Installation & Operation

EDACS® Guardog™

ERICSSON

NOTE

Repairs to this equipment should be made only by an authorized service technician or facility designated by the supplier. Any repairs, alterations or substitution of recommended parts made by the user to this equipment not approved by the manufacturer could void the user's authority to operate the equipment in addition to the manufacturer's warranty.

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TABLE OF CONTENTS

TABLE OF CONTENTS (Cont.)

LIST OF FIGURES AND TABLES

SPECIFICATIONS

Dimensions:
- Modem/Reset Unit Chassis ..... 3.5" H x 19.00" W x 13.125" D
- AC Relay Panel ..... 2.75" H x 19.00" W x 3.5" D

Temperature:
- Reset Unit ..... 0° to +60° C (+32° to +140° F)
- AC Relay Panel ..... -30° to +80° C (-22° to +176° F)

Input Power:
- Input Voltage:
  - Reset Unit ..... 10 to 14 Vdc
  - AC Relay Panel ..... 90 to 280 VAC
- Input Power:
  - Reset Unit:
    - Idle ..... 80 mA (typical)
    - Maximum ..... 250 mA (typical)
  - AC Relay Panel:
    - De-energized ..... 5.5 mA (typical)
    - Energized ..... 50 mA (typical) plus load

Signal Inputs:
- Reset Unit:
  - Maximum Voltage Protection ..... 50 Vdc
  - Inactive ..... Open (47Kohm pull-up to +12Vdc provided)
  - Active ..... Ground
- AC Relay Panel:
  - Maximum ..... 32 Vdc
  - Must Turn On ..... 5 Vdc
  - Must Turn Off ..... 1 Vdc

Switched Outputs:
- Reset Unit ..... 1 A at 120 VAC
- AC Relay Panel ..... 5 A at 90 to 280 VAC

INTRODUCTION

This manual describes the operation of the Zetron 1512 SentriDial alarm monitoring system equipped with custom software specifically for this EDACS (Enhanced Digital Access Communications System) Guardog option. See the standard Zetron 1512 SentriDial Technical Manual #025-9121 for FCC and hardware maintenance information. (Note that the descriptions in the standard Zetron manual are for the standard parameters and software.)

This manual also describes the field installation of the EDACS Guardog option, and how to upgrade older EDACS equipment to support it. This manual is written for the standard 20-second voice message memory package. If additional memory has been added, add the additional memory capacity to all 20-second references.

DESCRIPTION

The EDACS Guardog option is designed to provide automatic and remote resetting of certain microprocessor driven equipment at an EDACS repeater site (repeaters with Station GETCs) that contains a Site Controller computer. The EDACS Guardog option is designed to reset the following equipment:

- Station GETCs (one per repeater)
- Site Controller Computer
- Modem (to System Manager)

Automatic resetting is accomplished by sensing when a reset is needed and following an Automatic Reset Cycle. The Automatic Reset Cycle first resets all the Station GETCs. If unsuccessful, it then resets the Site Controller computer and modem, waits, and resets all the Station GETCs a second time. If still unsuccessful, it calls up to 10 telephone numbers to play a voice message. Figure 1 shows a simplified graphical representation of this Automatic Reset Cycle with the major events placed on a horizontal time scale.

Remote resetting is accomplished by decoding individual reset commands from a DTMF telephone connected to the site by a telephone line.

The EDACS Guardog option adds the following parts to the present standard configuration of the EDACS Site Controller cabinet:

- Reset Unit
- Reset Unit Cables
- AC Relay Panel
- Interconnect Cables

The **Reset Unit** is a Zetron Model 1512 SentriDial alarm monitoring system with custom software and 20 seconds of voice message memory. The Reset Unit shares the Modem/Reset Unit Chassis with the modem to the System Manager.

The **Reset Unit Cables** extend connections from inside the Reset Unit to the back panel of the Modem/Reset Unit Chassis. See the assembly diagram at end of this manual for details.

The **AC Relay Panel** is used by the Reset Unit to momentarily interrupt ac power to the EDACS Site Controller computer and modem, causing them to automatically reset on power-up. The panel is mounted on the back rails of the cabinet, between the 13.8 Vdc power supply and the Uninterruptible Power Supply. See the assembly diagram at end of this manual for details.

The **Interconnect Cables** are used to connect the AC Relay Panel and the Reset Unit to each other, the existing Station Power Supply, and the existing Serial Module in the EDACS Interface Panel. See the assembly diagram at end of this manual for details.

Additional parts may be required to upgrade older EDACS Repeater and Site Controller cabinets to the present standard configuration to support this option (see the Upgrade section for more information).

Figure 1 - Simplified Automatic Reset Cycle

UPGRADE

OVERVIEW

The EDACS Guardog option is designed to be installed in an EDACS repeater site (repeaters with Station GETCs) that contains a Site Controller computer. To accommodate the EDACS Guardog option, certain changes were made to the standard EDACS repeater and Site Controller equipment. If the equipment at the site was shipped before these changes were made, you will need to upgrade the equipment before you can install the Guardog option as it was intended.

MATERIAL

Make the following checks to determine what, if any, material is needed to upgrade your EDACS equipment:

- **19C852447G1 Serial Module** - You will need one for each Site Controller and Repeater cabinet that does not have one.

  Look at the back of the Site Controller cabinet and each Repeater cabinet. At the top is the EDACS Interface Panel, where most of the cables from outside the cabinet connect to the cabinet. The module in the right-hand position is the Serial Module. If the Serial Module is not marked 19C852447G1, you will need to replace it.

- **SPK 9310 EDACS Guardog kit** - You will need one kit for each Station GETC (EDACS repeater).

  Look at the back of each Station GETC shelf in each Repeater cabinet. There should be a short bracket (about 5 inches long) cantilevered from the left rail of the cabinet, just behind the GETC shelf. If this bracket contains four connectors, you have what you need. If this bracket is not present or contains only two connectors, you will need to upgrade that Station GETC with an SPK 9310 EDACS Guardog kit.

- 1**88D5366P1 Modem / Reset Unit chassis** - you may need one (optional).

  349A9859G1 hardware kit (for chassis) - you may need one (optional).

  19B803262P1 modem interface cable - you may need one (optional).

  Look at the front of the Site Controller cabinet. Just above the Power Supply will be a 1 3/4-inch high blank panel. Just above that should be the shelf for the modem used to communicate with the System Manager. If the shelf is open in front so that you can see the modem (or the shelf and modem are not there), you will need one 188D5366P1 Modem / Reset Unit chassis, one 349A9859G1 hardware kit, and one 19B803262P1 modem interface cable (only if a modem is present) to make your equipment look like the assembly diagram at the end of this manual. However, this is not necessary for the satisfactory operation of this option.

PROCEDURE

Serial Module

The 19C852447G1 Serial Module serves as the connection point for the Failsoft Status and GETC Reset lines between the Site Controller and Repeater cabinets.

The 19C852447G1 Serial Module can be installed without removing power from the cabinet it is in. During the time that the associated cables are disconnected, Failsoft trunking and telephone interconnect features will be partially or totally disabled, depending upon the cabinet the module is in. Use the following procedure to change the Serial Module:

1. Looking at the back of the Site Controller cabinet, the EDACS Interface Panels are fastened between the vertical rails in the rear of the cabinet towards the top. The Serial Module is the right-most module in the top EDACS Interface Panel. Make sure each cable is labeled BEFORE you disconnect it (so you can put it back exactly the way it was). Remove the old module by removing the four screws that hold the module to the frame. Mount the new 19C852447G1 Serial Module the same way and connect each cable to the correct connector. The new Serial Module will appear identical to the old one except for the part number.

2. Looking at the back of the first EDACS Repeater cabinet, the single EDACS Interface Panel is fastened between the vertical rails in the rear of the cabinet towards the top. The Serial Module is the right-most module in the EDACS Interface Panel. Make sure each cable is labeled BEFORE you disconnect it (so you can put it back exactly the way it was). Remove the old module by removing the four screws that hold the module to the frame. Mount the new 19C852447G1 Serial Module the same way and connect each cable to the correct connector. The new Serial Module will appear identical to the old one except for the part number.

Repeat step 2 for each additional EDACS Repeater cabinet. After all Serial Modules have been upgraded, force the site into Failsoft to make sure that Failsoft trunking still works normally.

EDACS Guardog Kit

Each SPK 9310 EDACS Guardog kit provides one GETC bracket and three interconnect cables.

- The 19C337711P1 GETC bracket is fastened to the back of the GETC shelf and serves as a connection point for the cables.
- The 19B803258P1 cable is used to connect the Failsoft Status and GETC Reset lines between the GETC shelf and the GETC bracket.
- The short 19B803301P1 cable is used to connect the Failsoft Status and GETC Reset lines between each GETC bracket and the next lower GETC bracket in the cabinet (if there is one).
- The long 19B803302P3 cable is used to connect the Failsoft Status and GETC Reset lines between the lowest GETC bracket in the cabinet and the 19C852447G1 Serial Module.

Upgrade one Station GETC at a time. During this upgrade procedure, only one repeater channel will be out of service at a time. Repeat steps 1 through 8 for each Station GETC.

1. Remove power from the GETC and its associated repeater by turning off their common power supply.
2. Looking at the back of an EDACS Repeater cabinet, each GETC shelf is just above the heat sink on the associated repeater. Start with the lowest GETC shelf first. Looking at the back of this GETC shelf, find where the left rear corner of the GETC shelf is fastened to the vertical rail of the cabinet with a "Z" bracket. Mounted on that same vertical rail, between you and the "Z" bracket may be a straight bracket with two connectors. Remove the two Phillips-head screws holding the brackets to the rail, replace the existing straight bracket (if present) with the 19C337711P1 offset bracket (with the offset towards you), and secure with the two original screws.
3. If a straight bracket was replaced in step 2, move the two connectors from the straight bracket to the new offset bracket. Move one connector at a time to avoid mixing up their positions.
4. Insert the two identical connectors on one end of the 19B803258P1 cable into the two remaining holes in the GETC bracket (from the backside as you're looking at it). The open end of the connectors should be facing away from the GETC shelf (towards you).
5. If the GETC shelf is the lowest one in the cabinet, connect the long 19B803302P3 cable from the GETC bracket (low connector) to J6 in the 19C852447G1 Serial Module. (J6 is easily identified because it is the one modular connector oriented upside down relative to the other eleven modular connectors.)
6. If the GETC shelf is not the lowest one in the cabinet, connect the short 19B803301P1 cable from the GETC bracket (low connector) to the next lower GETC bracket (high connector).
7. Restore power to the GETC and its associated repeater by turning on their common power supply.
8. Make sure the upgraded Station GETC works normally.

Chassis & Modem Cable

- The 188D5366P1 Modem / Reset Unit chassis provides a place to mount the Reset Unit (plus the modem).
- The 19B803262P1 modem interface cable extends the telephone line connection from the modem to the back panel of the Modem / Reset Unit chassis.

The Modem / Reset Unit chassis and modem interface cable can be installed without removing power from the Site Controller cabinet. During this upgrade procedure, the System Manager will not be able to communicate with the Site Controller computer while the modem is disconnected. Use the assembly diagram at the end of this manual and the following procedure to replace the old modem shelf with the Modem / Reset Unit chassis:

1. Remove the old modem shelf (if present) with the modem attached.
2. Remove the modem from the shelf and install in the Modem / Reset Unit chassis.
3. Plug one end of the modem interface cable into the modem and insert the other end into the hole in the back panel of the Modem / Reset Unit chassis.
4. If you are ready to install the EDACS Guardog option, leave the Modem / Reset Unit chassis out, otherwise install it in the space vacated by the old modem shelf.
5. Make sure that the System Manager can still communicate with the Site Controller computer.

INSTALLATION

OVERVIEW

The EDACS Guardog option is designed to be installed in an EDACS repeater site (repeaters with Station GETCs) that contains a Site Controller computer. If an upgrade of the existing equipment was necessary at the site, it is assumed that this has been completed. If not, see the Upgrade section.

PREPARE RESET UNIT

The **first step** is to prepare the Reset Unit for mounting. Use the assembly diagram (at the end of this manual) and the following procedure:

1. Remove the cover from the 349A9548P7 Reset Unit.
2. Set the jumper positions in the Reset Unit per Figure 2 (the solid black rectangles represent the jumper plug).
3. Connect the 19B803259P1 cable as follows:
   a. Connect the orange wire to terminal J1-1.
   b. Connect the blue wire to terminal J1-5.
   c. Connect the slate (gray) wire to terminal J1-17.
   d. Connect the yellow wire to terminal J2-5.
4. Connect the 19B803260P1 cable as follows:
   a. Connect the green wire to terminal J1-4.
   b. Connect the white wire to terminal J1-7.
   c. Connect the black wire to terminal J2-6.
5. Connect the 19B803261P1 cable as follows:
   a. Connect the red wire to terminal J1-14.
   b. Connect the black wire to terminal J1-16.
6. Connect the 19B803262P1 cable to J1 on the smaller board.
7. Connect the 19B803263P1 cable as follows:
   a. Connect the black wire to terminal J1-9.
   b. Connect the red wire to terminal J1-10.
   c. Connect the green wire to terminal J1-11.
8. Connect the 349A9827P1 brown wire from J1-3 to J2-7.
9. Connect the 349A9827P2 orange wire from J1-4 (this space is shared with a green wire) to J2-9.
10. Remount the cover on the 349A9548P7 Reset Unit.

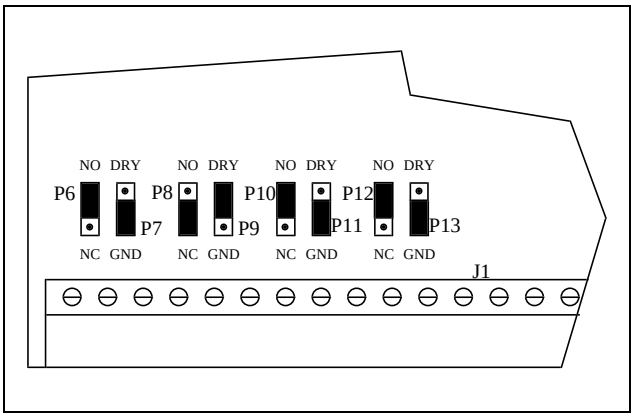

Figure 2 - Jumper Positions

INSTALL RESET UNIT

The **second step** is to install the Reset Unit in the Modem / Reset Unit chassis beside the modem. Use the assembly diagram (at the end of this manual) and the following procedure:

1. Remove the 188D5366P1 Modem/Reset Unit chassis from the Site Controller cabinet (the modem's power cord, data link to the Site Controller computer, and telephone line will need to be unplugged).
2. Using the existing brackets and hardware, install the Reset Unit in the Modem / Reset Unit chassis.
3. Insert the connectors (on the ends of the cables from the Reset Unit) into the holes in the rear of the Modem / Reset Unit chassis.
4. Install the 188D5366P1 Modem/Reset Unit chassis in the Site Controller cabinet (don't forget to reconnect the modem's power cord, data link to the Site Controller computer, and telephone line).

INSTALL AC RELAY PANEL

The **third step** is to install the AC Relay Panel in the Site Controller cabinet. Use a 19D904755G1 AC Relay Panel for 110 VAC applications, and a 19D904755G2 AC Relay Panel for 220 VAC applications. Install from the back of the cabinet wherever there is room (preferably in the lower half of the cabinet).

CABINET CONNECTIONS

The **fourth step** is to add the interconnection cables and rearrange the power cords. Use the assembly diagram (at the end of this manual) and the following procedure:

1. Connect the 19B803257P1 cable as follows:
   a. Plug one connector into J3 on the front of the AC Relay Panel.
   b. Plug the other connector into J4 on the back of the Modem/Reset Unit chassis.
2. Connect the 19B803256P1 cable as follows:
   a. Plug the modular connector into J6 in the Serial Module in the EDACS Interface Panel (located in the top right rear of the cabinet).
   b. Plug the other connector into J3 on the back of the Modem/Reset Unit chassis.
3. Connect the 19B803255P1 cable as follows:
   a. Plug the connector with the shorter wires into J2 on the back of the Modem/Reset Unit chassis.
   b. Plug the connector with the longer wires into J2 on the front of the AC Relay Panel.
   c. Turn off the main DC power supply in the Site Controller cabinet using the switch on its front panel. Remove the 9-pin connector plugged into P801 on the back of the power supply. Insert the contact connected to the two red wires into position #3, and the contact connected to the two black wires into position #6. Plug the 9-pin connector back into P801 on the back of the Power supply. Turn the power supply back on.
4. Plug the power cord for the AC Relay Panel into one of the UPS outlets.
5. Plug the Site Controller computer and modem into the outlets on the back of the AC Relay Panel.

SITE CONNECTIONS

The **fifth step** is to make the following optional connections (use the interconnection and assembly diagrams at the end of this manual for connector and pin information):

- Telephone Line
- External Alarm Output
- Remote Disable Input

The telephone line will be necessary if you want calls to be made at the end of an unsuccessful Automatic Reset Cycle or if you want to be able to make operational commands by telephone. The two-wire subscriber line is connected to the back of the Modem / Reset Unit chassis at J5-4 (tip) and J-3 (ring) using a male RJ-11-6 modular plug.

CAUTION

This telephone line must come through a protected punch block or equivalent protection before being connected to the EDACS equipment.

The External Alarm Output is provided to give an alarm indication to a customer supplied alarm circuit. The alarm indication is a 180-second closure to ground, beginning at the start of the first GETC reset in the Automatic Reset Cycle. The output relay's contacts are rated at 120 VAC and 1 A. The alarm output is available at J4-2 (ground reference is available at J4-4) on the back of the Modem / Reset Unit chassis.

The Remote Disable Input should only be used in installations where a telephone line is not available at the site. This input looks for a continuous 10-second momentary logic low from a customer supplied circuit to initiate the External Reset Disable Cycle. It is very important that this momentary logic low does not exceed 159 seconds This input is available at J2-8 (ground reference is J2-6) inside the Reset Unit.

CAUTION

The momentary logic low, applied to the Remote Disable Input, must not exceed 159 seconds. An accidental short between ground and the Remote Disable Input, or a logic low in excess of 159 seconds, will continue to initiate the External Reset Disable Cycle for as long as the ground or logic low is applied.

It is also very important to be careful with the GETC Reset line between the Reset Unit and each Station GETC. An accidental short between ground and the GETC Reset line will hold all GETCs in reset until the ground is removed.

CAUTION

An accidental short between ground and the GETC Reset line will hold all GETCs in reset until the ground is removed.

PROGRAMMING

OVERVIEW

Programming of the Reset Unit refers to the editing of configurable parameters in its software, including the recording of voice messages. If the software is ever replaced, the Reset Unit will need to be re-programmed. The Reset Unit can be programmed before or after installation with a terminal (or PC operating in the terminal mode with terminal emulation software), or a DTMF telephone. Some parameters can only be edited with a terminal (or PC), and some can only be programmed with a DTMF telephone. Only the parameters that will need programming are covered in this manual.

CAUTION

Changing parameters not covered in this manual may lead to unsatisfactory operation of the Reset Unit for this application.

When programming the inputs from the "Input Menu", it will appear as though it is possible to change the input "Mode" for inputs #01 and #02. However, no matter what Mode is displayed, inputs #01 and #02 are permanently fixed as normally open inputs for this application.

The Site to GETC time delay parameter has been added for this custom software application. It is the time the Reset Unit allows for the Site Controller computer to completely reset before resetting the GETCs the second time. Its default value is 90 seconds and must stay that value, since this is the time needed for the Site Controller computer to reboot and begin polling the GETCs.

DEFAULTS

The Reset Unit's software contains permanent default values for all configurable parameters. These default values can be returned to at any time by selecting "de{F}aults" from the Main Menu, while programming with a terminal (or PC). The default values have been chosen to minimize the need for programming. However, some parameters will need to be programmed at the time of installation. These parameters (along with their default values and which of the two programming methods can be used) are shown in Table 1.

Table 1 - Parameters to Be Programmed

PARAMETER	DEFAULT	TERMINAL	PHONE
Security Code	11	Yes	Yes
Acknowledge Code	2	Yes	No
Telephone Numbers	None	Yes	Yes
Telephone Messages	None	No	Yes
Message Repeats	25 (5*)	Yes	Yes
Input #03 Mode	Status (N/O*)	Yes	Yes
Input #03 Dial Stack #	3 (1*)	Yes	Yes

* Early Reset Units contained these defaults

Early Reset Units, containing version 2.0 software, support turbo GETCs only (not non-turbo GETCs). Later Reset Units (shipped after November, 1994) contain version 2.23 software, and support both turbo and non-turbo GETCs. In addition to other changes, three default values were changed. If you have an early Reset Unit (you can tell by these default values, or you can look inside at the label on the software), you should be sure to program new values for the number of message repeats and the two input #03 parameters. This will not change the permanent default values in the software, so if the default values are ever selected, you should be sure to re-program these three parameters again.

FACTORY PROGRAMMING

The following two parameters have been factory programmed to facilitate testing in the factory:

- Telephone Message #01 = "Site in Failsoft"
- Telephone Number - dial stack #01, phone #1 = 6484

The presence of this factory programming may be seen during initial programming and cause some confusion. Once these parameters have been re-programmed to the customer's message and telephone number(s), the factory programming of these two parameters will not re-appear.

PROGRAMMING BY TERMINAL

Programming with a terminal (or PC) is the preferred method to program the Reset Unit, because the visual display of the parameters makes this method more user friendly and less prone to errors. (Recording and playing back telephone messages, must be programmed with a DTMF telephone.)

Setup

The terminal is connected to the female DB-9 connector (J1) on the back of the Modem/Reset Unit chassis using a data interface cable as shown in Figure 3. If the terminal has a 25-pin serial port, you may need to use an adapter as shown in Figure 4. Set the message format of the terminal to that shown in Table 2.

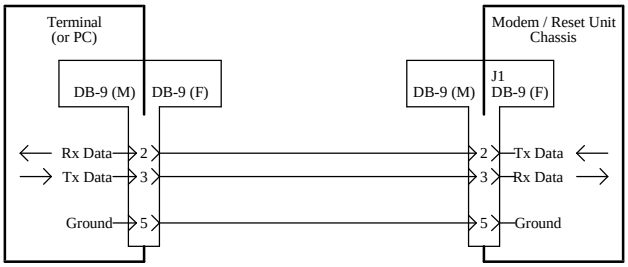

Figure 3 - Data Interface Cable Connections

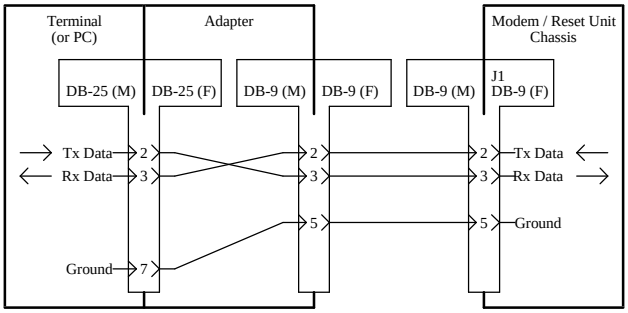

Figure 4 - Data Interface Adapter Connections

Table 2 - Message Format for Terminal

PARAMETER	VALUE
Baud Rate	4800 BPS
Data Bits	8
Parity	No
Stop Bits	1

Main Menu

To access the Reset Unit's programming mode, press the space bar three times and the Return key. The following text should then be displayed on the screen (if not, repeat the 3 space bars and a Return):

```
MAIN MENU

All's {W}ell
{S}ecurity code
Ac{K}nowledge code
{N}umber of rings
{O}utputs
{I}nputs
{B} Site to GETC time delay
{R}epeats
A{C}knowledge wait
{V}oice
Dialing {M}ethod
{D}ial stack
{L}ist stack
{P}ause between calls
{A}nalog
de{F}aults
{E}xit

Command?
```

Exit

To exit the Reset Unit's programming mode, press the E key and the Return key. The following new text should then be displayed on the screen:

```
E

BYE!
```

If at any time while you are in the programming mode you don't press a key for 30 seconds, you will automatically be dropped from the programming mode. The following new text would then be displayed on the screen:

```


BYE!
```

To return to the Reset Unit's programming mode, press the space bar three times and the Return key. To keep from being dropped while you think, press the * key periodically.

If you realize part way through a Main Menu selection that you have made a mistake, do one of the following:

- If you have pressed the Return key since making the mistake, press the Return key twice in succession to abort the Main Menu selection.
- If you have not pressed the Return key since making the mistake, you can press the # key to return to where you were after last pressing the Return key.

Defaults

Before you start programming the Reset Unit, it is a good idea to make sure that each parameter is set to its known default value. The default values can be selected at any time. To select the default values, press the F key (for de{F}aults in the Main Menu) and then the Return key. The following new text should then be displayed on the screen:

```
F
Are you sure?
```

Press the Y key (for yes) and then the Return key. The following new text should then be displayed on the screen:

```
Y
Command?
```

The "Command?" response means that your last Main Menu selection has been completed and it is ready for you to select another Main Menu item.

Security Code

The Security Code is needed to do anything (make operational commands or program) by telephone, except acknowledge an alarm. The default value for the Security Code is 11. To reconfigure the Security Code, press the S key (for {S}ecurity code in the Main Menu) and then the Return key. The following new text should then be displayed on the screen:

```
Current security code is: 11
ENTER NUMBER OF DIGITS IN ACCESS CODE (1-4
```

Press the 1, 2, 3, or 4 key to indicate how many DTMF digits will be in the new Security Code, and then the Return key. (The # key cannot be used in the Security Code. In addition, the first digit of the Security Code cannot also be used in the Acknowledge Code.) For an example, let's say the new Security Code is to be 5∗2. In this example there are 3 DTMF digits, so you would press the 3 key and then the Return key. The following new text should then be displayed on the screen:

```
3
ENTER ACCESS CODE
```

Press the keys for the new Security Code and then the Return key. For our example, press the 5 key, ∗ key, 2 key, and then the Return key. The following new text should then be displayed on the screen:

```
5∗2
Command?
```

The "Command?" response means that your last Main Menu selection has been completed and it is ready for you to select another Main Menu item.

Acknowledge Code

The Acknowledge Code is needed to acknowledge an alarm by telephone. The default value for the Acknowledge Code is 2. To reconfigure the Acknowledge Code, press the K key (for Ac{K}nowledge code in the Main Menu) and then the Return key. The following new text should then be displayed on the screen:

```
User code for acknowledging is: 2
ENTER NUMBER OF DIGITS IN ACCESS CODE (1-4
```

Press the 1, 2, 3, or 4 key to indicate how many DTMF digits will be in the new Acknowledge Code, and then the Return key. (The first digit of the Security Code and the # key cannot be used in the Acknowledge Code.) For an example, let's say that the new Acknowledge Code is to be 41∗∗. In this example there are 4 DTMF digits so you would press the 4 key and then the Return key. The following new text should then be displayed on the screen:

```
4
ENTER ACCESS CODE
```

Press the keys for the new Acknowledge Code and then the Return key. For our example, press the 4 key, 1 key, ∗ key twice, and then the Return key. The following new text should then be displayed on the screen:

```
41∗∗
Command?
```

The "Command?" response means that your last Main Menu selection has been completed and it is ready for you to select another Main Menu item.

Telephone Numbers

These are the telephone numbers to be called and given an alarm message when the Automatic Reset Cycle fails to bring the site out of Failsoft operation. The telephone numbers for this alarm are programmed in dial stack #1.

The first telephone number in dial stack #1, has been pre-programmed to 6484 for test purposes in the factory. To reconfigure this telephone number, press the D key (for {D}ial stack in the Main Menu) and then the Return key. The following new text should then be displayed on the screen:

```
Enter the stack you wish to edit (1-12)
```

Press the 1 key, to indicate that you wish to edit dial stack #1, and then the Return key. The following new text should then be displayed on the screen:

```
Which phone number --- (1-10)
```

Telephone numbers do not have to be programmed into consecutive positions within the dial stack. In fact, leaving spaces between initial telephone numbers makes it easier to add telephone numbers in the calling order you want later on. Press the 1 key, to indicate that you wish to edit the first-called phone number and then the Return key. The following new text should then be displayed on the screen:

```
Enter number of digits in phone number (1-15)
```

If, for example, the telephone number you want to have called is 999-6666, the number of digits in the phone number would be 7. For this example you would press the 7 key and then the Return key. The following new text should then be displayed on the screen:

```
Enter Pause in seconds (0-15)
```

This is the pause between coming off hook and dialing the first digit. For our example, press the 0 key (to indicate no pause) and then the Return key. The following new text should then be displayed on the screen:

```
Enter phone number
```

For our example, press the 9 key three times, the 6 key four times, and then the Return key. The following new text should then be displayed on the screen:

```
Enter number of digits in phone number (1-15)
```

This response (also used earlier) is now asking for DTMF overdial digits (not the subscriber line number). If DTMF overdialing is required, see the Zetron manual. Otherwise, press the Return key. The following new text should then be displayed on the screen:

```
Command?
```

The "Command?" response means that your last Main Menu selection has been completed and it is ready for you to select another Main Menu item.

If another telephone number needs to be added, repeat the process starting with pressing the D key (for {D}ial stack in the Main Menu) and then the Return key.

Whenever you finish editing any telephone numbers, you should check them to make sure that they're correct. To show all the numbers programmed in the stack, press the L key (for {L}ist stack in the Main Menu) and then the Return key. The following new text should then be displayed on the screen:

```
Enter the stack you wish to edit (1-12)
```

To list all telephone numbers in dial stack #1, press the 1 key and then the Return key. For our example the following new text should then be displayed on the screen:

```
Voice call    : {0} 9996666
Voice call    :
Voice call    :
Voice call    :
Voice call    :
Voice call    :
Voice call    :
Voice call    :
Voice call    :
Voice call    :
Command?
```

The "Command?" response means that your last Main Menu selection has been completed and it is ready for you to select another Main Menu item.

If all the telephone numbers are the way you want them, you may exit the Programming Mode by pressing the E key (for {E}xit in the Main Menu) and then the Return key. The following new text should then be displayed on the screen:

```
E

BYE!
```

If, however, you spot an error, you must repeat the process to correct the mistake, starting with pressing the D key (for {D}ial stack in the Main Menu) and then the Return key. You can write over a wrong telephone number, and you can erase a telephone number by entering 00 for its number of digits.

Edit Early Reset Unit Defaults

Early Reset Units contain three default values that should be programmed to better meet the typical user's needs. If you have an early Reset Unit, you should be sure to program new values for the number of message repeats and two input #03 parameters. This will not change the default values in the software, so if the default values are ever selected, you should be sure to re-program these three parameters again.

Message Repeats

The number of times message #01 is played for each call should be left at the default value of 25 (early Reset Units with a default value of 5 should be changed to 25), for the short message length probably used in this application. Since the message starts to be played back as soon as the telephone call is placed, the large number of repeats is needed to assure that the message is still being played after several rings. To reconfigure the number of repeats for an early Reset Unit, press the R key (for {R}epeats in the Main Menu) and then the Return key. The following new text should then be displayed on the screen:

```
R
Repeat voice message (0-25): 005
```

Press 25 to indicate 25 repeats. The following new text should then be displayed on the screen:

```
25
Command?
```

The "Command?" response means that your last Main Menu selection has been completed and it is ready for you to select another Main Menu item.

Input #03 Parameters

Input #03 is connected to the Failsoft status line of the system, even when the Automatic Reset Cycle has been disabled (and input #01 is no longer connected to the Failsoft Status line). The default value for the Mode parameter has been set to Status (early Reset Units with a default value of N/O should be changed to Status) to allow you to call the Reset Unit at any time and receive a message or signal tone indicating if the system is in Failsoft or is okay. To reconfigure the input #03 parameters for an early Reset Unit, press the I key (for {I}nputs in the Main Menu) and then the Return key. The following new text should then be displayed on the screen:

```
Input #1
Mode: N/O
Debounce:010
Stack:1


N/{O}pen
N/{C}losed
{M}omentary
{S}tatus
D{i}sable
{D}ebounce
{R}etries of call stack
Time {B}etween retries
{A}ck type
S{T}ACK
{N}ext
{E}xit

Command?
```

This is the current status of the parameters for input #01 followed by the Input Menu. Press the N key (for {N}ext in the Input Menu) and then the Return key. The current status of the parameters for input #02 followed by the Input Menu should then be shown. Again press the N key (for {N}ext in the Input Menu) and then the Return key. The current status of the parameters for input #03 followed by the Input Menu should then be shown.

Press the S key (for {S}tatus in the Input Menu) to change the input mode to Status. Press the T key (for S{T}ACK in the Input Menu) to change the dial stack assignment. The following new text should then be displayed on the screen:

```
Choose stack of phone numbers for this alarm (1-12)
```

Press the 3 key to assign dial stack #03. Even though no telephone numbers are assigned to this dial stack, changing the assignment from dial stack #01 (the earlier defalt value) allows dial stack #01 to be disabled whenever the Automatic Reset Cycle is disabled.

PROGRAMMING BY TELEPHONE

Programming with a terminal (or PC) is the preferred method to program the Reset Unit, because the visual display of the parameters makes it more user friendly and less prone to errors. However, if a terminal (or PC) is not available, the parameters that need to be programmed (with the exception of the Acknowledge Code) can be programmed with a DTMF telephone.

Setup of Telephone Connection

If the reset unit has been connected to a subscriber telephone line, the Reset Unit can be programmed from a DTMF telephone connected to a second subscriber telephone line, at the site or elsewhere.

If the reset unit is not yet connected to a subscriber telephone line, the Reset Unit can be programmed from a DTMF telephone connected directly to the reset unit. For a direct connection, connect the DTMF telephone as follows:

- With the power disconnected, remove the top cover of the reset unit.
- Plug the DTMF telephone (with a male RJ-11-6 modular connector) into J3 on the large printed circuit board (not J1 on the small printed circuit board).
- Reconnect power to the reset unit.

Programming Sound Signals

While programming by telephone, all information sent to you from the Reset Unit is in the form of sound signals. The following signals are used:

- **Answer Tone** - A loud tone lasting about one second is only used to answer an incoming call.
- **Buzz** - A low-frequency tone lasting about one second is used to indicate that things are not OK; usually a bad programming entry.
- **3 Beeps** - A string of 3 short, high-frequency tones is used to indicate that things are OK; usually confirmation for a valid programming entry.

Other uses of the buzz and 3 beeps, as well as your recorded voice messages, are described in the procedures where you will most likely hear them.

Access to Programming Mode

To access the programming mode, use the following procedure (skip steps 2 and 3 if the telephone is connected directly to the Reset Unit):

1. Lift the DTMF telephone handset off-hook.
2. Dial the number of the subscriber line connected to the reset unit.
3. Wait for ringback tone to stop (default is 10 rings).
4. Wait for answer tone to stop.
5. Dial the Security Code (default is 11).
6. Wait for 3 confirmation beeps.

You will hear 3 confirmation beeps after any entry (valid or invalid) for the security code. This is meant to assure you that it received your entry, without helping a hacker determine if the entry is correct.

If you entered the correct Security Code, you are now in the programming mode and can proceed to program the Reset Unit. However, if at any time you do not press a key for 30 seconds, the Reset Unit will drop you from the programming mode and you will have to hang-up the handset and start over at step 1. To keep from being dropped while you think, press the ∗ key periodically.

Errors & Aborting Commands

If you make an invalid entry, you will hear a buzz in place of the 3 confirmation beeps. This means it did not accept your entry and you can try again, starting at the beginning of the sequence.

If you realize part way through a sequence that you have made a mistake, you can abort the sequence by pressing the # key. You will hear a buzz, telling you that it has aborted the sequence and made no change. You can then try again, starting at the beginning of the sequence.

If you have heard the 3 confirmation beeps since making the mistake, it accepted your mistake as a valid entry and you will need to undo the mistake. If the mistake was made to the intended parameter, just reconfigure the parameter to the intended value. If, however, the mistake was made to an unintended parameter, you must first identify the parameter. Then you can reconfigure it to the default or intended value.

Edit Security Code

To reconfigure the Security Code, use the following procedure after you have accessed the programming mode:

1. Dial 0∗.
2. Dial new Security Code (any number from 0 to 9999). (The first digit used for the Security Code cannot be used in the Acknowledge Code.)
3. Dial ∗.
4. Wait for 3 confirmation beeps.

Be sure to record the new Security Code for later use. If you should forget the Security Code, you will need to enter the programming mode with a terminal or PC to see what the Security Code is.

Edit Telephone Numbers

To reconfigure the telephone numbers, use the following procedure after you have accessed the programming mode:

1. Dial 7.
2. Dial 01 (dial stack #01). Be sure to dial the 0.
3. Dial a number from 0 to 9 (position in dial stack). Position 0 is called first, position 1 second, etc. (you can skip positions to facilitate future additions).
4. Dial a number from 01 to 16 (length of telephone number). Use 00 to remove a telephone number.
5. Dial the telephone number.
6. Wait for 3 confirmation beeps.
7. Repeat steps, starting at step 1, for each telephone number to be called.

If the telephone number requires a pause before the number or any of its parts, the number(s) along with the pause(s) will have to be programmed with a terminal or PC.

Edit Telephone Messages

Plan Messages

Only message numbers which have meaning for the EDACS Guardog feature are covered here. Since only 20 seconds of total message time are available, you should carefully plan which message numbers will be of benefit to your system, how to allot this time, and how to word each selected message so that those using this feature will get the maximum useful information. These message numbers and sample messages are shown in Table 3.

Table 3 - Sample Messages

MESSAGE NUMBER	SAMPLE MESSAGE
01	Site ____ reset cycle failure
03	Site in Failsoft
15	Site okay
25	GETC reset
26	Controller reset
27	Automatic reset disable
28	Alarm
29	On
30	Off

Message #01 is the most important message if you plan to use the Reset Unit mostly with the automatic reset cycle enabled. It is the message that the Reset Unit plays to telephones listed in dial stack #01 after unsuccessfully completing the automatic reset cycle. Use this message to indicate the specific site, if more than one site in the system has an EDACS Guardog. For example: "Site ____ reset cycle failure".

Messages #25, #26, #27, #29 and #30 are the most important messages if you intend to use the Reset Unit mostly with the automatic reset cycle disabled. When you manually operate an output relay from a remote telephone, you do it in two steps. First you select the relay you want to operate and whether you want to energize or de-energize it; then you give the execute command. Between these two steps, two sequential messages are played (if recorded) to verify the operation you selected, before the operation is executed. Message #25, #26, or #27 is played first, and is used to identify the function of the output relay you selected. Message #29 or #30 is played second, and is used to identify the operation you selected for this relay.

If message #25 is used, it should indicate that this output is used to reset the Station GETCs. For example: "GETC reset".

If message #26 is used, it should indicate that this output is used to reset the Data Modem and Site Controller computer. For example: "Controller reset".

If message #27 is used, it should indicate that this output is used to disable the automatic reset cycle. For example: "Automatic reset disable".

If message #29 is used, it should indicate that the selected operation will energize the relay. For example: "On".

If message #30 is used, it should indicate that the selected operation will de-energize the relay. For example: "Off".

Messages #03 and #15 can be used to vocalize the status of the site when the Reset Unit is called and the status of input #03 is requested. Each message is redundant to a sound signal, that is present with or without the message. Therefore, only use these messages if you have extra message time available.

If message #03 is used, it should indicate that the site is in Failsoft. For example: "Site in Failsoft". If the status of input #03 is requested while the site is in Failsoft, message #03 will be played (if recorded), followed by a buzz. If no message #03 is recorded, there will just be a buzz.

If message #15 is used, it should indicate that the site is not in Failsoft. For example: "Site okay". If the status of input #03 is requested while the site is not in Failsoft, message #15 will be played (if recorded), followed by 3 beeps. If no message #15 is recorded, there will just be 3 beeps.

Message #28 can be used to announce the impending operation of the relay to send or remove an alarm signal for test purposes. If message #28 is used, it should indicate that this output is used for the external alarm. For example: “Alarm”.

Record Messages

Before you program any messages, make a plan by writing out the words and the allowed time for each message. For the sample messages shown in Table 3, you could allow 3 seconds each for messages #01 and #27, 2 seconds each for messages #03, #15, #25, and #26, and 1 second each for messages #28, #29, and #30 for a total of 17 seconds. Remember that there are only 20 seconds of message time available in the standard package.

The following five rules **absolutely must be followed** when programming voice messages:

1. Initially and any time default values have been selected (see the Programming by Terminal heading in this section), all used messages must be programmed in numerical order.
2. If the allowed time of a message is increased or a message is added, only the higher message numbers that are being used must be re-programmed.
3. If the allowed time of a message is reduced or a message is removed, all higher message numbers (used or not) must be re-programmed (allowed time and recorded message). (This includes every message number up to #30, not just those shown in the sample message table.) Program an allowed time of 00 for message numbers not used.
4. If the allowed time of a message is not changed, the message may be re-programmed without re-programming the other messages.
5. Always play back all used message numbers after a change in any message number.

The consequences of not following rule number 3 will cause you more confusion than you can imagine. When you reduce the length of an existing message, it is shortened from the end. This end portion (recording and interval) is added to the beginning of the next higher message number (used or not). If you then reduce the length of this next higher message number, the new end portion is added to the next, next higher message number. It’s like pushing this end portion, one message number at a time, up through all the message numbers and out the end to get rid of it. This rule must be followed whether messages are being programmed for the first time or are being edited later.

Since the consequences of increasing a message length are easier to correct than to decrease it, start with a small message length. If the allowed time is too small, all you have to do is increase it one second and re-program the message.

It may be helpful to think of the voice memory as a cassette tape with 20 seconds of recording time, where messages must be physically stored in message number order. Using this analogy:

- Selecting the default parameter values is like erasing the cassette (see rule 1).
- Increasing a message length or adding a message will record over part or all of any next higher message number, making it necessary to re-record all higher message numbers used (see rule 2).
- Decreasing a message length or deleting a message will add the left over amount of the earlier message to the beginning of the next higher message number (used or not), making it necessary to re-program all higher message numbers (used or not), in order to use this residual memory time (see rule 3).
- Re-recording a message without changing the length has no effect on other messages (see rule 4).

To record messages, use the following procedure after you have accessed the programming mode:

1. Dial 41.
2. Dial a number from 01 to 30 (message number). Of the message numbers chosen to be used or changed, record in message number order. See Table 3.
3. Dial a number from 00 to 10 (allowed time for message in seconds).
4. Immediately speak the message into telephone.
5. Listen for the end-of-allowed-time beep. If the beep comes before you finish, your whole message isn't recorded. Record the message over by starting again at step 1.
6. Repeat steps, starting at step 1, for each message number you need to record.

After recording each message, you should play back the recorded message to hear how it sounds and check that it fit the allowed time.

Play Back Messages

To play back messages, use the following procedure after you have accessed the programming mode:

1. Dial 40 to play a recorded message.
2. Dial a number from 01 to 30 (message number). See Table 3.
3. Listen to message.
4. Repeat steps, starting at step 1, for each message number you want to play.

Edit Early Reset Unit Defaults

Early Reset Units contain three default values that should be programmed to better meet the typical user's needs. If you have an early Reset Unit, you should be sure to program new values for the number of message repeats and two input #03 parameters. This will not change the default values in the software, so if the default values are ever selected, you should be sure to re-program these three parameters again.

Message Repeats

The number of times message #01 is played for each call should be set to the maximum number of 25, for the short message length probably used in this application. Since the message starts to be played back as soon as the telephone call is placed, the large number of repeats is needed to assure that the message is still being played back after several rings. To make this change from the default value of 5, use the following procedure after you have accessed the programming mode:

1. Dial 24 (reconfigure repeats).
2. Dial 25 (number of repeats).
3. Wait for three confirmation beeps.

Input #03 Parameters

Input #03 can be used to monitor the Failsoft status of the site. To reconfigure the input #03 parameters for this, use the following procedure after you have accessed the programming mode:

1. Dial 532 (sets input #03 to the Status mode).
2. Wait for 3 confirmation beeps.
3. Dial 60303 (sets input #03 to dial stack #03).
4. Wait for 3 confirmation beeps.

Exit Programming

To deliberately exit the programming mode, use the following procedure:

1. Dial #.
2. Hang-up the DTMF telephone handset.

If you forget to press the # key, the Reset Unit will hang up after 30 seconds of no activity. Therefore, during that 30 seconds, you will get a busy signal if you call the Reset Unit.

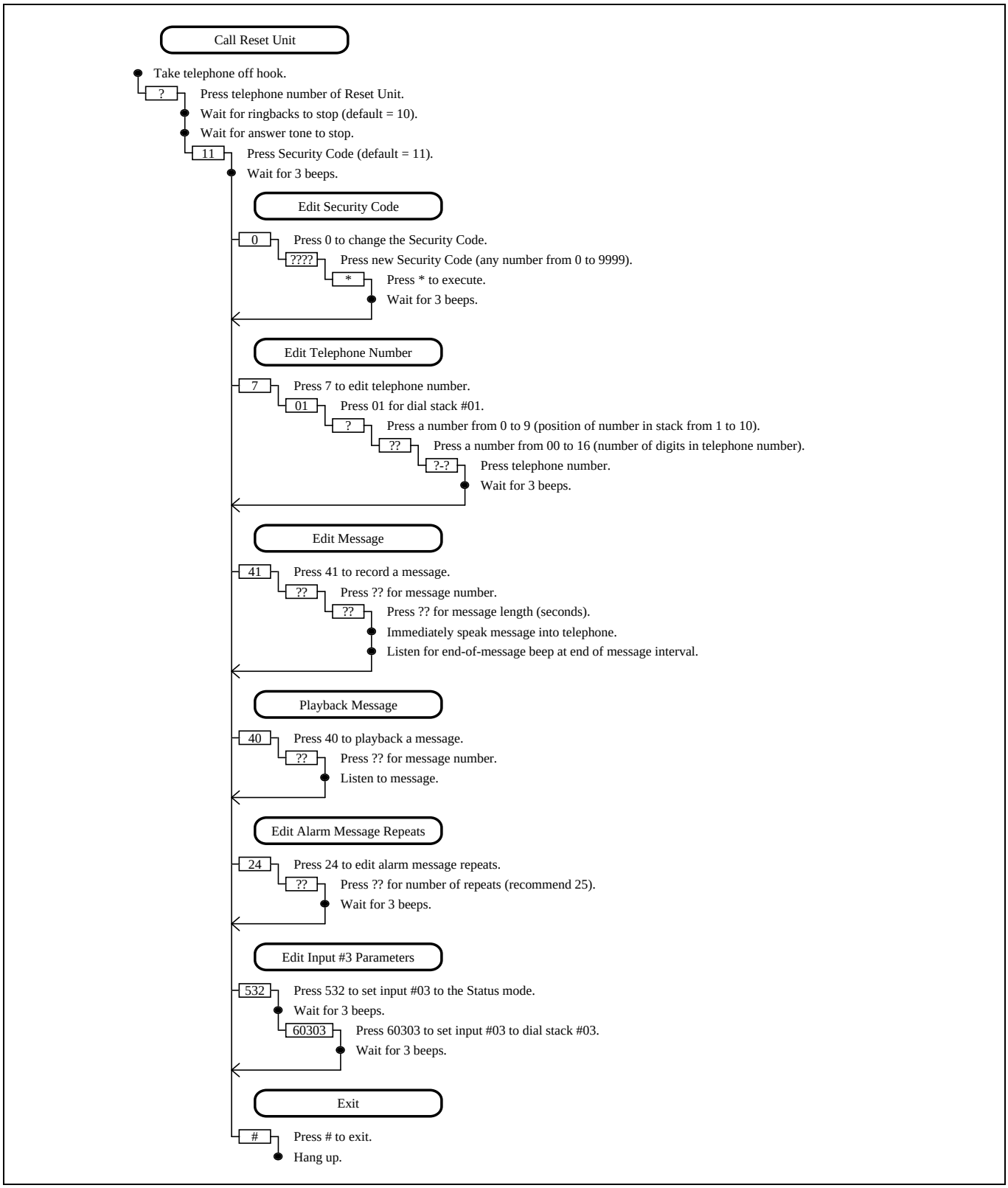

Figure 5 - Programming by Telephone

OPERATION

OVERVIEW

The EDACS Guardog option provides for local automatic and remote manual resetting of the following equipment:

- Station GETC (one per radio channel)
- Site Controller Computer (one per system)
- Modem (one per system)

The Reset Unit automatically runs the Automatic Reset Cycle when it senses Failsoft operation by monitoring the local Failsoft Status line. The Reset Unit can also receive remote manual reset commands by telephone. When a telephone connection is not available, a remotely controlled signal from some other equipment can be used to command the Reset Unit to run the External Reset Disable Cycle.

The Reset Unit can be programmed to call up to 10 different telephone numbers (and play a voice message) whenever the Automatic Reset Cycle fails to bring the site out of Failsoft operation.

MODES OF OPERATION

The Reset Unit operates in either the Operational Mode or the RS-232 Programming Mode. The Operational Mode includes monitoring the inputs, running the Automatic Reset Cycle, performing various operational commands by telephone, running the External Reset Disable Cycle, and programming by telephone. Operational commands by telephone include alarm acknowledgment, checking status of inputs, and operation of output relays. Programming by telephone allows remote editing of most configurable Reset Unit parameters, but should not be confused with the RS-232 Programming Mode. Programming by telephone is covered in the Programming section and will not be covered here.

The RS-232 Programming Mode is used to perform operational commands and allow local editing of most configurable Reset Unit parameters by a terminal (or PC) connected to the RS-232 port. While in the RS-232 Programming Mode, the Reset Unit does not perform any of the Operational Mode activities. However, after 30 seconds of no programming activity, the Reset Unit automatically returns to the Operational Mode. The RS-232 Programming Mode is covered in the Programming section and will not be covered here.

MONITOR INPUTS

The Reset Unit spends most of its time monitoring Inputs #01 through #03. Table 4 lists the action taken by the Reset Unit for a specific condition at each of these inputs.

Table 4 - Actions for Specific Input Conditions

INPUT	CONDITION	ACTION
Input #01	Logic low for 10 consecutive seconds	Starts the Automatic Reset Cycle
Input #02	Logic low for 10 consecutive seconds	Starts the External Reset Disable Cycle
Input #03	Logic high	Indicates site OK, if status requested
	Logic low	Indicates site not OK, if status requested

AUTOMATIC RESET CYCLE

When a Station GETC switches to Failsoft operation, its Failsoft Enable circuit (see Figure 6) is pulled down to a logic low by U23-D. The Failsoft Enable circuit in each GETC is connected through a blocking diode, D1, to the Failsoft Status line. The blocking diode lets that GETC's Failsoft Enable circuit pull down the Failsoft Status line, but not vice versa. The Failsoft Status line is monitored by the Reset Unit to determine when the GETCs are in Failsoft operation.

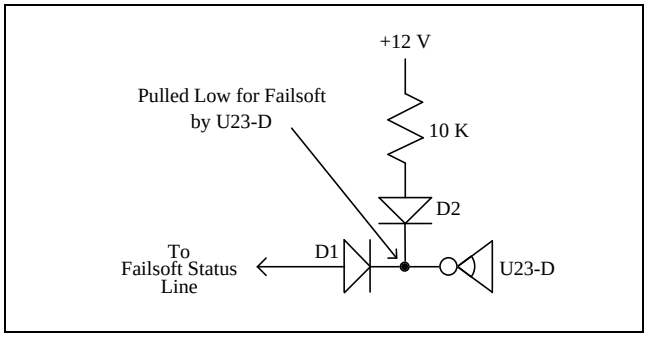

Figure 6 - GETC Failsoft Enable Circuit

Every Station GETC is connected to the Failsoft Status line so that the line will represent the true Failsoft Status of the site no matter what combination of GETCs may be powered-off (Station Power Supply turned off). Blocking diode, D2, keeps a powered-off GETC from pulling down the Failsoft Status line through its dead +12V circuit and giving a false Failsoft Status indication to the line.

Within each repeater cabinet, the Failsoft Status line is daisy-chained from the highest Station GETC to the next lower Station GETC to the next lower Station GETC until it reaches the bottom Station GETC, from where it goes to the EDACS Interface Panel. Between cabinets, the Failsoft Status line is daisy-chained from one EDACS Interface Panel to the next and lastly to the Site Controller cabinet. From the Site Controller cabinet's EDACS Interface Panel, the Failsoft Status line is connected to the Reset Unit (see interconnect diagrams at the end of this manual).

The Failsoft Status line is always connected to input #03 where it is monitored by the Reset Unit to determine if the GETCs are in Failsoft. This allows the status of the GETCs to be checked at any time (whether the Automatic Reset Cycle has been disabled or not). A logic low at input #03 indicates that the GETCs are in Failsoft. See the heading **Check Status of Inputs** later in this section for information on how to remotely check the status of inputs.

The Failsoft Status line also passes through the normally-closed contacts of relay K2 (used to disable the Automatic Reset Cycle) and on to input #01 where it is monitored by the Reset Unit to determine when to start the Automatic Reset Cycle. The Reset Unit monitors the logic state of input #01 at all times, except when it is in the RS-232 Programming Mode. The presence of a logic low is the condition to start the Automatic Reset Cycle.

Figure 7 shows the events that take place during a complete Automatic Reset Cycle if all resets fail. If either of the two GETC resets is successful, the cycle stops at that point and is ready to start again should a logic low again appear at input #01.

If the logic low persists continuously for 10 seconds, relay K1 is energized (at t=10) for a fixed period of 180 seconds (until t=190), applying ground to output #4b which can be connected to an external alarm circuit. Regardless of whether either GETC reset is successful, relay K1 will not de-energize until 180 seconds have passed (until t=190).

At t=10, Relay K4 is energized for a fixed period of 2 seconds (until t=12), applying ground to output #1b which is connected to the GETC Reset line and each Station GETC's reset circuit.

The Reset Unit allows 23 seconds (from the start of the reset signal, t=10) for the GETCs to reset and then looks at input #01. The disappearance of a logic low at input #01 for any part of the 2-second window between t=33 and t=35 indicates that the first GETC reset brought the GETCs out of Failsoft, and the Reset Unit ends the Automatic Reset Cycle. Even though relay K1 (for the external alarm output) will stay energized until t=190, the Automatic Reset Cycle is ready to start again if a logic low is detected at input #01.

On the other hand, if the logic low persists continuously at input #01 for the 2-second window between t=33 and t=35, the first GETC reset did not bring the GETCs out of Failsoft, and Relay K3 is energized for a fixed period of 2 seconds (until t=37), applying ground to output #2 which is connected to the AC Relay Panel to interrupt the ac power to the Site Controller computer and modem. (When the Site Controller computer and modem are powered-on, they automatically reset.)

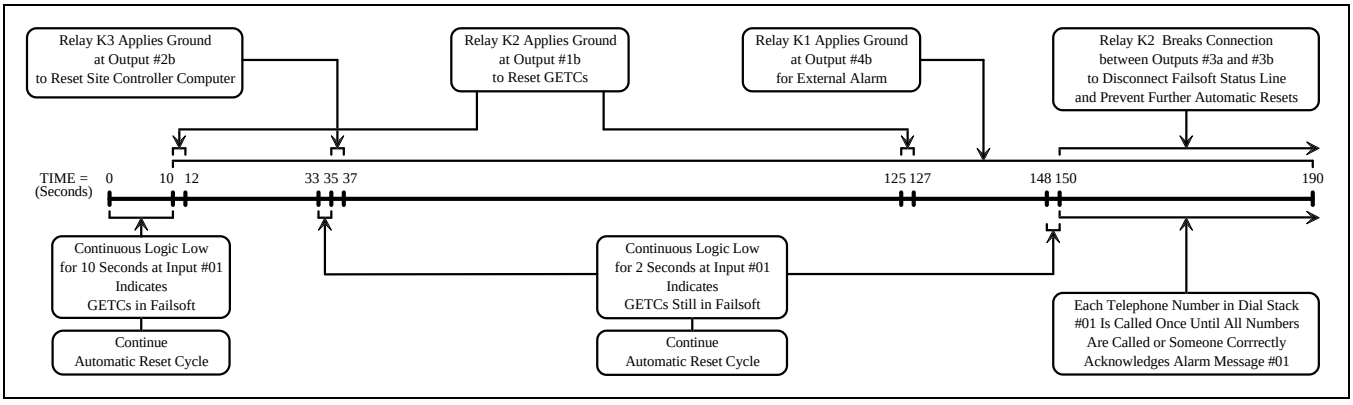

Figure 7 - Automatic Reset Cycle

The Reset Unit allows 90 seconds (from the start of the reset signal, t=35) for the Site Controller computer to reset. At t=125, relay K4 is energized for a fixed period of 2 seconds (until t=127), applying ground to output #1b which is connected to the GETC Reset line and each Station GETC's reset circuit.

The Reset Unit again allows 23 seconds (from the start of the reset signal, t=125) for the GETCs to reset and then looks at input #01. The disappearance of a logic low at input #01 for any part of the 2-second window between t=148 and t=150 indicates that the second GETC reset brought the GETCs out of Failsoft, and the Reset Unit ends the Automatic Reset Cycle. Even though relay K1 (for the external alarm output) will stay energized until t=190, the Automatic Reset Cycle is ready to start again if a logic low is detected at input #01.

On the other hand, if the logic low persists continuously at input #01 for the 2-second window between t=148 and t=150, the second GETC reset did not bring the GETCs out of Failsoft, and relay K2 is energized (at t=150) and latched. This disconnects the Failsoft Status line from input #01 to prevent further Automatic Reset Cycles.

If one or more telephone numbers have been programmed into dial stack #01 and telephone message #01 has been recorded, the Reset Unit will now call each programmed telephone number until all the numbers are called, or someone answers and correctly acknowledges alarm message. This message is intended to tell maintenance or supervisory personnel that the Reset Unit has unsuccessfully completed the Automatic Reset Cycle.

ALARM ACKNOWLEDGMENT

The alarm message can only be acknowledged from a standard DTMF telephone. It must be acknowledged before the end of the last repeat, in order to prevent the Reset Unit from calling the next telephone number on dial stack #01. Remember that the message is being repeated while the telephone is ringing, so don't be slow. Even with 25 repeats, a two-second message will time out 50 seconds after the call is placed.

To respond to an alarm message, you can simply acknowledge the alarm message, or you can acknowledge the alarm message and continue on to other operations. Use the following procedure:

1. Answer the telephone.
2. Listen to the alarm message.
3. Press 8, the stop message command. (Don’t wait until the messages stop.)
4. If you only want to acknowledge the alarm message and not have the Reset Unit perform any other operations, press the Acknowledge Code (default = 2). (If after you press the Acknowledge Code, you decide you also want the Reset Unit to perform some other operation, you will have to follow through with the acknowledgment procedure already started, hang up, and call back.)

   If you want to acknowledge the alarm message and also have the Reset Unit perform other operations, press the Security Code (default = 11).
5. Wait for 3 confirmation beeps.
6. Press 8, the acknowledge alarm command.
7. Wait for 3 confirmation beeps.
8. If you pressed the Acknowledge Code (default = 2) in step 4, go to step 9.

   If you pressed the Security Code (default = 11) in step 4, you may now press any valid operational command or you may stop by going to step 9.
9. Press #, the exit command.
10. Hang up the telephone.

If you pressed the Security Code (default = 11) in step 4, the Reset Unit continues to monitor its inputs and perform any Automatic Reset or External Reset Disable Cycle just as before. However, any alarm message telephone calls will be delayed until you press #, the exit command, and hang up the telephone. If you fail to press # before hanging up the telephone, you will have to wait for the 30-second no-programming-activity timer to time out before it can make any alarm message calls or you can call back.

CHECK STATUS OF INPUTS

There are 3 meaningful input status commands available when the Reset Unit is configured as intended. These commands are summarized in Table 5.

Table 5 - Input Status Commands

COMMAND	CHECKS STATUS OF:
301	Automatic Reset Cycle Input (Input #01)
302	External Automatic Reset Disable Input (Input #02)
303	Failsoft Status Line (Input #03)

To access the Reset Unit by telephone, use the following procedure:

1. Call the telephone number of the Reset Unit.
2. Wait for the ringback tone to stop (default = 10 rings).
3. Wait for the answer tone to stop.
4. Press the Security Code (default = 11).
5. Wait for 3 confirmation beeps.

You may now press any valid operational command. You may give as many operational commands as you want, one after another without hanging up. When you are finished, press the # key and hang up. If you forget to press the # key, the Reset Unit will hang up after 30 seconds of no activity. During that 30 seconds, you will get a busy signal if you call the Reset Unit.

After obtaining telephone access to the Reset Unit, use the following procedures to check the status of the inputs:

Input #01 - Automatic Reset Cycle

1. Press 301
2. If the input is low (indicating that the Automatic Reset Cycle is enabled and the site is in Failsoft), you will hear message #01 (if recorded) or a buzz (if message #01 is not recorded). (Sample message: "Site _____ reset cycle failure".)

- If the input is high (indicating that the Automatic Reset Cycle is disabled, or that the Automatic Reset Cycle is enabled and the site is not in Failsoft), you will hear 3 beeps (no message).

Input #02 - External Reset Disable Cycle

1. Press 302
2. If the input is low (indicating that the External Reset Disable Cycle is receiving a disable command), you will hear message #02 (if recorded) or a buzz (if message #02 is not recorded). (No sample message is suggested.)

- If the input is high (indicating that the External Reset Disable Cycle is not receiving a disable command), you will hear 3 beeps (no message).

Input #03 - Failsoft Status Line

1. Press 303
2. If the input is low (indicating that the site is in Failsoft), you will hear message #03 (if recorded) or a buzz (if message #03 is not recorded). (Sample message: "Site in Failsoft".)

- If the input is high (indicating that the site is not in Failsoft), you will hear message #15 (if recorded) or 3 beeps (if message #03 is not recorded). (Sample message: "Site okay".)

OPERATE OUTPUT RELAYS

There are 6 meaningful output relay commands available when the Reset Unit is configured as intended. These commands are summarized in Table 6.

Table 6 - Output Relay Commands

COMMAND	OPERATES RELAY TO:
111	Manually Reset GETCs (Output #1: Relay K4 On)
112	Manually Reset Controller and Modem (Output #2: Relay K3 On)
113	Disable Automatic Reset Cycle (Output #3: Relay K2 On)
103	Enable Automatic Reset Cycle (Output #3: Relay K2 Off)
114	Test External Alarm (Output #4: Relay K1 On)
104	Reset External Alarm (Output #4: Relay K1 Off)

To access the Reset Unit by telephone, use the following procedure:

1. Call the telephone number of the Reset Unit.
2. Wait for the ringback tone to stop (default = 10 rings).
3. Wait for the answer tone to stop.
4. Press the Security Code (default = 11).
5. Wait for 3 confirmation beeps.

You may now press any valid operational command. You may give as many operational commands as you want, one after another without hanging up. When you are finished, press the # key and hang up. If you forget to press the # key, the Reset Unit will hang up after 30 seconds of no activity. During that 30 seconds, you will get a busy signal if you call the Reset Unit.

After obtaining telephone access to the Reset Unit, use the following procedures to operate the output relays:

Manually Reset GETCs

Energizes output #1 relay K4 for 2 seconds (default) to apply ground to GETC Reset line.

- Press 111
- You will hear message #25 (if recorded). (Sample message: "GETC reset".) This message identifies the relay that will be operated.
- You will hear message #29 (if recorded). (Sample message: "On".) This message identifies if the relay is to be turned on or off.
- Press * to execute command.
- You will hear 3 confirmation beeps.

Manually Reset Controller and Modem

Energizes output #2 relay K3 for 2 seconds (default) to apply ground to the AC Relay Panel to interrupt the AC to the Controller and Modem.

- Press 112
- You will hear message #26 (if recorded). (Sample message: "Controller reset".) This message identifies the relay that will be operated.
- You will hear message #29 (if recorded). (Sample message: "On".) This message identifies if the relay is to be turned on or off.
- Press * to execute command.
- You will hear 3 confirmation beeps.

Disable Automatic Reset Cycle

Energizes and latches output #3 relay K2 to disconnect the Failsoft Status line from the Automatic Reset Cycle input.

- Press 113
- You will hear message #27 (if recorded). (Sample message: "Automatic reset disable".) This message identifies the relay that will be operated.
- You will hear message #29 (if recorded). (Sample message: "On".) This message identifies if the relay is to be turned on or off.
- Press * to execute command.
- You will hear 3 confirmation beeps.

Enable Automatic Reset Cycle

Unlatches output #3 relay K2 to reconnect the Failsoft Status line to the Automatic Reset Cycle input.

- Press 103
- You will hear message #27 (if recorded). (Sample message: "Automatic reset disable".) This message identifies the relay that will be operated.
- You will hear message #30 (if recorded). (Sample message: "Off".) This message identifies if the relay is to be turned on or off.
- Press * to execute command.
- You will hear 3 confirmation beeps.

Test External Alarm

Energizes output #4 relay K1 for 180 seconds (default) to apply ground to some external alarm circuit (not provided). (If your Reset Unit was shipped prior to December, 1994, it probably contains the early default value of 120 seconds.)

- Press 114
- You will hear message #28 (if recorded). (Sample message: "Alarm".) This message identifies the relay that will be operated.
- You will hear message #29 (if recorded). (Sample message: "On".) This message identifies if the relay is to be turned on or off.
- Press * to execute command.
- You will hear 3 confirmation beeps.

Reset External Alarm

De-energizes output #4 relay K1 to remove ground from some external alarm circuit (not provided).

- Press 104
- You will hear message #28 (if recorded). (Sample message: "Alarm".) This message identifies the relay that will be operated.
- You will hear message #30 (if recorded). (Sample message: "Off".) This message identifies if the relay is to be turned on or off.
- Press * to execute command.
- You will hear 3 confirmation beeps.

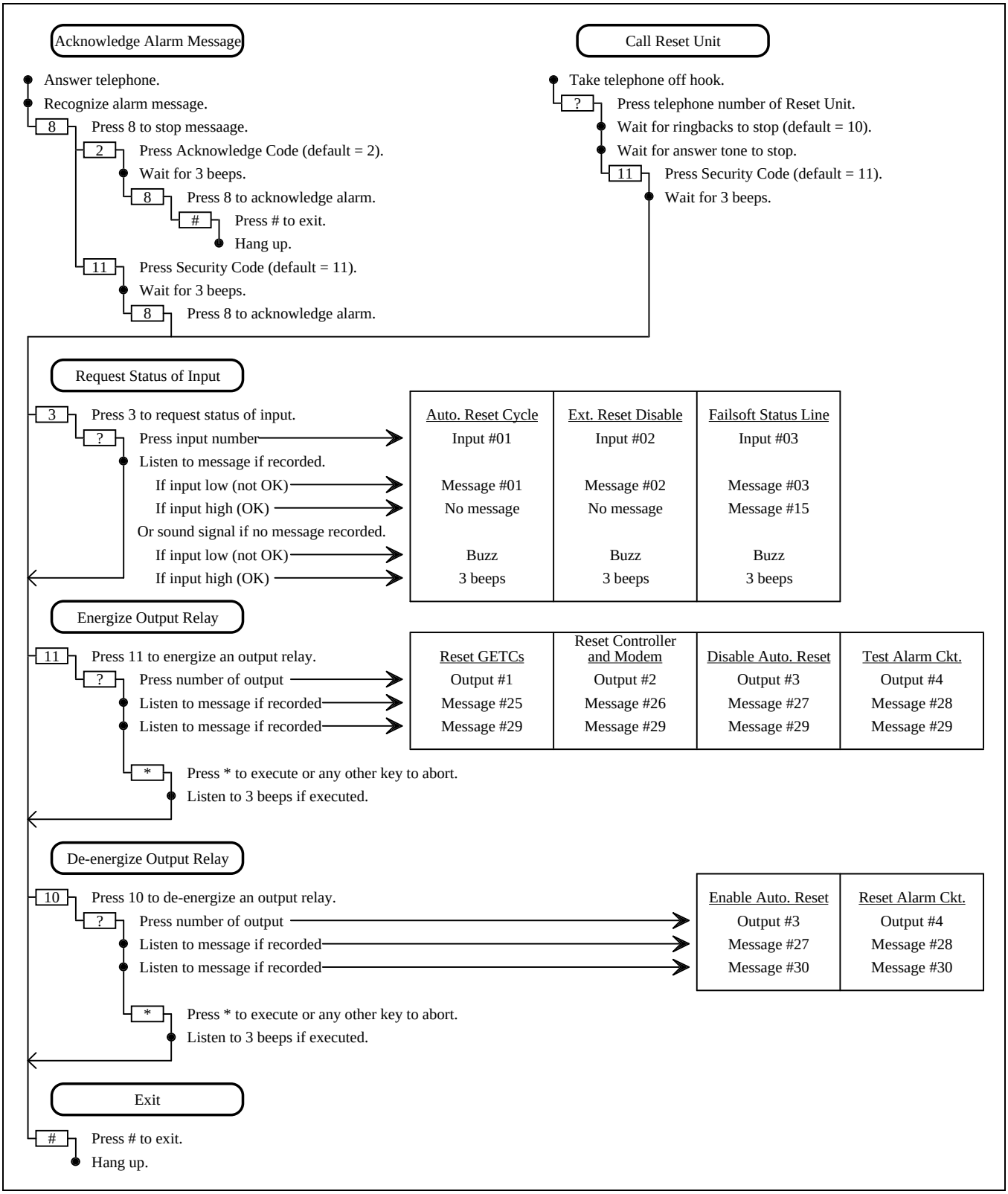

Figure 8 - Operations by Telephone

EXTERNAL RESET DISABLE CYCLE

Each time a reset occurs, any calls in progress are dropped. If some repeating condition causes the Automatic Reset Cycle to start (but successfully reset the GETCs and/or Controller and Modem before the end of the cycle), it may be better to disable the Automatic Reset Cycle and leave the site undisturbed in the Failsoft mode of operation until the condition can be corrected.

The Automatic Reset Cycle can manually be disabled by telephone. (Press 113* to energize and latch output #3 relay K2 and disconnect the Failsoft Status line from the Automatic Reset Cycle input).

If there is no telephone line available at the site, an external remotely-controlled circuit can be connected to input #02 where it is monitored by the Reset Unit to determine when to start the External Reset Disable Cycle. The Reset Unit monitors the logic state of input #02 at all times, except when it is in the RS-232 Programming Mode. The presence of a logic low is the condition to start the External Reset Disable Cycle.

Figure 9 shows the events that take place during an External Reset Disable Cycle. This cycle is identical to the complete Automatic Reset Cycle except for the following:

- The cycle progresses as if there was a logic low at input #01 throughout the cycle.
- No telephone calls are made at the end of the cycle.

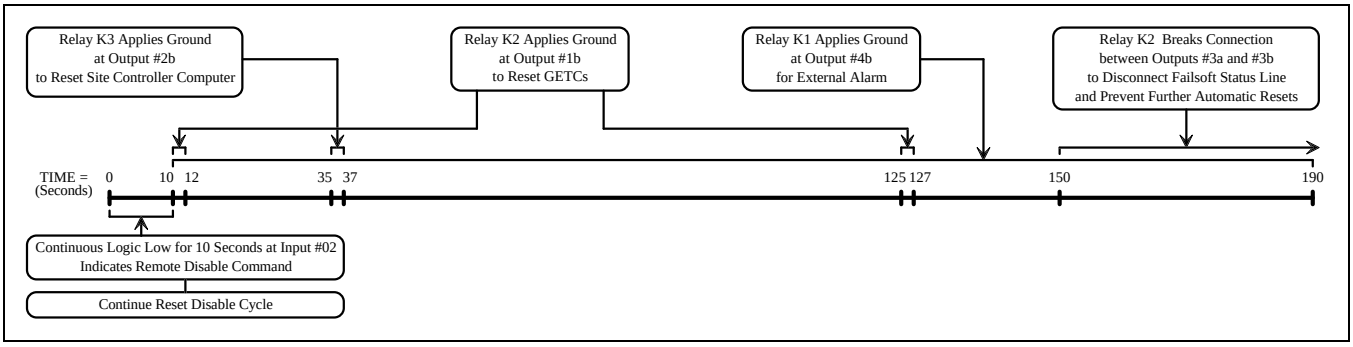

Figure 9 - External Reset Disable Cycle

TROUBLESHOOTING

The hardware used in the Guardog option is extremely reliable, making component failure the unlikely cause of most problems. The most common causes of problems are programming errors and connections.

Some symptoms and the corresponding causes and corrective action are shown in Table 7.

Table 7 - Troubleshooting Symptoms

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Reset Unit does not reset GETCs.	Automatic Reset Cycle is disabled.	De-energize relay for output #3.
	Reset Unit is not receiving DC power.	Check for presence of DC at J2 on back of Modem/Reset Unit Chassis.
	GETC Reset line is open between Reset Unit and GETC.	Check continuity from J3-1 on back of Modem/Reset Unit Chassis to J3-1 or J4-1 on the GETC bracket on the back of the GETC shelf.
Reset Unit does not reset modem or Site Controller computer.	Modem and Site Controller computer not plugged into AC Relay Panel.	Plug modem and Site Controller computer into AC Relay Panel.
	Control cable missing between AC Relay Panel and Modem/Reset Unit Chassis.	Make sure 19B803257P1 control cable is connected from J3 on the AC Relay Panel to J4 on the Modem/Reset Unit Chassis.
At the end of an unsuccessful Automatic Reset Cycle, the first telephone number in dial stack #01 is rung only once and no other numbers are rung.	No message #01 has been programmed.	Program message #01.
At the end of an unsuccessful Automatic Reset Cycle, all telephone numbers in dial stack #01 stop ringing too soon, and sometimes no message is heard when telephone is answered.	The number of alarm message repeats is too small for the length of message #01.	Increase the number of alarm message repeats to 25, and possibly increase the length of message #01.
The telephone numbers in dial stack #01 are called each time the GETCs switch to Failsoft, even when the Automatic Reset Cycle is incomplete or disabled.	Input #03 is assigned to call stack #01.	Program input #03 to dial stack #03.

GLOSSARY

Controller	See Site Controller Computer.
EDACS	Enhanced Digital Access Communications System
EDACS Interface Panel	An EDACS Interface Panel is a 19-inch wide panel mounted in the top rear of each EDACS Repeater and Site Controller cabinet. The panels are used as the connnection point for all cables between adjacent EDACS Repeater and Site Controller cabinets.
EDACS Repeater	An EDACS Repeater is a MASTR II, IIe, or III repeater connected to a Station GETC that is mounted directly above it.
Failsoft	Failsoft (or Failsoft Trunking) is the name given to the basic trunking feature provided by Station GETCs in the absence of a Site Controller computer (such as in a Basic EDACS system), or in the absence of a working Site Controller computer (if the supervising Site Controller computer fails).
GETC	A GETC is a commmunications interface with many possible hardware and software configurations depending upon its application. When configured for a specific application, it acquires the name of the application, such as a Station GETC, a Control Channel GETC, a Working Channel GETC, a Downlink GETC, etc.
Site Controller Computer	The Site Controller computer (sometimes refered to simply as the Controller) is the full time supervising computer for any non-simulcast, non-voted EDACS Repeater site. It is also used for the transmitter site in a non-simulcast voted system, and for the Control Point in a Simulcast system (voted or non-voted).
Station GETC	A Station GETC is the GETC physically located above each EDACS Repeater. There are two configurations: the Station GETC and the Simulcast Station GETC. For each of these configurations the GETC can be in use as a Control Channel GETC or A Working Channel GETC.
Station Power Supply	The Station Power Supply is the main power supply converting 120 or 230 VAC to 12 Vdc for each EDACS Repeater.
System Manager	The System Manager is a computer used to configure the database for one or more systems (one Site Controller computer per system) and compile reports from information received from those systems.
Turbo GETC	A Turbo GETC (also refered to as a GETC 1e) is a GETC containing a GETC Turbo Board. The Turbo Board provides additional processing power and memory for the GETC.

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PARTS LIST

GUARDOG OPTION

SYMBOL	PART NO.	DESCRIPTION
		------RESET UNIT------
	349A9548P7	Reset Unit
		------AC RELAY PANEL------
	19D904755G1	AC Relay Panel (110 VAC, 60 Hz)
	19D904755G2	AC Relay Panel (220 VAC, 50 Hz)
		------INTERNAL CABLES------
	19B803259P1	Cable, computer reset
	19B803260P1	Cable, GETC reset
	19B803261P1	Cable, power
	19B803262P1	Cable, telephone
	19B803263P1	Cable, programming
	349A9827P1	Cable, Jumper, Brown
	349A9827P2	Cable, Jumper, Orange
		------EXTERNAL CABLES------
	19B803255P1	Cable, power supply
	19B803256P1	Cable, EDACS Interface Panel
	19B803257P1	Cable, AC Relay Panel

AC RELAY PANEL (120 VAC)
(19D904755G1)

SYMBOL	PART NO.	DESCRIPTION
		------MISCELLANEOUS------
J1	19B209395P1	Connector, receptacle, power, 120V
K1	349A9572P1	Relay, solid state
W1	19A134567P1	Cable, power
W2	19B802793P1	Cable, control
W3	19B802793P2	Cable, power

AC RELAY PANEL (220 VAC)
(19D904755G2)

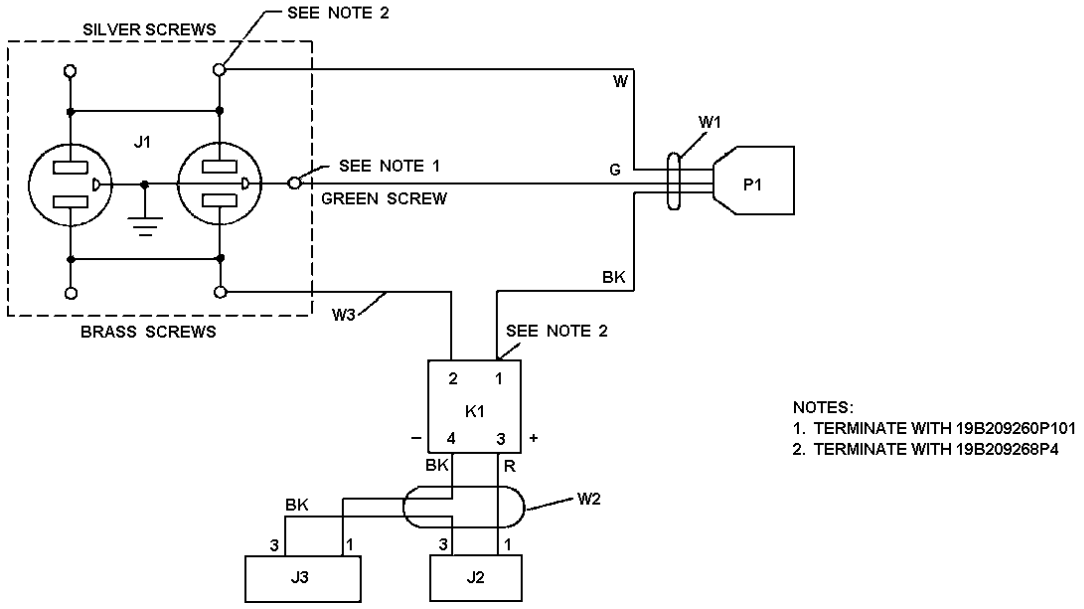
SYMBOL	PART NO.	DESCRIPTION
		------MISCELLANEOUS------
J4 & J5	RNT40303/1	Connector, receptacle, power, 250V
K1	349A9572P1	Relay, solid state
W1	349A9505G1	Cable, power
W2	19B802793P1	Cable, control
W4	19B802793P3	Cable, power
W5	19B802793P4	Cable, power
W6	19B802793P5	Cable, power
W7	19B802793P6	Cable, power

UPGRADE PARTS
(SPK 9310 EDACS GUARDOG KIT)

SYMBOL	PART NO.	DESCRIPTION
		------MISCELLANEOUS------
	19C337711P1	GETC Bracket
	19B803258P1	Cable, GETC Shelf to GETC Bracket
	19B803301P1	Cable, GETC Bracket to GETC Bracket
	19B803302P3	Cable, GETC Bracket to Serial Module

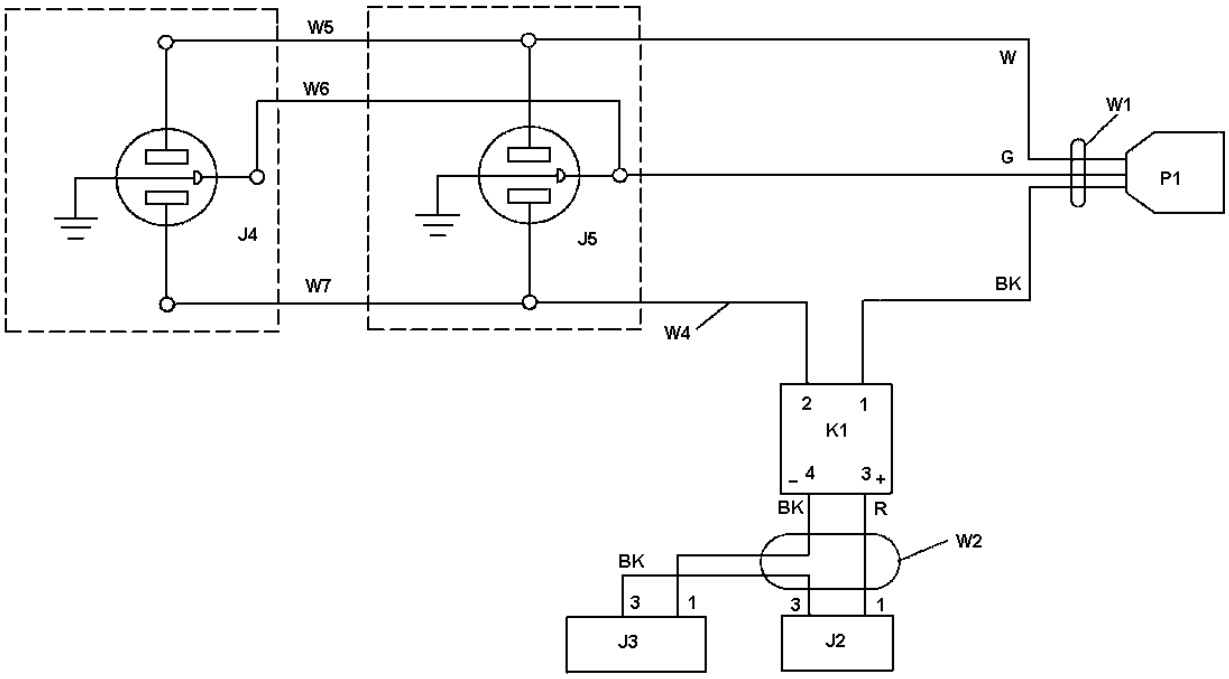
UPGRADE PARTS
(MISCELLANEOUS)

SYMBOL	PART NO.	DESCRIPTION
		------MISCELLANEOUS------
	188D5366P1	Chassis, Modem/Reset Unit
	349A9859G1	Hardware Kit (for Chassis)
	19C852447G1	Serial Module
	19B803262P1	Cable, Telephone



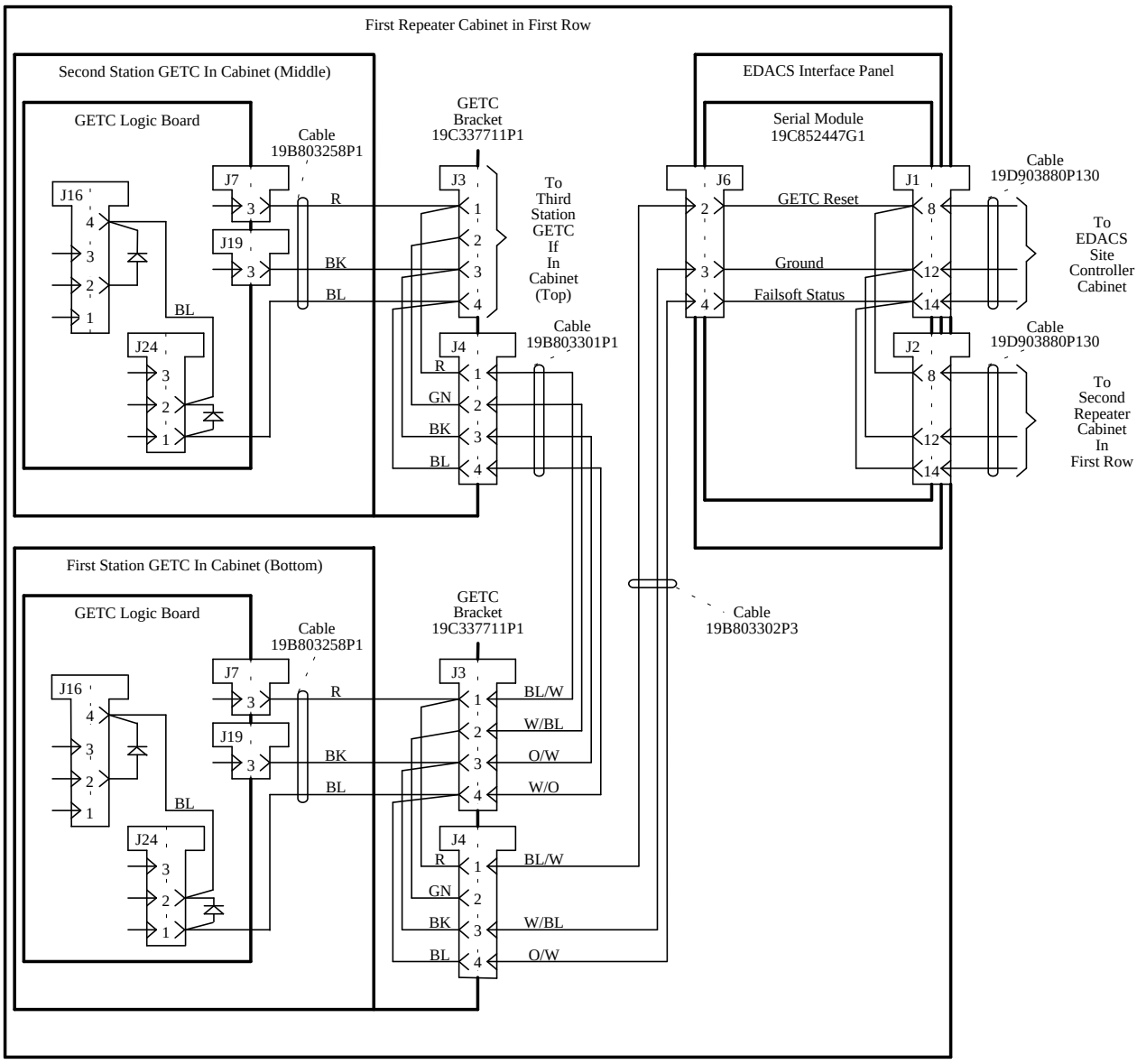
AC Relay Panel Interconnection Diagram
110 VAC, 60 Hz

(19B802792, Sh. 1, Rev 0)

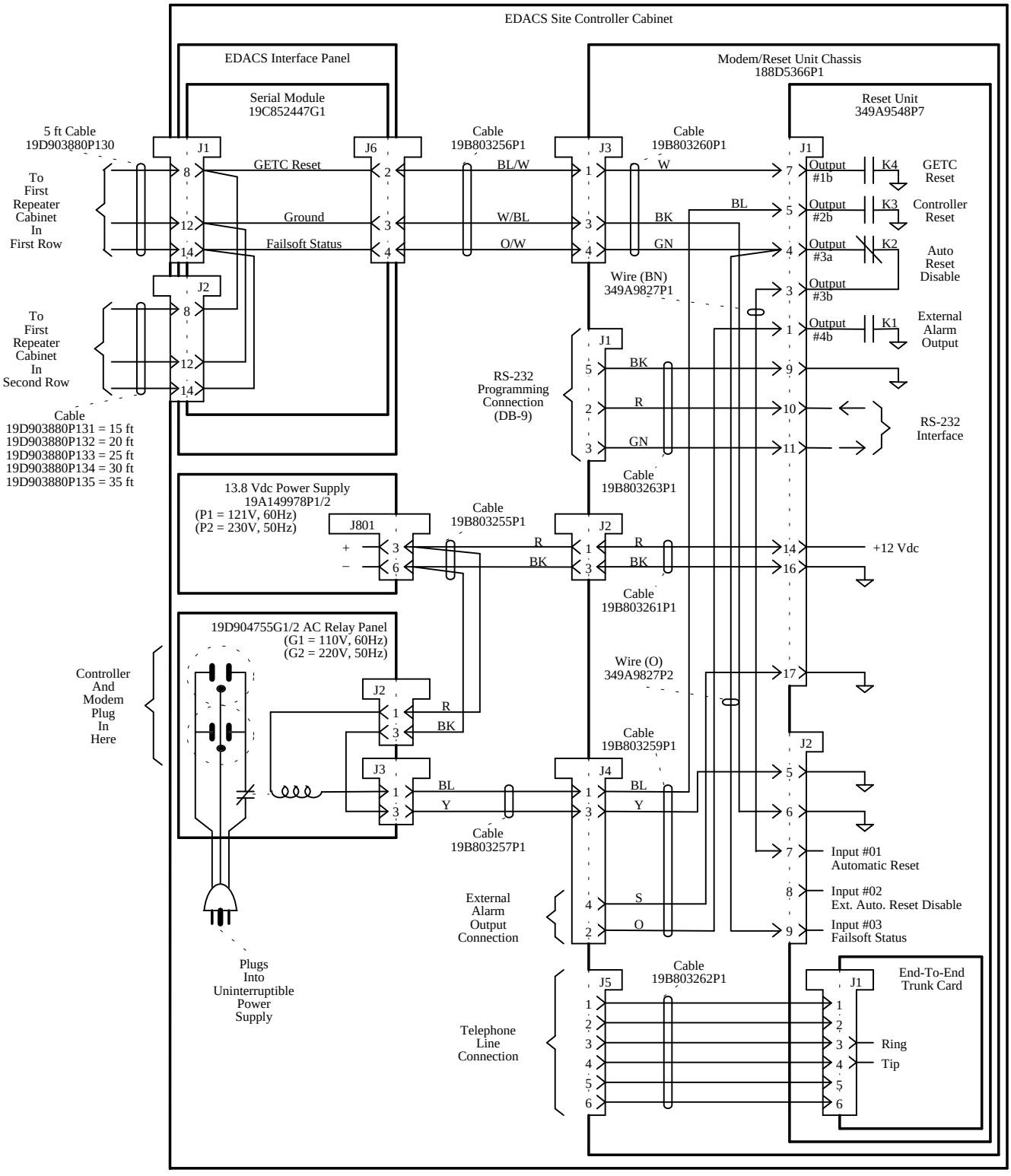


AC Relay Panel Interconnection Diagram
220 VAC, 50 Hz

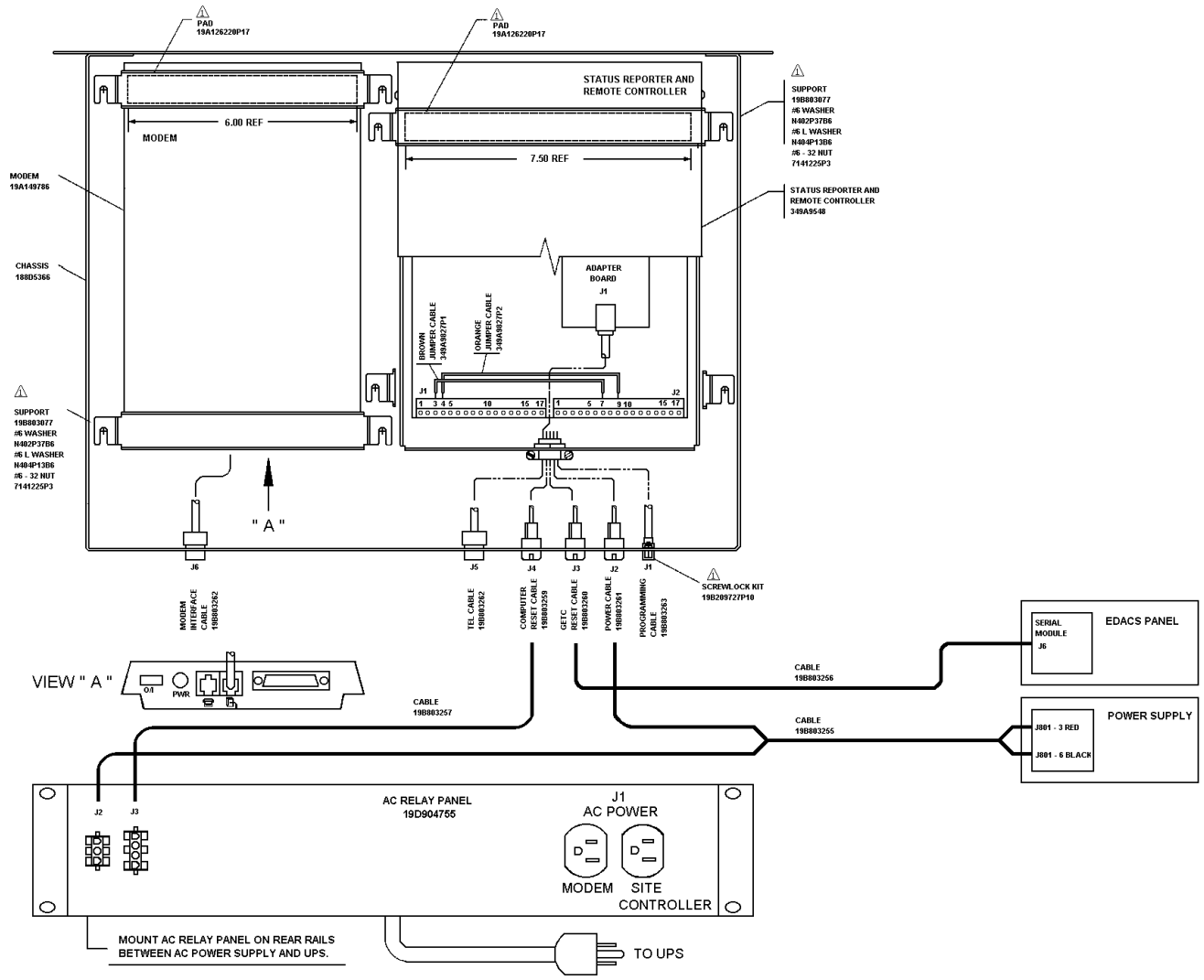
(19B802797, Sh. 1, Rev. 0)



EDACS Guardog Interconnection Diagram
EDACS Repeater Cabinet



EDACS Guardog Interconnection Diagram
EDACS Site Controller Cabinet



MODEM CONNECTIONS			
CABLE IDENTIFICATION	FROM MODEM:	TO:	REMARKS
TEL CABLE 19B803262	WALL OUTLET CONNECTOR	J6 ON MODEM CHASSIS	JACKETED CABLE ASSEMBLY
POWER CABLE	POWER CONNECTOR	WALL OUTLET POWER SUPPLY	PART OF MODEM POWER SUPPLY
SIGNAL CABLE	WALL OUTLET CONNECTOR	J5	DB-25 SIGNAL CONNECTION

CONTROLLER CONNECTIONS			
CABLE IDENTIFICATION	FROM MODEM CHASSIS CONNECTOR	TO STATUS REPORTER & REMOTE CONTROLLER	WIRE COLOR OR DESCRIPTION
COMPUTER RESET CABLE 19B803259	J4 (J4-1) (J4-2) (J4-3) (J4-4)	J1-5 J1-1 J2-5 J1-17	BLUE ORANGE YELLOW GRAY
GETC RESET CABLE 19B803260	J3 (J3-1) (J3-3) (J3-4)	J1-7 J2-6 J1-4	WHITE BLACK GREEN
POWER CABLE 19B803261	J2 (J2-1) (J2-3)	J1-14 J1-16	RED BLACK
PROGRAMMING CABLE 19B803263	J1 (J1-2) (J1-3) (J1-5)	J1-10 J1-11 J1-9	RED GREEN BLACK
TEL CABLE 19B803262	J5	ADAPTOR BOARD J1	JACKETED CABLE

(1) NOTES:

⚠1 PART OF HARDWARE KIT 349A9859G1

2 SECURE 220 VOLT MODEM POWER SUPPLY (PRESENT ONLY IN 220 VOLT SYSTEMS) TO REAR CABINET RAILS WITH PLASTIC TIES 19J708152P2 ⚠1

EDACS Guardog Assembly Diagram
EDACS Site Controller Cabinet

(188D5339, Sh. 1, Rev. 1A)