

## Chapter 5

### **INFORMATION**

The information in this section of the manual provides the step-by-step procedures for conducting any testing necessary for the start up of the 289H. This section also discusses the procedures used to test and replace a bad relay card and how to replace a blown fuse. Additionally, detailed wiring examples are provided for the subscriber block auxiliary jumpering. These illustrations help explain where the temporary jumpers are connected on the block's internally wired cable connectors to bypass the 289H Subscriber Relay Card.

Using a network connection for communication between the 289H and PressureMAP requires programming the network address for the 289H equipment. Procedures for configuring the 289H LAN Controller Card are described in this section.

### **289H START UP PROCEDURES**

Once all of the devices have been cut over to the 289H monitor and the PressureMAP database for the office has been established using the conversion utility, the system can be placed in operation. It is important to note that the 289H does not require any external calibration. The 289H automatically calibrates its measurement circuit against built in, precision stable resistances before each relay card is accessed. The calibration process compensates for changes in supply voltage and system conditions. Calibration constants are routinely supplied to PressureMAP for each relay card before the data points for the card are accessed.

However, if you wish to manually check the 289H monitor before it is put into operation, the following procedures suggest a method to check the integrity of the installation. These procedures are in divided into two parts: the first section consisting of an overall system check, and the second covering card testing. All of the tests referred to in the card testing procedures are explained in depth in Appendix 6, 289H Diagnostics Tests. Please refer to this manual section for additional help when running the tests.

#### **System Check Procedures**

1. Verify that the main power switch on the Utility Card or Tone Utility Card is turned to the OFF position. (Refer to FIGURE 1-4 in Section 1 of this manual for a description of these cards.) A “power on” LED, located above the power switch on the 289H’s Utility Card, indicates whether power is being supplied.

**Note:** The newer Controller Cards with a dipswitch module should be powered off before changing the dipswitch settings, to ensure that both the card and the modem or LAN module will be initialized to a stable starting point.

2. Check that the necessary communications connection for the 289H equipment has been set up—a phone line if the Controller Card is equipped with a modem, or a network connection if the 289H will use a LAN Controller Card.

- Modem communications—Check for a dial tone on the telephone line assigned for use with the 289H monitor before connecting the telephone cord to the Controller Card. On the newer model Controller Card with the dipswitch module, make sure that both switches are in the down position, ON. (Refer to Section 1 of this manual for a description of the 289H Controller Card models.)
  - Network communications—Configure the 289H's IP address information as described in the setup instructions at the end of this section.
3. Turn the main power switch ON. For a modem Controller Card: after verifying the line is working, plug the RJ-11 connector into the jack on the Controller Card.
  4. Once the communications connection is working and connected to the 289H and the power is on, you can now proceed with card testing, using the 289H Diagnostic tests in the PressureMAP program.

### **Card Testing Procedures**

1. Using a personal computer or remote printer, access the PressureMAP computer that contains the 289H office and device information. At the MAP Programs Menu, select Option 6, CPAMS Diagnostics.

**Note:** If you have any questions about accessing the CPAMS Diagnostics program, please refer to Appendix 5, 289H LSS Diagnostics, or contact your PressureMAP System Administrator or System Studies Technical Support for assistance.

2. Select the office number or name for the 289H when prompted by the PressureMAP program and wait for the 289 Diagnostics Menu to appear on your computer or printer. Refer to the 289H LSS Diagnostics Tests in Appendix 6 for instructions and expected readings when running the diagnostic tests.
3. When the Diagnostics Menu is displayed, select option 1, System Configuration. A System Configuration Screen similar to the one shown below will be displayed. Check the Inventory field of the configuration screen, verifying that all of the cards in the 289H are correctly identified in the Inventory field. If Sparton Dedicated Replacement Cards (SPDR) are installed, make sure that they are placed in the chassis in front of other relay card types and ordered A, B, C, A, B, C, etc. To correct their order, follow the SPDR configuration instructions in Section 4.

If the inventory of the 289H is correct, proceed to step 6; if an installed card is not listed, go to step 4.

4. If the inventory indicates that a slot is blank when there is a card installed, the card may not be "seated" properly in the slot. To re-seat the card, first exit from the CPAMS Diagnostic Menu. Then, refer to the procedures for removing and replacing a card that start on page 5-4 of this section of the manual.

**Note:** Never remove or insert a card in the 289H when the power is ON!

5. After the card is secure in the chassis and the proper cables have been reattached to the card connector slots (refer to the “Wiring and Cabling Requirements” in section 4) follow steps 1 through 3. If the card still does not appear in the inventory list, follow steps 4 and 5 but insert the card into another slot.
6. The next test to run is Realtime Reading (Option 3 in the 289H Diagnostic Menu). By testing each device, you can compare the device readings from the old monitor's device log to the realtime 289H readings, verifying the correct installation of the device pair.

If the readings from the old monitor and the 289H correlate with each other, you have successfully completed the 289H installation. However, if the 289H does not give the expected readings or reads OPNI, follow the steps outlined below.

7. If the readings are not what is expected from the devices, run a Ping Relays Test (Option 6 in the 289 Diagnostic Menu) for the relay card(s) to which the devices are wired. This test will check that the card is being addressed correctly and that each relay is operating. When running this test on a dedicated card, the output displayed is the word “ping” for each time the card is pinged.

For subscriber cards, the output displayed is a sequence of ones and zeros—one digit for each line. The first digit displayed corresponds to the first line on the selected card. A value of 0 indicates the line was free, whereas a value of 1 indicates that the line was found to be busy. After comparing the relays that were found to be busy during the test from the list of relays that did not “ping” when tested, you can determine which relays are faulty.

An example of the Ping Relays Test output from a subscriber card is shown in Screen 5-2. In this example, all of the subscriber lines were found to be on-hook except line 9 which was found to be busy all four times that the test was run.

If the card only partially passes the Ping Relays Test and the unresponsive relay pairs were not busy, the relay card needs to be replaced (refer to card replacement procedures below).

8. If the card does not respond at all to the Ping Relays Test, move it to a vacant slot and run the Ping Test again. Follow the instructions for removing a card in steps 4 and 5 listed above. If the card fails the test in the new slot, then it is bad and needs to be replaced. But if it passes the test in the new slot, there is a possible problem with the original slot. Mark the slot as defective and do not use it for other relay cards.
9. If the relay card passes the Ping Relays Test, but one or more device pairs consistently have a reading of OPNI, check to see if the ring side of the pair is grounded. If it is, remove the ground. If there is no ground on the ring side, then replace the card, following the card replacement procedures starting below.
10. If the card passes the Ping Relays Test, but the device readings are not as expected, double check the wiring on the connector block. It is possible when installing a 289H to incorrectly wire a connector block or attach a connector to the wrong side of the block (i.e. attaching pins 1-25 to devices that should be on pins 26-50). Refer to the section for wiring dedicated blocks in Section 4 of this manual for complete wiring and cabling procedures.

## REPLACING A CARD

When a card needs to be replaced, the following procedures should be followed. It is important to note that the power to the 289H must be OFF and a protective anti-static wrist strap must be worn when removing or inserting any card in the 289H. Failure to do so could result in damage to the card.

These procedures apply to replacement of the Controller Card and Utility Card as well as the various relay cards. For more detailed information about the utility card's power supply hookup and CO alarm wiring, refer to the utility card installation procedures in Section 3 of this manual.

**Note:** The newer 289H relay card models require that the Controller Card's EPROM version supports that relay card model. For example, for the Sparton Dedicated Replacement Card (SPDR) the EPROM must be Rev. C07, D04, E04, F03 or G03, or higher. EPROM versions, compatibility requirements and capabilities are described in Release Note 68 (2570701.\*HD), which is available on the System Studies website: [www.airtalk.com/z\\_ref-3.html](http://www.airtalk.com/z_ref-3.html). To verify that you have the most current information, please contact System Studies Technical Support.

In order to utilize the tone generation capabilities of the Tone Utility Card, the Controller Card must be equipped with EPROM version B05 or greater. In addition, one or more dedicated tone relay cards must be installed.

When removing a 289H subscriber card, first follow the instructions for attaching the auxiliary jumper cables to the subscriber block that start on the next page. These auxiliary jumpers are provided to ensure that service to the subscriber is not interrupted when replacing a card.

### Procedures:

1. Turn the power switch on the Utility Card to the OFF position (FIGURE 5-1).

**Note:** Never remove or insert a card in the 289H when the power is ON!

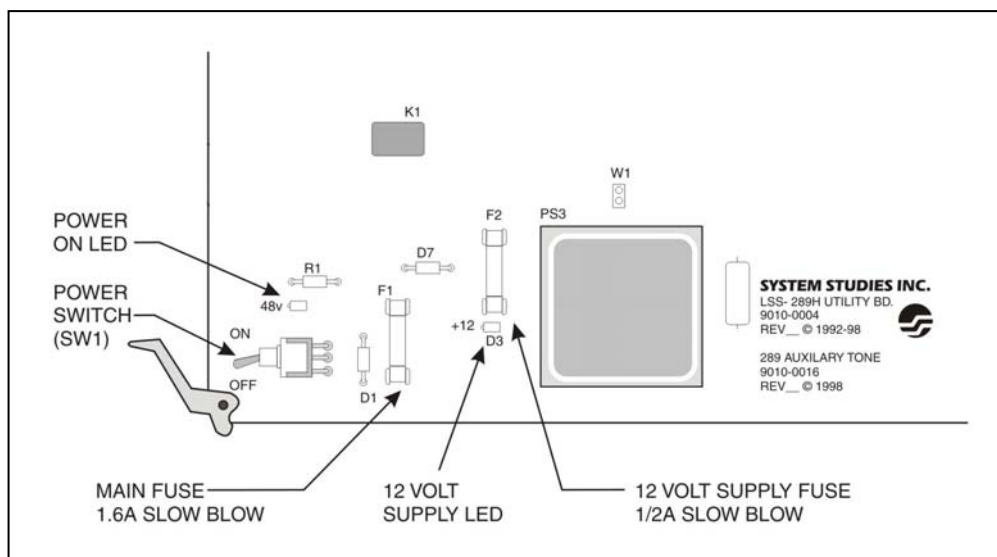


FIGURE 5-1: 289H UTILITY CARD POWER SWITCH

2. After putting on your wrist strap, disconnect the cable attached to the back of the relay card. Now, pull the card's ejector clips away from the center of the card and slide the card towards you until it is clear of the 289H frame. Set the card down in a safe place, out of the working area.
3. If you are replacing the card, remove the new card from its protective wrapping. (If the card being replaced is a Utility Card, refer to the installation instructions in Section 3 of this manual.) Slide the card into the proper slot of the chassis using the 289H's top and bottom guide rails. To prevent you from installing a card improperly, all cards are keyed so that they cannot be inserted upside down.

**Note:** The slot for the Controller Card is marked CTRL, and the 3 slots in which the Utility Card can be inserted are marked AUX1, AUX2, and AUX3. The slots for the relay cards have the CARD designation. (See Figure 3-1 in Section 3.)

If you are installing SPDR relay cards, they must be placed in the chassis in front of other relay card types and ordered (configured) A, B, C, A, B, C, etc. Instructions for configuring the cards are provided in Section 4.

4. Pull the card's ejector clips straight out. (These plastic clips are located on the top and bottom front edge of the card.) If they are positioned inward, the card cannot be inserted into the chassis.
5. As you insert the card, check to see that the card's edge connector is in line with the connector on the unit's backplane. You may have to reach in and slightly adjust the edge connector to the right or left before the card will slide into the backplane connector.
6. Secure the card in place by pressing the ejector clips toward the center of the card, fitting each clip into the hole in the 289H's steel chassis. After the card is installed in the chassis and the proper cables have been reattached to the card connector slots (refer to the "Wiring and Cabling Requirements" in section 4 for information on proper cable connections to the 289H relay cards), follow the procedures listed in the "Card Testing" portion of this section. If you have replaced a subscriber card, go to step 4 in the procedures for attaching auxiliary jumpers to the subscriber block that start below.

### **USING THE SUBSCRIBER BLOCK AUXILIARY JUMPERS**

The connector block that is used when wiring subscriber device pairs has four auxiliary connectors that are wired in parallel with the primary connectors. These auxiliary connectors make it possible to disconnect subscriber device pairs from the 289H monitor without interrupting service to the customer. This function is accomplished by placing a 25-pair cable between auxiliary connectors (FIGURE 5-2).

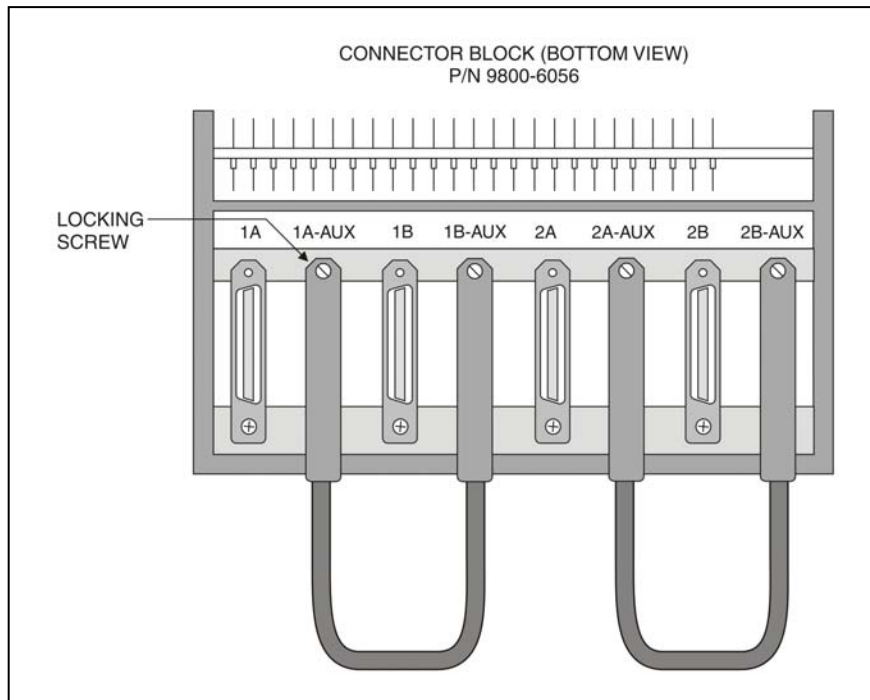


FIGURE 5-2: STANDARD SUBSCRIBER BLOCK SHOWING AUXILIARY CABLING

Unlike the locking barbs on the block's primary cable connectors, cables can be connected and disconnected from the auxiliary connectors. For example, if you need to service the Subscribe Relay Card connected to the block's "Card 1" wire wrap pins, you would first connect a short cable (one with two male connectors) to the 1A-AUX and 1B-AUX connectors. This would allow you to disconnect the cables at the relay card without disrupting service. Cabling the 2A-AUX and 2B-AUX connectors will serve the same function for the subscriber card connected to the "Card 2" pins (FIGURE 5-3).

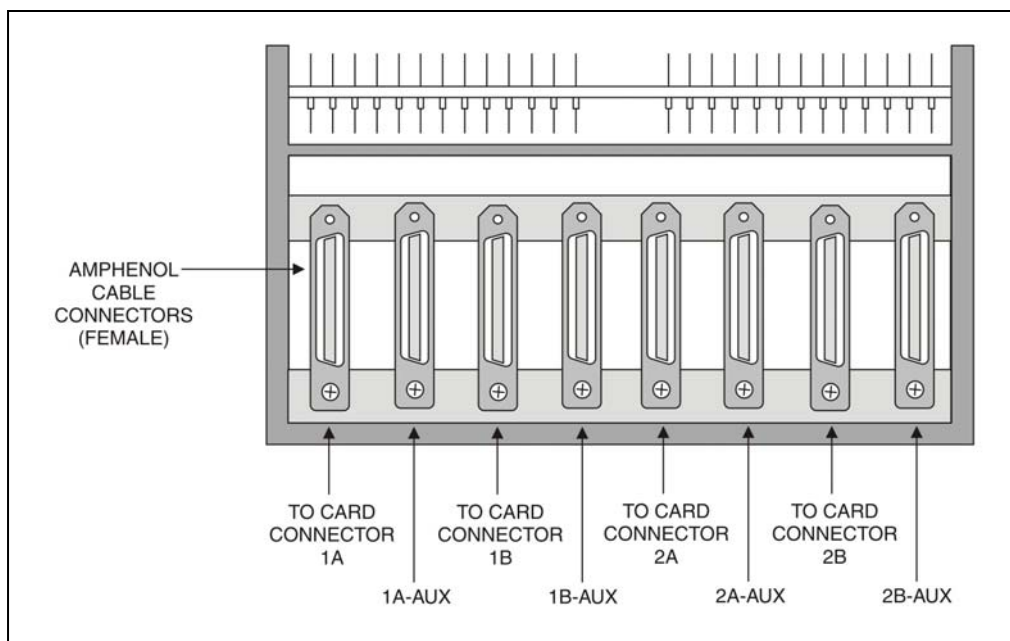


FIGURE 5-3: SUBSCRIBER CONNECTOR BLOCK (CABLE CONNECTORS)

This cable must be attached before the subscriber card is removed from the 289H. The following procedures describe what needs to be done to attach and remove the auxiliary jumpers to each subscriber block in the 289H monitor.

**Procedures:**

1. Connect one end of the auxiliary jumper cable to the subscriber block connector labeled 1A-AUX in Figure 5-3. Connect the other end of the auxiliary jumper cable to the subscriber block connector labeled 1B-AUX. This connects the first 25 subscriber pairs in the field to the CO equipment (via the connector blocks).
2. Connect one end of another auxiliary jumper cable to the subscriber block connector labeled 2A-AUX in Figure 5-3. Connect the other end of the auxiliary jumper cable to the subscriber block connector labeled 2B-AUX. This completes the connection between the next 25 subscriber pairs and the CO equipment.
3. Follow steps 1 and 2 for each additional subscriber card that needs to be replaced. After all of the subscriber pairs have been rerouted from the 289H to the CO using the auxiliary jumper cables, the 289H power can be turned off and the card(s) removed.

When all work on the 289H has been completed and all of the cards are functioning properly, follow the procedures described below to disconnect the auxiliary jumper cables.

4. With the power to the 289H restored, carefully disconnect the cable connector attached to the subscriber block connector labeled 1A-AUX in Figure 5-3. Now disconnect the other end of the auxiliary jumper cable from the subscriber block connector labeled 1B-AUX.
5. Repeat this procedure for the cable between auxiliary connectors 2A-AUX and 2B-AUX.
6. Follow steps 4 and 5 for each additional jumper connection. Only after all of the subscriber auxiliary jumper cables have been removed has the 289H monitor been returned to its correct operating setup.

## **TESTING AND REPLACING A BLOWN FUSE**

One of the more common repair procedures needed for the 289H is the replacement of a blown fuse. If the 289H is not answering, and you have followed the troubleshooting steps in the first section of Appendix 2, you may need to replace a fuse. All of the fuses used on the 289H controller and utility cards are standard 5 by 20mm fuses, available at most electronics stores. TABLE 5-1 shows the types of fuses used by each card.

To find the fuse locations on each card, refer to the appropriate card layout diagram in Section 1 of this manual: Controller Cards (FIGURES 1-3–1-4) , Utility Cards (FIGURES 1-5 and 1-6).

	Modem Controller Card (P/N 9010-0010)	LAN Controller Card (P/N 9800-0030)	Utility Card (P/N 9010-0004)	Tone Utility Card (P/N 9010-0016)
P/N 5522-0005 <b>0.1A Slo-Blow</b> 5x20mm Littelfuse 218.1	X	X		
P/N 5522-0007 <b>0.5A Slo-Blow</b> 5x20mm Littelfuse 218.5			X	X
P/N 5522-0008 <b>1.6A Slo-Blow</b> 5x20mm Littelfuse 21801.6			X	X
P/N 5522-0009 <b>1.6A Fast-acting</b> 5x20mm Littelfuse 23501.6	X	X	X	
P/N 5522-0315 <b>3.15A Fast-acting</b> 5x20mm Littelfuse 217 3.15				X
P/N 5522-0400 <b>4.0A Fast-acting</b> 5x20mm Littelfuse 217 004				X

TABLE 5-1: REPLACEMENT FUSES (PART NO. AND DESCRIPTION) FOR 289H CARDS

**Procedures:**

1. Verify that the -48 volt supply indicator light located at the front of the Utility Card is on and that the switch below the light is in the ON (up) position. If the light is not on, check that a filtered source of -48 volts DC and ground is applied to the power connector. (Please refer to Section 2 of this manual for an explanation of 289H power requirements.)

If the switch is on and power is applied to the power connector, but there is no light on the Utility Card, the main fuse on the card may be blown. For a description of the proper procedure to replace the 1.6 amp fuse, go to step 3.

2. Verify that the 3 LEDs in the middle of the Utility Card are on. On the Tone Utility Card (Section 1, FIGURE 1-6), these LEDs are labeled D3 (Diode 3), D4, and D11. On the older Utility Card (Section 1, FIGURE 1-7), these LEDs are labeled D3, D4, and D5. If any of these LEDs are out, either the fuse is blown or the power supply is faulty. In this case, first replace the fuse, following the procedures that start at step 3. If the LED does not come on after replacing the fuse(s), then you will need to replace the Utility Card.
3. To remove the card that has a blown fuse, first turn the power switch on the utility card to the OFF position.

**Note:** Never remove or insert a card in the 289H when the power is ON!

4. After putting on your anti-static wrist strap, pull the card's ejector clips away from the center of the card and slide the card towards you until it is clear of the 289H frame. Place the card on a flat, stable surface.



5. Identify the fuse that needs to be replaced. When a fuse has blown, the metal strip that is in the fuse is usually broken. Pull the fuse out of the clips that hold it in the card and insert a replacement fuse with the same amp rating. To identify the fuses on each card, refer to the appropriate card layout diagram in Section 1 of this manual: Controller Card (FIGURES 1-3 and 1-4) and Utility Card (FIGURES 1-5 and 1-6).
6. To reinsert the card into the 289H chassis, slide the card into the proper slot of the chassis using the 289H's top and bottom guide rails. To prevent you from installing a card improperly, all cards are keyed so that they cannot be inserted upside down.

**Note:** There are three slots in which the Utility Card can be inserted. They are marked AUX1, AUX2, and AUX3. While any of these slots will work, it is recommended that you return the card to the slot that it originally occupied.

7. Pull the card's ejector clips straight out. (These plastic clips are located on the top and bottom front edge of the card.) If they are positioned inward, the card cannot be inserted into the chassis.
8. As you insert the card, check to see that the card's edge connector is in line with the connector on the unit's backplane. You may have to reach in and slightly adjust the edge connector to the right or left before the card will slide into the backplane connector.
9. Secure the card in place by pressing the ejector clips toward the center of the card, fitting each clip into the hole in the 289H's steel chassis. After the card is secure in the chassis, you can turn the power switch located on the front of the Utility Card to the ON position. Then run the diagnostic tests (as discussed in Appendix 2 of this manual) to ensure that the 289H is ready for operation.

## **SETTING UP THE 289H LAN CONTROLLER CARD**

This procedure explains how to set up the LAN Controller Card for communication between a 289H LSS monitor and PressureMAP server connected to a network. The 289H LAN Controller setup process requires the following items:

- A LAN Controller Card (P/N 9800-0030) equipped with Firmware EPROM Rev. F02 (P/N 9030-0050) or higher
- A Windows PC or laptop computer with a DB9 serial connection and the HyperTerminal communications package
- A standard DB9 straight-through serial cable (P/N 9800-6002)
- A Cat. 5 Ethernet cable

To configure the LAN Controller, you will need a computer running Windows 95 (or greater) with HyperTerminal. You will also need to obtain a local IP address, Port Number, Gateway address and Subnet address information for the 289H LAN Controller from your network administrator. For your reference during the procedures that follow, record the information in the spaces in TABLE 5-2. (At the end of this section is a worksheet for sharing information between the network administrator and the air pressure technician who is installing the 289H with LAN Controller card.)

<b>IP ADDRESS</b>	_____	_____	_____	_____
	IP BYTE 1	IP BYTE 2	IP BYTE 3	IP BYTE 4
<b>PORT NUMBER</b>	_____			
<b>GATEWAY</b>	_____	_____	_____	_____
	GW BYTE 1	GW BYTE 2	GW BYTE 3	GW BYTE 4
<b>SUBNET</b>	_____	_____	_____	_____
	SN BYTE 1	SN BYTE 2	SN BYTE 3	SN BYTE 4

TABLE 5-2: REQUIRED NETWORK COMMUNICATIONS INFORMATION

The LAN Controller uses 10 Mbps Ethernet. The network hub or Ethernet adapter to which the LAN Controller is connected must be either a 10 Mbps unit or a 10/100 unit that can adapt to either 10 or 100 Mbps.

If you are converting an existing 289H monitor for network communication, you will need to replace the Controller Card with a LAN Controller Card. For detailed instructions on card replacement, please refer to the procedure “Replacing a Card” that appears earlier in this section.

**Note:** Never remove or insert a card in the 289H when the power is ON!

### ***Configuring the LAN Controller***

These instructions describe the process for programming an IP address into the LAN Controller Card (P/N 9010-0030). The information for **Local IP Address**, **Port Number**, **Gateway Address**, and **Subnet Mask** should be obtained from your Network Administrator.

1. Make sure that the 289H LSS monitor is powered off. If the unit is on, turn off the power switch SW1 at the front of the Utility Card.
2. Identify the S3 dipswitch set module that controls communication mode, located in the lower left corner of the LAN Controller card (see FIGURE 5-4).

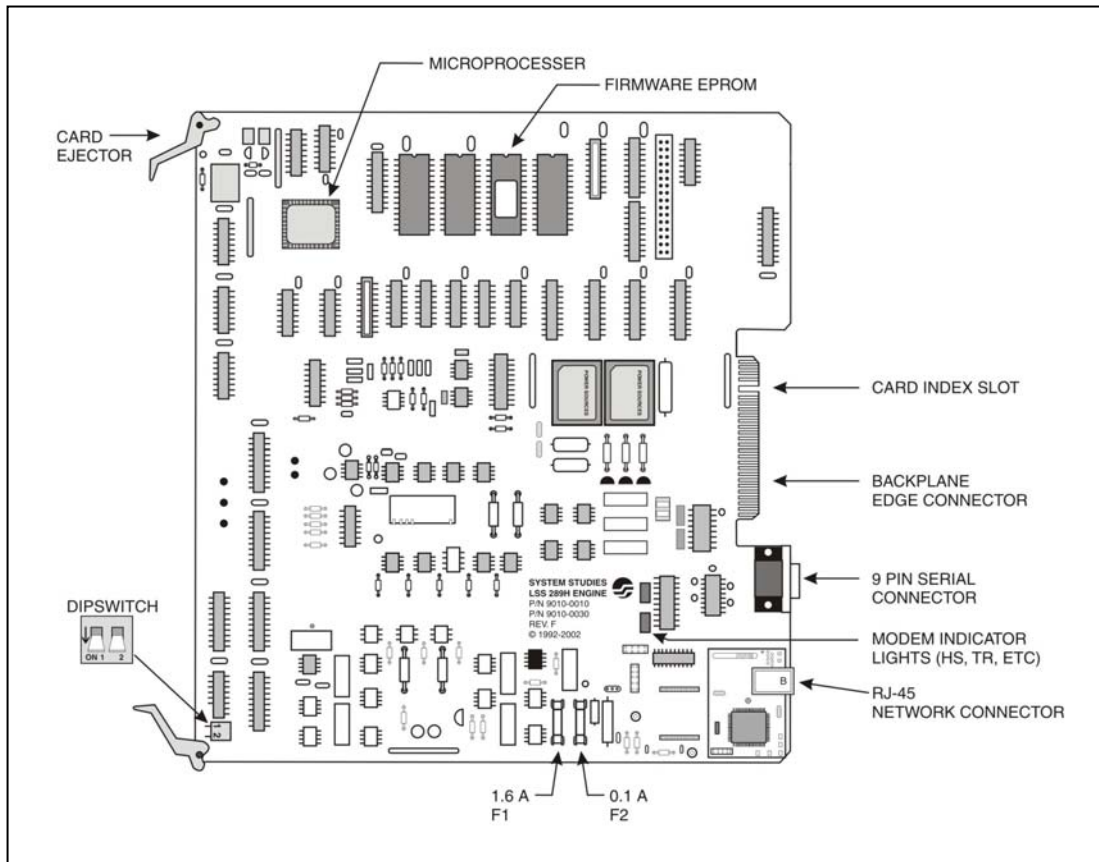


FIGURE 5-4: LAN CONTROLLER CARD (9800-0030)

Switch 1 is the upper switch (away from edge of card), and Switch 2 is the lower switch (closer to edge of card). Set the two dipswitches to Configure Mode (see below):

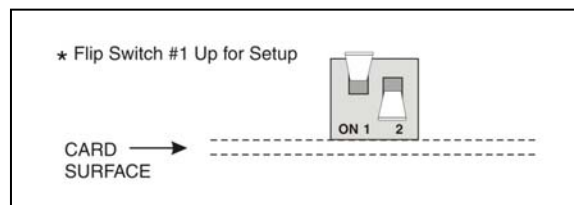


FIGURE 5-5: LAN CARD DIPSWITCH SETTINGS FOR CONFIGURE MODE

1 = up (OFF), away from card surface  
2 = down (ON), toward card surface

- Using the 9800-6002 serial cable, connect the DB9 connector (**J8** at the back of the LAN Controller Card) to the DB9 connector on the computer.

The HyperTerminal screens displayed may vary slightly from those described in the following steps, depending on the Windows version running on the workstation computer.

4. On the Windows workstation, click **Start, Programs, Accessories, HyperTerminal**. From the HyperTerminal window, double-click on the HYPERTERM.EXE icon. This will launch the HyperTerminal program.
5. In the Connection Description box, choose a name (such as “LAN\_Controller”) and an icon for the setup. Click **OK**. In the Connect To box that appears, click the “Connect using” drop-down menu, then select “Direct to Com1”. Click **OK**.
6. In the COM1 Properties box, configure the Port Settings as follows:

Bits per second: **9600 Baud**  
 Data bits: **8**  
 Parity: **None**  
 Stop bits: **1**  
 Flow Control: **None**

Click OK.

7. Power on the 289H LSS using the power switch at the front of the Utility Card. On power-up, HyperTerminal will display the initial message prompt to enter the LAN Controller setup menus.
8. Type **SETUP** (or just type **S**) and hit **<Return>**. HyperTerminal will display a screen similar to the one shown in SCREEN 5-3.

**Note:** Your typed input will not display at the prompt on the screen.

```

Your Typing Input will not echo to the screen.

For SETUP:

  Type SETUP and press <ENTER

=>
*****
***** SSI NETMODEM 2.00 p/n 9010-0030 *****
*****

INSTRUCTIONS :Type "MENU OPTION" NUMBER (0 - 4) then <ENTER>

  MENU OPTIONS                                CURRENT SETTINGS
-----
0 - To SAVE and EXIT SETUP
1 - Local IP Address                          0.0.0.0
2 - Port Number                               0000
3 - Gateway Address                           0.0.0.0
4 - Subnet Mask                               0.0.0.0

Enter=>

```

SCREEN 5-3: LAN CONTROLLER SETUP MENU

- To enter the IP address, type **1** and press **<Return>**. If you enter an invalid command (such as 9), the screen will display an error message and re-prompt you to enter a command option.

The program will then prompt you to enter the Local IP Address. Type the IP address and press **<Return>**. The program will return to the setup menu. The **CURRENT SETTINGS** column will reflect the new value that you just entered.

**Note:** Using the side scrollbar allows you to review earlier information in your HyperTerminal session.

- To enter the Port, type **2** and press **<Return>**. The program will then prompt you to enter the Port Number. Type **3001** and press **<Return>**. The program will return to the setup menu. The **CURRENT SETTINGS** column will reflect the new value that you just entered.
- To enter the Gateway, type **3** and press **<Return>**. The program will then prompt you to enter the Gateway Address. Type the gateway address and press **<Return>**. The program will return to the setup menu. The **CURRENT SETTINGS** column will reflect the new value that you just entered.
- To enter the Subnet, type **4** and press **<Return>**. The program will then prompt you to enter the Subnet Address. Type the subnet mask and press **<Return>**. The program will return to the setup menu. The **CURRENT SETTINGS** column will reflect the new value that you just entered.
- After completing the IP settings, you are ready to exit the setup program. Type **0** and press **<Return>**.
- You will then see the following message:

```
SAVE & EXIT selected! Are CURRENT SETTINGS correct?  
Press 'y' to SAVE & EXIT, OR 'n' to EXIT w/o saving, then <ENTER>
```

If you do not save the changes you made, the LAN Controller will use the previously programmed settings. To save your changes and exit setup, type **Y** and **<Return>**. The screen will display the following message:

```
SAVING SETTINGS.....SETTINGS SAVED!
```

To use these new settings:

- Please wait.
- After 15 seconds turn off the 289H LSS System.
- Disconnect the serial cable from the 289H DB9 connector J8.
- Move Dip Switch #1 down on Switch S3.
- Verify that a network cable is attached to the RCM module RJ45 jack J2.

Thank you for waiting

If you do not wish to save your changes, type **N** and **<Return>**. The screen will display the following message:

EXITING w/o Saving... To Re-enter SETUP:  
 Turn OFF the 289H LSS System, then back ON.  
 Type SETUP and press <ENTER>

To use PREVIOUSLY SAVED settings:

1. Please wait.
2. After 15 seconds turn off the 289H LSS System.
3. Disconnect the serial cable from the 289H DB9 connector J8.
4. Move Dip Switch #1 down on Switch S3.
5. Verify that a network cable is attached to the RCM module RJ45 jack J2.

Thank you for waiting

If you enter an invalid choice, the program will prompt you again to enter Y or N.

15. After exiting the setup program, power off the 289H monitor using the power switch SW1 at the front of the Utility Card. If you wish to re-enter the setup program, go back to step 7.
16. Disconnect the 9800-6002 serial cable from the DB9 connector on the LAN Controller and the computer. Keep the serial cable for later use in checking or changing IP address settings.
17. Move the #1 switch on the S3 Dipswitch set module to the down (ON) position (FIGURE 5-6). This puts the LAN Controller in Server Mode for normal communication with the PressureMAP system.

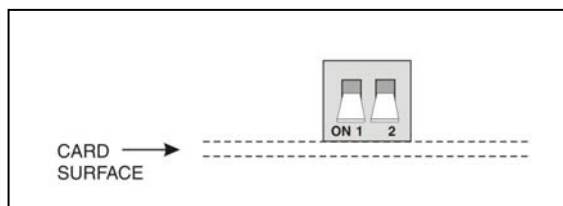


FIGURE 5-6: LAN CARD DIPSWITCH SETTING FOR SERVER MODE

18. Power on the 289H using the power switch on the Utility Card. The setup is complete.

**Note:** Use only ONE connector. Do not change the LAN connection while the 289H is powered on.

### ***PressureMAP Data Entry Requirements***

Whether this setup is part of an upgrade to a 289H LSS or a new install, the PressureMAP Office Information screen needs to be modified or created, with the correct IP address information for this LAN Controller in the *Phone Number* data field. Both the *Baudrate* and *MAP Alert Baudrate* data fields should be set to 9600, and if desired, the correct *MAP Alert #* information entered in order to enable the 289H to call PressureMAP with Alerts. (Please refer to SCREEN 5-4 on next page.) For more detailed information regarding these settings, please refer to Section 2 of the *PressureMAP System Data Entry Manual*.

When this data entry is done, a PressureMAP host should be able to reach the LAN Controller and communicate with the 289H LSS. Communication can be verified by performing a Realtime Reading via CPAMS Diagnostics, as described in Appendix 6 of this manual.

```

Info about <OFFICE NAME>: Keypad Field Control, <Esc> finish screen,
                        <Return> next field, <Backsp> delete char, <Ctrl B> previous field

Enter Office Information
-----

File date:      05/17/02  (137)           Last edited:      05/15/02
Office name:    289 BOONIES              Monitor type:     289H LSS
Phone number: IP=10.3.0.40:3001
Office mode:    ENABLED
Baudrate:     9600                    User Defined Devices: ON
Password 1:    HELLOW                   Trunk/Toll Tolerance: 80 ohms
MAP alert #:  T192.168.0.1:3002:T    MAP alert baudrate:  9600
                                                Alert sensitivity:  3

Remarks:

Pressure:      PSI           Flow:           SCFH           Distance:    S-K
Aerial std:    2.0           Buried std:    3.0           Undgnd std:  5.0
Delivery std:  7.5           Flow std:      1.25

-----
                                           PressureMAP XX.XX.XX

```

SCREEN 5-4: SAMPLE OFFICE INFORMATION SCREEN FOR LAN CONTROLLER CARD OFFICE

## Troubleshooting

When attempting to connect from PressureMAP to a 289H office equipped with a LAN Controller Card, verify that the necessary communication data has been entered for the office as outlined in the preceding section. See the *PressureMAP System Data Entry Manual* for detailed instructions on configuring office data.

If you verified that the necessary communication data has been entered for the office as outlined in the previous section, check the following:

- Dip switches are set correctly.
- Communication parameters are set correctly.
- Power the 289H off and back on, using the power switch on the Utility Card.
- Power is available (an LED is on).
- Network cable from local network hub is connected to the LAN RCM Module's RJ45 jack (J2) on the LAN Controller Card.

The most common problems in running the configuration program are due to using incorrect serial cable or the Windows HyperTerminal program not operating correctly.

Before testing any equipment settings, check that the RJ-45 network cable is connected correctly. Do not change the LAN network connection while the 289H monitor is powered on. Verify that the network cable between the LAN Controller and the hub is in good condition.

Use the setup procedure described previously in *Configuring the LAN Controller* to check the LAN Controller's IP settings for incorrect values and make corrections. For example, if a LAN Controller Card has been moved from one office to another, the IP address information will need to be reconfigured for the new office.

**Note:** When examining the IP settings, you need to be on site with the 289H monitor so that you can set the LAN Controller Card dipswitches in Configure Mode before re-entering the desired information. You will need to make the serial connection between the LAN Controller and a PC that has the HyperTerminal program.

After reconfiguring the IP settings, reconnect and power up the equipment as described previously in this section.

If you have any questions regarding this procedure, please call System Studies Technical Support at (831) 475-5777 or (800) 247-8255. You may also e-mail your questions to [support@airtalk.com](mailto:support@airtalk.com).

### ***Network Information for LAN Controller Operation***

The LAN Controller uses 10 Mbps Ethernet. The network hub or Ethernet adapter to which the LAN Controller is connected must be either a 10 Mbps unit or a 10/100 unit that can adapt to either 10 or 100 Mbps.

The LAN Controller normally works in "server" or listen mode. In server mode, a 289H with a LAN Controller receives calls from PressureMAP. When the 289H sends an alert to the PMAP system, the LAN Controller switches to "client" or call mode. During alerting, the PMAP system becomes the "server."

For the LAN Controller to work properly on a telephone company network, all network firewalls must be configured to allow PMAP calls to the 289H with the LAN Controller. For alerting to work properly, network firewalls must also be configured to allow the 289H with the LAN Controller to call the PMAP system.

To help the network administrator configure the network to allow two-way communication between the LAN Controller and PressureMAP, fill out the following two-part worksheet (TABLE 5-3). Provide the completed worksheet to the network administrator.



LAN CONTROLLER INFORMATION	
IP Address	
Port Number	3001
Gateway	
Subnet Mask	
Location of LAN Controller	
<b>Information Below Supplied by Network Administrator</b>	
Default Route for LAN Controller	
PMAP INFORMATION	
IP Address	
Port Number	3002
Gateway	
Subnet Mask	
Location of LAN Controller	
<b>Information Below Supplied by Network Administrator</b>	
Default Route for LAN Controller	

TABLE 5-3: NETWORK CONFIGURATION WORKSHEET

