal cover and secure it with the two mounting screws removed from the vent cover. See **Figure 3**.

Step 7 - Secure the external antenna cable to the antenna adapter. See **Figure 4**.

Step 8 - Secure the antenna cable to the wire support of the pedestal cover using the provided wire tie. Allow enough antenna cable loop for the door to fully open. See **Figure 5**.

Step 9 - Place the power supply switch to ON. Replace the pedestal front and rear access panel and test the satellite for proper operation.

