Appendix 4

INTRODUCTION

The 289H LSS alerting function sends device alert readings to the PressureMAP program, which then analyzes the data to determine if the Alarm Centers should be notified. (Refer to page 6-11 of the Technical Notes section for more information on this function.) If a problem occurs with the data transmission, PressureMAP will post a system error message which includes the local dialing or communications status code. The 289H Diagnostics program also has an option, Dialout Phone Number Information, that displays an information screen similar to the one illustrated in SCREEN A4-1. By viewing the data displayed in the last two columns on this screen, you can determine the status of the 289H alert modem and alert data transmissions.

```
Dialout Phone Number Information              CPAMS Diagnostics XX.XX.XX
08/16/2013  13:37                             System Studies Incorporated
------------------------------------------------------------------------
     PMAP ID          MAP Alarm #           289 ID    Status   Attempts
   -----------       --------------        -------    ------   --------
   1│ 202            475-9999              4234444   Normal    0
   2│ 111            (408) 923-1844        4234444   Busy      3
   3│ 999            T192.168.0.1:3002     1463001   Normal    0

Hit <Return> to return to the 289 LSS Diagnostics menu.
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SCREEN A4-1: DIALOUT PHONE NUMBER INFORMATION SCREEN

The data included under the column heading *Status* contain the local dialing or communications error (if any). If no modem or communication errors have occurred in the last 289H alert transmission, the message "Normal" appears. The number in the *Attempts* column indicates how many unsuccessful attempts have been made to send an alert to PressureMAP. This number is reset to zero when the PressureMAP receives a complete alert from the 289H monitor.

STATUS CODES FOR THE 289H ALERT MODEM

Two types of errors can occur when the 289H is sending an alert: modem errors and protocol errors. When the modem that is used by the 289H to send alerts to the PressureMAP computer is not functioning correctly, a modem error will be posted in the *Status* field of the *Dialout Phone Number Information Screen*. Refer to SCREEN A5-15 in the next appendix section for an example.

Protocol errors are posted when communications between the 289H and PressureMAP are faulty. These errors also contain information regarding the state of communications between PressureMAP and the 289H LSS. Explanations of the various protocol error state conditions are presented at the end of this appendix.

The list of the possible status codes is included below, and it is possible that the instructions or suggestions accompanying these messages will help you to correct the problem. If these messages do not provide the information you need to resolve the situation, it may be necessary to give System Studies Technical Support a call.

289H Alert Modem Errors

000   Protocol Normal Termination
The "Normal" message is what usually appears in the Status field, and it indicates that the last alert communication was successful.

010   Modem Command Executed
When this error is posted, the 289H's attempt to access its alert modem failed. The modem may have lost its setup. To reset the modem, power the 289H off, wait a few moments, and power it back on. If you still see this error number, call System Studies Technical Support.

011   Modem Connect
This error indicates that the 289H placed a call that was received, but the PressureMAP modem/computer it connected to did not respond. Verify that the 289H is calling the correct PressureMAP phone number, and that the PressureMAP modem is set up correctly. It may be necessary to turn the PressureMAP modem's power off and back on.

012   Modem Ring Detected
If the 289H modem detects a call coming in while it is trying to place a call, this error will occur.

013   Modem Carrier Not Detected
This error will occur if the modem is not connected to a phone line, if there is no dialtone present on the line, or if the modem equipment fails. Check the phone line connections, and verify that the phone line is operational. To reset the modem, power the 289H off, wait a few moments, and power it back on. If you still see this error number, call System Studies Technical Support.

014   Modem Received an Invalid Command
This error indicates that a communication error has occurred between the 289H and its modem module. To reset the modem, power the 289H off, wait a few moments, and power it back on. If the problem persists, call System Studies Technical Support.

015   Modem Connect 1200
This message indicates that the modem connected at 1200 baud. If the baud rate in Office Information is set to a different baudrate (2400, for example), try connecting again. To reset the modem, power the 289H off, wait a few moments, and power it back on. If the problem persists, call System Studies Technical Support.

016   Modem Couldn't Detect Dialtone
Check that the phone line has dialtone and that it is properly connected to the modem. This can easily be verified by hooking up a phone to the modem line and listening for the tone. If there is dial tone, be sure that the modem is properly powered. To reset the modem, power

the 289H off, wait a few moments, and power it back on. If you still see this error number, call System Studies Technical Support.

Note: The next two errors refer to the modem connected to the PressureMAP computer.

017   Modem Busy
The line to the PressureMAP computer is busy. Make sure the PressureMAP modem is not stuck off-hook, and no that other systems or users are tying up the line.

018   Modem No Answer
The modem on the PressureMAP computer does not answer. First, verify that the phone number the 289H is calling is the correct one. Then, make sure the PressureMAP modem is not stuck off-hook, and that it is set up correctly. It may be necessary to power the PressureMAP computer's alert modem off and back on.

289H Alert Protocol Errors

132   Protocol Retry Exceeded
If there is a communications problem between the 289H and PressureMAP, the data is resent a number of times. When the maximum number of retries has been exceeded this error will be posted. It can be caused by poor line quality, modem equipment failure, or monitoring unit equipment failure. Turn the power switch of the PressureMAP computer's alert modem off, and then back on. If the error persists, check the line quality and, if necessary, reset the 289H. If you still see this error, call System Studies Technical Support.

134   Protocol DCD Lost
This error is posted when the loss of DCD occurs on the communications link. It can be caused by poor line quality, modem equipment failure, or monitoring unit equipment failure. Turn the power switch of the PressureMAP computer's alert modem off, and then back on. If the error persists, check the line quality and if necessary, reset the 289H.

136   Protocol Out of Sync
This error can occur as data is transmitted. If the last information sent is out of sequence, an Out of Sync error will be posted. To reset the 289H, power it off, wait a few moments, and power it back on. If you still see this error number, call System Studies Technical Support.

138   Protocol Premature Termination
This error is posted if the end of transmission (EOT) character is received during data transmission. To reset the 289H, power it off, wait a few moments, and power it back on. If you still see this error number, call System Studies Technical Support.

140   Protocol Received Data
This error is posted if the end of transmission (EOT) character is received when data is expected. To reset the 289H, power it off, wait a few moments, and power it back on. If you still see this error number, call System Studies Technical Support.

142   Protocol No Response
The 289H failed to execute a protocol command as expected. This error may be the result of line noise, communications trouble, or to text being incorrectly interpreted as a protocol

startup instruction. Check the Unrecognizable CPAMS Alarm file for entries referring to bad protocol startup errors. If you are unable to determine the problem and this error continues to be posted, call System Studies Technical Support.

144   Protocol Hungup
The 289H failed to execute a protocol command as expected. This error may be the result of line noise, communications trouble, or to text being incorrectly interpreted as a protocol startup instruction. Check the Unrecognizable CPAMS Alarm file for entries referring to bad protocol startup errors. If you are unable to determine the problem and this error does not go away after a few days, call System Studies Technical Support.

146   Protocol Bad Response
The 289H failed to execute a protocol command as expected. This error may be the result of line noise, communications trouble, or to text being incorrectly interpreted as a protocol startup instruction. Check the Unrecognizable CPAMS Alarm file for entries referring to bad protocol startup errors. If you are unable to determine the problem and this error does not go away after a few days, call System Studies Technical Support.

254   Incorrect Modem Response
If there is excessive noise on the phone line, or if a communications fault occurs between the 289H and PressureMAP, this error may be posted. Check the phone line for noise and if necessary, switch to another line (remember to change the phone number in the PressureMAP office information screen). If the problem persists, call System Studies Technical Support.

255   No Modem Response
When this error is posted, the 289H's attempt to access its alert modem failed. The modem power may not be on or the modem may be faulty. To reset the modem, power the 289H off, wait a few moments, and power it back on. If you still see this error, call System Studies Technical Support.

STATE OF COMMUNICATION PROTOCOL VALUES

When PressureMAP is communicating with the 289H LSS via the communications protocol and an error is encountered, such as ERROR 552 <OFFICE NAME> or <READALARM> LSS, comm. retry exceeded [state 5], there are ten possible values that pertain to the state of the communication protocol. These ten values and an explanation of each are provided below:

STATE	VALUE
WAIT ACK2 STATE	1
WAIT SOH STATE	2
WAIT ACK1 STATE	3
HANGUP STATE	4
WAIT NAK STATE	5
WAIT ACK1 1 STATE	6
TERMINATE STATE	7
WAIT ACK1 2 STATE	8
WAIT OK STATE	9
WAIT SOH0 STATE	10

STATE Descriptions for PressureMAP

WAIT NAK STATE

> The purpose of this state is to wait for an NAK from the slave in response to sending NULL frames. When the NAK is received, send the SOH (data) frame passed from the calling layer.

WAIT ACK1 1 STATE

> The purpose of this state is to wait for an ACK1 in response to having sent an SOH (data) frame.

WAIT SOH STATE

> The purpose of this state is to wait for an SOH frame which should be carrying the response to the command just sent.

WAIT ACK2 STATE

> The purpose of this state is to wait for an ACK2 frame in response to the ACK1 frame we just sent.

TERMINATE STATE

> The purpose of this state is to send an EOT and wait for the slave to hang up the line.

HANGUP STATE

> The purpose of this state is to give the modem time to hang up the line and reset after having dropped DTR.

WAIT ACK1 2 STATE

> The purpose of this state is to wait for an ACK1 in response to sending an SOH frame containing the EXIT TO MAX command. This is indicated by the state processor being called with the CHANGE TO ASYNC PROTOCOL instruction.

WAIT OK STATE

> The purpose of this state is to wait for an OK frame in response to sending a carriage return to the Interrogator.

STATE Descriptions for the 289H LSS

WAIT ACK2 STATE

> The purpose of this state is to wait for an ACK2 in response to having sent an ACK1.

WAIT SOH STATE

> The purpose of this state is to wait for SOH frames other than the first, from the master.

WAIT ACK1 STATE

> The purpose of this state is to wait for an ACK1 frame in response to having sent an SOH frame.

HANGUP STATE
  The purpose of this state is to give the modem time to hang up the line and reset after having dropped DTR.