

# MPC-500

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Pollable Call Accounting Terminal

## User's Guide





## **Warnings and Cautions:**



### **No Serviceable Parts Inside; Authorized Service Personnel Only**

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Do not attempt to repair or service this device yourself. Internal components must be serviced by authorized personnel only.

**Shock Hazard - Do Not Enter**

**Choc Hasard - N'entrent**

**Schocke Hazard - Test Nicht Betrete**

**Otro Hazard - Do Non Entrano**

### **Nameplate Power Warning**

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This device should only be operated with the type of power source indicated on the instrument nameplate. If you are not sure of the type of power service available, consult your local power company.

**Connect unit only to a properly measured supply. Use only three wire cord which is provided with the unit.**

**Abouchent unité qu'aux convenable mesura approvisionnement. Usage qu'à trois fil corde laquel est approvisionna avec la unité.**

**Anschliesse einheit nur bis ein angebracht gemessen nachschub. Gebrauch nur drei draht schnur welche ist verschaffen mit das einheit.**

**Connect unità solo a un proper misurata fornirle. Adoperano solo tre wire spago quale è fornii con gli unità.**

### **Battery Replacement**

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This device may include a lithium battery powered circuit. If the battery is incorrectly replaced or mistreated, there is a danger of explosion and a risk of personal injury. Do not attempt to recharge the battery, disassemble it, immerse it in water, or dispose of it in a fire. Battery replacement may only be performed by authorized service personnel.

## **Rack Mount Installation**

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When installing this device in an instrument rack, the following factors must be accounted for:

1. **Enclosed Racks:** Enclosed racks must provide adequate ventilation. Make certain that the rack is not overly crowded and note that each unit in the rack generates its own heat. An enclosed rack should have louvered sides and a fan to circulate cooling air. The maximum temperature for the equipment in this environment is 45° C.

When mounting the unit in an enclosed rack with a ventilation fan at the top of the rack, note that excessive heat generated by devices at the bottom of the rack can be drawn upward and into the ventilation slots of units located at the top. Make certain to provide adequate ventilation for equipment installed at the bottom of the rack.

2. **Open Racks:** Make certain that the rack frame does not block the ventilation slots on the instrument cover. If the device is installed on sliders, check the unit when seated all the way into the rack to make certain that ventilation slots are not blocked.

## **Ventilation**

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Slots in the instrument cover are provided to allow ventilation for heat dissipation. To ensure safe, reliable operation, these openings must not be covered or blocked.

## **Disconnect Power**

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If any of the following events are noted, immediately disconnect the unit from the outlet and contact qualified service personnel:

1. If the power cord becomes frayed or damaged.
2. If liquid has been spilled into the device or if the device has been exposed to rain or water.

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# 1. Introduction

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The MPC-500 Mini PollCat Call Accounting Terminal is a highly reliable, solid-state PBX data recorder designed for SMDR/CDR data collection and alarm monitoring. In addition to storing call records, the MPC-500 can monitor records for suspicious phone activity or critical alarm conditions. When suspicious call activity is detected, the MPC-500 will immediately alert the proper personnel via pager or computer.

## **Features:**

- 512K of Nonvolatile Memory
- Internal V.34 Modem
- “Real-Time” Toll Fraud Detection
- Alarm Notification via Pager
- PollCat Command Compatibility

## **High Speed Data Polling**

The MPC-500 supports V.42 bis data compression to allow data rates up to 57.6K baud, assuming a 33.6K baud modem. The internal ISA compatible interface supports modems from 2400 baud through V.34, 33.6K baud. When polled via the Computer Port, the MPC-500 will support rates up to 38.4K baud.

## **Toll Fraud Detection**

The MPC-500 provides a simple, but effective means for detecting Toll Fraud and other forms of phone abuse. The MPC-500 monitors data received from the PBX, constantly watching for user-defined call characteristics that could indicate unauthorized entry or abuse of your PBX. When questionable phone activity is detected, the MPC-500 can provide “real-time” notification by pager or computer. Allowing you to take preventative measures to effectively lock hackers out before they can do serious damage.

## **PollCat Compatible Command Set**

The MPC-500 supports nearly all options and features included in the PollCat II and PollCat III command sets. For PollCat III users, this provides a cost effective alternative for sites with a relatively low volume of PBX activity. PollCat II users can easily upgrade, without rewriting polling software or changing system configuration.

## Modem Based Notification and Communication

The MPC-500's internal modem provides a unique selection of notification and communication capabilities. When a Toll Fraud alarm is triggered, the MPC-500 can inform you immediately via modem or pager. Up to three separate pager numbers can be specified for alarm notification. Remote access via modem is password protected for added security.

## Disclaimer on Toll Fraud

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We do not guarantee that if you use the MPC-500, you will not become a victim of toll fraud. We provide this device to assist you in minimizing your exposure to such losses. By monitoring call records as they are received, you can potentially catch calls that should not be made before they escalate and cost you large sums of money. However, responding to alarms and determining what is fraud and abuse is still up to you. Western Telematic, Incorporated assumes no responsibility for any losses due to improper use of this product.

## Typographic Conventions

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Throughout the manual, typefaces and characters are used to denote the following:

- |                            |  |
|----------------------------|--|
| <b>^</b> (e.g. <b>^E</b> ) | Indicates a key combination used to invoke a command. For example, " <b>^B</b> " (Control B) indicates that the <b>[Ctrl]</b> key and <b>[B]</b> key should be pressed simultaneously. |
| <b>COURIER FONT</b>        | Indicates characters typed on the keyboard. For example, <b>^B16</b> or <b>^B00</b> .  |
| <b>[Bold Font]</b>         | Text set in bold face and enclosed in square brackets indicates a specific key on the keyboard. For example, <b>[Enter]</b> or <b>[Esc]</b> .  |

## 2. Unit Description

### 2.1. Front Panel Indicators

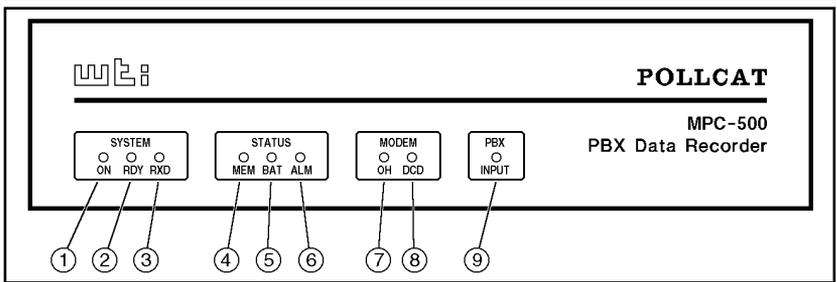


Figure 2.1: Front Panel Indicators

- ① **ON:** Lights when AC Power is applied.
- ② **RDY:** Indicates operational status as follows:
  - Flashes slowly to indicate unit is operational.
  - Lights when the MPC-500 is in Command Mode.
  - Remains lit at all times when the unit is configured for Direct Connect Mode.
- ③ **RXD:** Flashes when commands are received via the Computer Port.
- ④ **MEM:** Indicates internal memory usage.
  - Flashes when memory is 80% full
  - Remains lit when memory is 100% full
- ⑤ **BAT:** Lights when battery needs replacement.
- ⑥ **ALM:** Lights when a Toll Fraud or No-Data Alarm is triggered.
- ⑦ **OH:** (Off Hook) Lights when modem is off-hook.
- ⑧ **DCD:** (Data Carrier Detect) Lights when modem detects carrier.
- ⑨ **PBX INPUT:** Flashes when data is received at the PBX Port.

Please refer to Appendix D for more information on the front panel indicators.

## 2.2. Back Panel

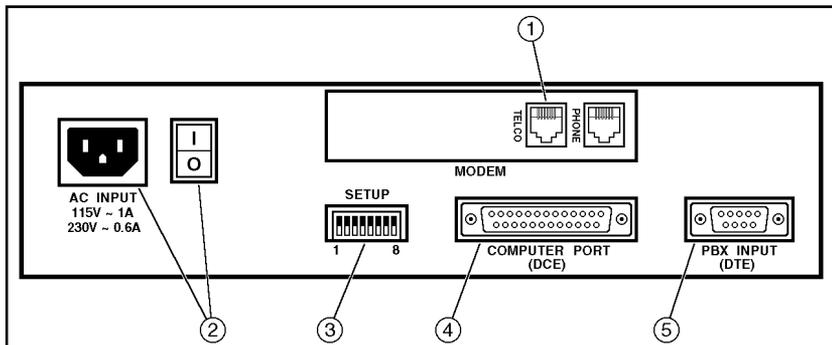


Figure 2.2: Back Panel

- ① **Modem Port:** Includes two RJ11 jacks as described below.
  - **Telco:** For connection to a telecommunications line.
  - **Phone:** Not Used.
- ② **AC Power Components:** ON/OFF Switch and Receptacle for AC Power Cord (included)
- ③ **Set-Up Switches:** A bank of eight dip switches used to configure communication settings, Local Access Mode, Computer Port Password, and Power Up Defaults.
- ④ **Computer (Control) Port:** For direct cable connection to a local PC. The local PC can then be used for polling or management.
- ⑤ **PBX Input:** For connection to the PBX SMDR Port.

# 3. Hardware Installation

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## 3.1. Set-Up Switches

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The Set-Up Switches select communication parameters and enable options such as Direct Connect Mode, Computer Port Password, and Power Up Default.

### 3.1.1. Default Baud Rate for Computer Port (Sw1, Sw2, Sw3)

Set-Up Switches One, Two, and Three select the default baud rate for the Computer Port. After the MPC-500 is installed, Command ^B91 can also be used to redefine the baud rate.

Baud	Switch 1	Switch 2	Switch 3
9600 *	Down	Down	Down
38.4 K	Up	Down	Down
19.2 K	Down	Up	Down
4800	Up	Up	Down
2400	Down	Down	Up
1200	Up	Down	Up
600	Down	Up	Up
300	Up	Up	Up

\* = Default

### 3.1.2. Default Baud Rate for PBX Input Port (Sw4, Sw5)

Set-Up Switches Four and Five select the default baud rate for the PBX Port. After the MPC-500 is installed, Command ^B92 can also be used to redefine the baud rates for the PBX Port.

Baud	Switch 4	Switch 5
9600 *	Down	Down
4800	Up	Down
1200	Down	Up
300	Up	Up

\* = Default

### 3.1.3. Direct Connect Mode (Sw6)

When the MPC-500 is managed by a local PC connected to the Computer Port, the Direct Connect Mode eliminates the need to invoke the ^E command in order to access Command Mode. If Direct Connect Mode is enabled, and the unit is accessed via the Computer Port, the Command Mode will always be active.

- **Switch 6 = UP (Enable Direct Connect Mode):** The internal modem is disabled and ^E is not required in order to access Command Mode via the Computer Port. The unit will not perform tasks such as paging, callouts, and remote polling.
- **Switch 6 = DOWN (Disable Direct Connect Mode):** The modem will function normally, and the ^E command will be required to access Command Mode via the Computer Port.

**Note:**

If the password is enabled, the ^E command *will* be required, regardless of the position of Switch 6.

Switch 6	Direct Connect Mode
Down *	^E Required, Modem Enabled
Up	^E Not Required, Modem Disabled

\* = Default

### 3.1.4. Computer Port Password (Sw7)

Set-Up Switch Seven enables / disables the Computer Port Password requirement. The default Password is SMDR (uppercase only). The Password can be redefined using command ^B79.

**Note:**

- When the password is enabled, the ^E command will be required to access Command Mode, regardless of the position of Switch 6 (Direct Connect Mode).
- When the password is enabled, the ^B09 command or a loss of the DTR line will cause the unit to disconnect from the polling device.

Switch 7	Computer Port Password
Down*	Password Not Required.
Up	Password Required.

\* = Default

### 3.1.5. Power Up Default (Sw8)

The Power Up Default allows the user to reset communication parameters to default settings without entering Command Mode.

**Note:**

If you have changed Switches 1 through 5, Switch 8 should be set in the UP position (enable Power Up Default). This will allow default communication parameters (as defined by the Set-Up Switches) to take effect when the MPC-500 is powered up.

When the Power Up Default Option is enabled, the MPC-500 will reset the following parameters if there is an interruption in power.

- **PBX Port Communication Parameters:** The PBX Port Baud rate will be set according to the Set-Up Switches, rather than command selected communication parameters. The port will be set for 7 bits, even parity, one stop bit.
- **Computer Port Communication Parameters:** The baud rate will be set according to the Set-Up Switches. The Port will also be set for 8 bits, no parity, one stop bit.
- **Modem Port Communication Parameters:** The baud rate will be set to the highest rate the modem will support. The Port will also be set for 8 bits, no parity, one stop bit.
- **Password:** The password will default to "SMDR".

**Note:**

If Set-Up Switch 8 is set in the UP position (enable Power Up Default), and there is a loss of power to the unit, all command selected port settings will be lost.

When the Power Up Default is disabled, and there is an interruption in power, all parameters will remain in their previously defined status.

Switch 8	Power Up Default
Down *	Disabled (Use Saved Parameters)
Up	Enabled (Re-Set to Default Parameters)

\* = Default

## 3.2. Connecting Data Cables and Telephone Line

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Prior to installing cables, you will need to select a method for access to the MPC-500 Command Mode, and decide where alarms and callbacks will be directed.

**Command Mode Access:** Access to Command Mode allows the user to manage the MPC-500's various features and poll data received from the PBX. There are three possible cable configurations:

- **Local Access:** The MPC-500 is managed by a local PC connected by cable to the Computer Port.
- **Remote Access:** The MPC-500 is managed by a remote PC that communicates with the unit via modem.
- **Both Local and Remote Access:** The MPC-500 can be managed by a local PC, or by a remote PC via modem. Note that only one Access method can be used at any given time.

**Alarm Notification:** When an alarm or callback is generated, the MPC-500 offers several methods to notify the user. There are three possible cable configurations for alarm notification.

- **Local Notification:** Alarms are sent by cable to a local PC.
- **Remote Notification:** Alarms are sent via modem to a remote PC or Pager.
- **Combination of Methods:** Alarms are sent to a local PC, or a remote PC or pager. The MPC-500 cannot be configured to simultaneously provide both local, remote, and pager alarm notification. Providing the proper cabling and hardware is installed, Command ^B87 can be used to switch notification methods as needed.

The cable layout for your system will be determined by the access and notification methods selected. Determine which method(s) will be used, and install data cables and telephone line as outlined in the following sections.

### Caution

**Prior to connecting data lines, make certain the cables are compatible with the MPC-500. Please refer to the interface description in Appendix B.**

### **3.2.1. PBX Input**

The PBX Input is used for connection to your PBX SMDR Port. Make certain to use data cables that are compatible with the PBX Input Port Interface, as described in Appendix B.

### **3.2.2. Modem Port**

The Modem Port provides two RJ11 jacks. The "Telco" jack is used to connect the MPC-500 to an outside telephone line, and the "Phone" jack is not used. When an outside phone line is connected to the Modem Port, the MPC-500 can be managed and polled from a remote PC via the internal modem. Connect your outside telephone line to the "Telco" Port.

### **3.2.3. Computer Port**

The Computer Port (Control Port) is used for connection to a local PC. After installation is complete, the local PC can manage and poll the MPC-500 unit. Make certain to use a data cable that is compatible with the Computer Port Interface, as described in Appendix B.

**Note:**

When the MPC-500 is controlled via the Computer Port (Local Access), the unit will constantly monitor the DTR line. If the DTR line is lost, any command in progress will be aborted, and the port will disconnect. In this case, the DTR line performs a function comparable to the DCD line at the Modem Port.

### 3.3. Connect the AC Power Cable

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Once all connections have been made, plug the supplied cable into the power cable receptacle on the back panel. Place the AC Power Switch in the ON position to apply power, the ON indicator will light and the RDY indicator will flash.



**CAUTION:** This device should only be operated with the type of power source indicated on the instrument nameplate. If you are not sure of the type of power service available, please contact your local power company.



**Note:**

- If you have changed settings for Set-Up Switches 1 through 5, Switch 8 should be set in the UP position (enable Power Up Default) before the unit is powered up. This will allow default parameters (as defined by the Set-Up Switches) to take effect when the MPC-500 is powered up.
- After you have accessed Command Mode and configured the unit with command selected parameters, you may wish to return Switch 8 to the DOWN position. This will cause the MPC-500 to default to command selected parameters whenever the unit is powered off and on.
- When Switch 8 is set in the UP position (enable Power Up Default) and there is an interruption in power, baud rates will return to the default values selected by Set-Up Switches One through Five.

## 4. Program Set-Up

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This Section describes procedures used to configure the MPC-500 to fit your application. This Section also describes many optional features, and explains how they can be used to maximize the efficiency of your installation.

Although the MPC-500 provides a substantial assortment of optional program features, it is not necessary to include *all* of these features in your system. When the unit is shipped from the factory, all options are set to the defaults listed in Section 10. These defaults are designed to fit most call accounting applications. However, it is often helpful to re-configure certain options in order to better adapt the unit for your specific application.

Note that Command ^B16 can be used at any time to display the Status Screen to determine the current state of any feature.

### 4.1. Initial Set-Up

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Prior to configuring the MPC-500, the following steps must be performed to set-up basic features and prepare for first time operation.

- Reset Default Parameters
- Clear Memory
- Select Duplex Mode
- Set System Clock and Calendar
- Modify Communication Parameters (Optional)

### 4.1.1. Reset Default Parameters / Clear Memory

1. Enter the Command Mode.
  - a) If the polling device communicates via modem, start your communications program and dial the MPC-500. The unit will respond with the "MPC-500" prompt about 10 seconds after Carrier Detect is established. Key in the "SMDR" password (uppercase only) and press **[Enter]**. The unit will respond with the READY message and the RDY indicator will light.
  - b) If the polling device communicates via the Computer Port, start your communications program.
    - i. If Set-Up Switch 6 is set in the UP position (enable Direct Connect), Command Mode is now active.
    - ii. If Set-Up Switch 6 is set in the DOWN position (disable Direct Connect), type **^E [Enter]**. The unit will respond with the READY message and the RDY indicator will light.
    - iii. If Set-Up Switch 7 is set in the UP position (enable Computer Port Password), type **^E [Enter]**, the unit will display a prompt. Key in the "SMDR" password (uppercase only) and press **[Enter]**. The MPC-500 will respond with the READY message and the RDY indicator will light.

**Note:**

The MPC-500 will allow 10 attempts to enter the correct password. If the correct password is not entered in 10 attempts, the unit will disconnect.

2. **Re-Set Parameters to Default Settings:** Type **^B50 , 2 [Enter]**.
3. **Clear Memory:** Type **^B39 , 2 [Enter]**.
4. **Display System Status:** Type **^B16 [Enter]** to display the Status Screen.

## 4.1.2. Set General Parameters

This section describes the procedures used to configure and enable the following basic features:

- Select Duplex Mode (^B68)
- Set Clock and Calendar (^B11)
- Set Communication Parameters for Computer Port, Modem Port and PBX Port (^B90, ^B91, and ^B92).

### 4.1.2.1. Select Duplex Mode

Command ^B68 determines whether Half Duplex or Full Duplex will be used when communicating with the polling device. During initial set-up, it may be helpful to select Full Duplex. This allows keystrokes to appear on your display monitor.

1. To select Full Duplex, enter Command Mode and type **^B68,2 [Enter]**.
2. To select Half Duplex (**Default**), enter Command Mode and type **^B68,1 [Enter]**.

### 4.1.2.2. Set Clock and Calendar

The clock and calendar must be set in order for time dependent features, such as the Callback Schedule, to function. Enter Command Mode and invoke Command ^B11 using this format:

**^B11, hh:mm,d,MM\DD\YY [Enter]**

Where:

<b>hh</b>	is the hour 00 - 23 (Military Time)
<b>mm</b>	is the minute 00 - 59
<b>d</b>	is the day of the week, indicated as follows:
	Sunday = 1                      Thursday = 5
	Monday = 2                     Friday = 6
	Tuesday = 3                  Saturday = 7
	Wednesday = 4
<b>MM</b>	is the Month 01 - 12
<b>DD</b>	is the Date 01 - 31
<b>YY</b>	is the Year 00 - 99

**Note:**

When entering the date, a backslash (\) is used in place of a forward slash (/). The MPC-500 interprets the forward slash as a command delimiter.

### 4.1.2.3. Set Communication Parameters

The default settings for the Computer Port and Modem Port are 8 bits, no parity, one stop bit. The default settings for the PBX Port are 7 bits, even parity, one stop bit. If your application involves compatibility with PollCat II units, you may wish to use Commands ^B60 and ^B61 (rather than this procedure) to set parity for the Computer Port and PBX Port. Please refer to Section 10 for information on Commands ^B60 and ^B61.

If necessary, enter Command Mode and use the following procedure to set baud rate, parity, data bits, and stop bits to match the device connected to each port. This section also describes how to enable/disable the XON/XOFF function.

1. **Set Modem Port Communication Parameters:** Invoke Command ^B90 using following format:

**^B90,baud\_rate,parity,data\_bits,stop\_bits [Enter]**

Where:

<b>baud_rate</b>	Can be 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, or 57600. Only the first two characters must be specified. If an asterisk (*) is entered, the Modem Port will be set to the highest rate supported.
<b>parity</b>	Can be None (N), Odd (O), or Even (E)
<b>data_bits</b>	Can be 7 or 8.
<b>stop_bits</b>	Can be 1 or 2.

2. **Set Computer Port Communication Parameters:** Invoke Command ^B91 using the following format:

**^B91,baud\_rate,parity,data\_bits,stop\_bits [Enter]**

Where:

<b>baud_rate</b>	Can be 300, 600, 1200, 2400, 4800, 9600, 19200, or 38400. Only the first two characters must be specified. If an asterisk (*) is entered, the rate specified by Set-Up Switches 1 through 3 is used.
<b>parity</b>	Can be None (N), Odd (O), or Even (E)
<b>data_bits</b>	Can be 7 or 8.
<b>stop_bits</b>	Can be 1 or 2.

3. **Set PBX Port Communication Parameters:** Invoke command ^B92 using the following format:

**^B92,baud\_rate,parity,data\_bits,stop\_bits [Enter]**

Where:

<b>baud_rate</b>	Can be 300, 600, 1200, 2400, 4800, 9600, 19200, or 38400. Only the first two characters must be specified. If an asterisk (*) entered, the rate specified by Set-Up Switches 4 and 5 is used.
<b>parity</b>	Can be None (N), Odd (O), or Even (E)
<b>data_bits</b>	Can be 7 or 8.
<b>stop_bits</b>	Can be 1 or 2.

4. **Enable/Disable XON/XOFF Function:** The XON/XOFF function can control the flow of data from the PBX. For PBX switches that require flow control, the MPC-500 can send an XOFF when memory is 98% full, and an XON when more data can be accepted.
  - a) To enable XON/XOFF, type **^B57,1 [Enter]**.
  - b) To disable XON/XOFF (**Default**), type **^B57,2 [Enter]**.

**Caution:**

**Some PBX switches may lockup when the XON/XOFF function is used. Other types of PBX's will not respond to XON/XOFF commands. Please consult your PBX user's guide before attempting to use the XON/XOFF function.**

## 4.2. Define PBX Data Input Format

---

The next step is to set-up the format that the MPC-500 will use when data is received from the PBX. The following options are discussed In this section:

- Define End-of-Record Character (^B05)
- Enable/Disable "Strip Non-Printable Codes" (^B55)
- Enable/Disable Time/Date Stamp (^B66)
- Enable/Disable Wrap Around Mode (^B64)

### 4.2.1. Define End-of-Record Character

The default setting assumes the last character in each call record will be <Line Feed> (^J). Most PBX's use ^J as the End-of-Record (EOR) character. The most common EOR character, after ^J, is <Carriage Return> (^M). Many NEAX PBX's use ETX (^C) as the EOR character. If the PBX uses an EOR character other than ^J, perform the following procedure:

1. Enter the Command Mode and invoke Command ^B05 using the following format:

**^B05,character [Enter]**

Where **character** represents the desired EOR character.

**Example:** To change the End-of-Record character to <Carriage Return> (^M), key in the following:

**^B05,^M [Enter]**

**Note:**

When the EOR character includes the "^" symbol, this character is created by simultaneously pressing the [Shift] key plus the [6] key. In the example above, the "**^M**" character is created by pressing [Shift][6], and then typing an uppercase M. Do not use the [Ctrl] key to create the "^" symbol in the EOR definition.

### **4.2.2. "Strip Non-Printable Codes" Function**

This function allows the user to conserve memory and polling time by stripping out non-printable characters such as NULLS and DELS. When enabled, the MPC-500 will strip most non-printable characters except Carriage Return, Line Feed, and the selected EOR character. To enable / disable this function, enter the Command Mode and proceed as follows:

1. To store non-printable codes, type **^B55,1 [Enter]**.
2. To strip codes (**Default**), type **^B55,2 [Enter]**.

### **4.2.3. Time/Date Stamp Function**

This option will insert a Time/Date stamp at the beginning of each call record. The Time/Date stamp is added when the record is stored in internal memory. To enable / disable this option, enter Command Mode and proceed as follows:

1. To include the Time/Date Stamp, type **^B66,2 [Enter]**.
2. To disable (**Default**), type **^B66,1 [Enter]**.

### **4.2.4. Wrap Around Mode**

Wrap Around Mode allows the MPC-500 to write new data over older data when internal memory becomes full. Data will be overwritten in chronological order beginning with the oldest data items. To enable / disable this function, enter Command Mode and proceed as follows.

1. To enable the Wrap Around Mode, type **^B64,2 [Enter]**.
2. To disable Wrap Around (**Default**), type **^B64,1 [Enter]**.

## 4.3. Define Data Output Format

---

The following options are discussed in this section:

- Select/Configure Data Release Mode (^B62)
- Enable/Disable CRC Function (^B63)
- Enable/Disable Line I.D. Function (^B59)
- Select Compression Mode (^B53)
- Release Data with ^B02 Command (^B54)
- Hold "END DATA" Message (Command ^B52)

### 4.3.1. Select/Configure Data Output Mode

Command ^B62 selects the Data Output Mode. Four different Output Modes are available:

- ASCII Record Mode (^B62,1) (**Default**)
- ASCII Block Mode (^B62,2)
- Binary Block Mode (^B62,3)
- XMODEM Mode (^B62,4)

Each option also offers additional features that can further define the data release format.

#### 4.3.1.1. ASCII Record Mode (^B62,1)

The MPC-500 will release one record, all records, or a user specified number of records. Each record will consist of a line of ASCII text, terminated by the EOR character. The following options are available:

- Enable/Disable Line I.D. Number (^B59)
- Select Compression Mode (^B53)
- Enable/Disable CRC Function (^B63)

To select and configure ASCII Record Mode, proceed as follows:

1. From Command Mode, type **^B62,1 [Enter]**.
2. To enable / disable the Line I.D. Function, see Section 4.3.3.
3. To select the Compression Mode, see Section 4.3.4.
4. To enable / disable the CRC Function, see Section 4.3.2.

### 4.3.1.2. ASCII Block Mode (^B62,2)

In this mode, data is released in ASCII blocks. The following options are available in ASCII Block Mode:

- Set Block Size (^B80)
- Enable/Disable Line I.D. Number (^B59)
- Select Compression Mode (^B53)
- Enable/Disable CRC Function (^B63)

To select and configure ASCII Block Mode, proceed as follows:

1. From the Command Mode, type **^B62,2 [Enter]**.
2. Set the block size. The default size is 512 characters. To send blocks in a size other than 512 characters, invoke Command ^B80 using the following format:

**^B80,block\_size [Enter]**

Where **block\_size** is a number from 1 to 9999.

3. To enable / disable the Line I.D. Number, see Section 4.3.3.
4. To select the Compression Mode, see Section 4.3.4.
5. To enable / disable the CRC Function, see Section 4.3.2.

### 4.3.1.3. Binary Block Mode

Data is released in compressed binary blocks. Each 512 byte block will contain a character count, block header, and data followed by a two byte CRC check sum. Please refer to the PollCat Advanced Programming Supplement (WTI P/N 11998) for more information. The following options are available:

- Enable/Disable Auto Delete Option (^B67)
- Enable/Disable DLE Stuffing Option (^B71)

**Note:**

- When Binary Block Mode is selected, communication parameters for the MPC-500 Port used to access Command Mode (Computer Port and/or Modem Port) must be set at 8 bits, no parity.
- Since the CRC function is always enabled in Binary Block Mode, command ^B63 (Enable/Disable CRC Function) has no effect.

To select and configure Binary Block Mode, proceed as follows:

1. From Command Mode, type **^B62,3 [Enter]**.
2. **Auto Delete Option (^B67):** The MPC-500 will delete each data block after the polling device acknowledges reception.
  - a) To enable Auto Delete, type **^B67,2 [Enter]**.
  - b) To disable this option (**Default**), type **^B67,1 [Enter]**.
3. **DLE Stuffing Option (^B71):** Allows literal 8 bit characters to be inserted into a string of binary data. After data is released to the polling device, the 8 bit characters can then be retrieved and read. For more information, please refer to the PollCat Advanced Programming Supplement.
  - a) To enable DLE Stuffing, type **^B71,2 [Enter]**.
  - b) To disable this option (**Default**), type **^B71,1 [Enter]**.

#### 4.3.1.4. XMODEM Mode

This mode allows data to be sent using XMODEM protocol. In order to use XMODEM protocol, the Modem Port must be set at 8 bits, no parity. To select this mode, type **^B62,4 [Enter]**. For more information, please refer to Section 9.2.4.

#### 4.3.2. CRC Function

The CRC (Cyclic Redundancy Check) function appends a two byte check sum to each response to Command **^B01**. After data is received, CRC values can be used to check the integrity of the record or block. The CRC function is an option in either of the ASCII Output Modes, and is always enabled in Binary Block Mode.

Communication parameters for the MPC-500 Port used to access Command Mode (Computer Port and/or Modem Port), must be set at 8 bits, no parity. To enable / disable the CRC function, enter Command Mode and proceed as follows.

1. To enable the CRC Function, type **^B63,2 [Enter]**.
2. To disable this function (**Default**), type **^B63,1 [Enter]**.

### 4.3.3. Enable/Disable Line I.D. Function

When data is released, the Line I.D. function will insert a six digit I.D. number at the beginning of each record. This number can be used to ensure that records have been correctly received. To enable / disable this function, enter Command Mode and proceed as follows.

1. To enable the Line I.D. function, type **^B59,2 [Enter]**.
2. To disable this function (**Default**), type **^B59,1 [Enter]**.

### 4.3.4. Select Compression Mode

Compression Mode shortens transmission time by releasing data in space compressed format. To select the Compression Mode, enter Command Mode and proceed as follows.

1. To release data in decompressed format (**Default**), type **^B53,2 [Enter]**.
2. To release data in compressed format, type **^B53,1 [Enter]**.

### 4.3.5. Release Data with Command ^B02

Command ^B54 determines how the MPC-500 will react when Command ^B01 is invoked to release call data.

When Command ^B01,n is invoked in the default state (^B54,1), the first record or block will be released *without* the need to issue a ^B02 command. After the first record or block is released, the MPC-500 will require a ^B02 in order to release any subsequent records or blocks.

When ^B54,2 is active, and Command ^B01,n is issued, a ^B02 command *will* be required in order to release the first record or block. Command ^B02 will also be required to release any subsequent records or blocks. To configure this function, enter Command Mode and proceed as follows:

1. To wait for a ^B02 command before releasing the first record or block, type **^B54,2 [Enter]**.
2. To release the first record or block *without* the need to enter a ^B02 command (**Default**), type **^B54,1 [Enter]**.

### 4.3.6. Hold "END DATA" Message

Command ^B52 determines whether or not the MPC-500 will require a ^B02 command to release the "END DATA" message.

When Command ^B01,n is invoked, the MPC-500 will release accumulated data to the polling device. At the end of data transmission, the MPC-500 will send the "END DATA" message. In the default state (^B52,1), the "END DATA" message will be released without the need to enter a ^B02 command.

When ^B52,2 is active, and Command ^B01,n is issued, a ^B02 *will* be required in order to release the "END DATA" message. To enable / disable this function, enter Command Mode and proceed as follows:

1. To hold the "END DATA" message until a ^B02 command is sent, type **^B52 , 2 [Enter]**.
2. To release the "END DATA" message *without* the need to issue a ^B02 command (**Default**), type **^B52 , 1 [Enter]**.

## 4.4. Callback Features

---

The Callback Features allow the MPC-500 to provide telephone notification when certain types of PBX events occur. These features can also be used to instruct the unit to dial your modem number on a regularly scheduled basis in order to allow accumulated data to be polled. The MPC-500 can perform five different types of Callbacks:

- Scheduled Callback
- 80% Full Callback
- Immediate Callback
- No-Data Alarm
- Toll Fraud Alarm

### 4.4.1. Define Callback Parameters

Before Callback features can be implemented, certain parameters must be defined. These parameters include the Callback Number and other options. Callback Parameters can either be defined by a menu driven routine, or entered in a single command line. Enter Command Mode and proceed as follows.

#### Menu Driven Parameter Entry

1. Type **^B14 [Enter]**, the MPC-500 will display the following prompts. Key in the desired response for each prompt and press **[Enter]**.
  - a) **CALLBACK#?** (Up to 64 characters) The number dialed when an 80% Full Callback, Scheduled Callback, or Immediate Callback is generated.
  - b) **ALARM#?** (Up to 64 characters) The number dialed when a No-Data Alarm, Toll Fraud Alarm, or Pager Test is generated.
  - c) **PAGER ID #1?** (Up to 15 characters) The number used when a Toll Fraud Alarm, No-Data Alarm, or Pager Test is generated, and Pager Notification is enabled. In order to use Pager Notification, "PAGER ID #1" *must* be defined. If the Alarm Clue does not specify a Pager I.D. number, Pager ID #1 is used by default.
  - d) **PAGER ID #2?** (Up to 15 characters) The second (optional) pager I.D. number used when a Toll Fraud Alarm is generated and Pager Notification is enabled. If alarm messages will only be sent to one pager (PAGER ID #1), this item is not needed.
  - e) **PAGER ID #3?** (Up to 15 characters) The third (optional) pager I.D. number used when a Toll Fraud Alarm is generated and Pager Notification is enabled. If alarm messages will only be sent to one pager (PAGER ID #1), this item is not needed.
  - f) **MSG?** (Up to 64 characters) The text sent when a Callback is initiated. Often used to identify the installation site.

- g) **REDIALS?** (Zero to 255, default = 4) The number of times the MPC-500 will redial the Callback Number when there is no answer or carrier is not received. Approximately 10 seconds will elapse between redials.
- h) **RESTARTS?** (Zero to 255, default = 3) (Binary Block Mode and Pager Alarm Only) The number of times the MPC-500 will re-start the Callback routine if the defined number of Redials is performed and there is no answer or the carrier is lost.
- i) **REXMITS?** (Zero to 255, Default = 5) (Binary Block Mode only) The number of times the MPC-500 will attempt to re-send a data block if there is a transmission error.
- j) **TIMEOUT?** (One to 255 seconds, Default = 3 seconds) (Binary Block Mode only) The maximum length of time the MPC-500 will wait if no response to a binary block is received before a REXMIT.

**Note:**

- To skip a parameter without changing the current value, press **[Enter]** without typing in a new value.
  - To clear a parameter and return to the default setting, press **[Space]** and then press **[Enter]**.
  - To exit the ^B14 routine and save currently defined parameters, press **[Esc]**.
2. Type **^B16 [Enter]** to display the Status Screen. Make certain Callback Parameters are correctly defined.

**Single Line ^B14 Parameter Entry:**

1. To define all Callback Parameters with a single command line, use the following format.

```
^B14 , CALLBACK# , ALARM# , PAGER_ID_#1 ,
PAGER_ID_#2 , PAGER_ID_#3 , MSG , REDIALS ,
RESTARTS , REXMITS , TIMEOUT [Enter]
```

**Example:**

To define the following Callback Parameters:

```
CALLBACK# = 555-1111
ALARM# = 555-2222
PAGER_ID_#1 = 5553333
PAGER_ID_#2 = 5554444
MSG = Test
RESTARTS = 10
```

Command ^B14 would be invoked as follows:

```
^B14 , 5551111 , 5552222 , 5553333 , 5554444 , , Test , , 10 [Enter]
```

2. Type **^B16 [Enter]** to display the Status Screen. Make certain Callback Parameters have been correctly defined.

**Note:**

- To skip a parameter that will not change, enter a comma without data as shown in the preceding example.
- To clear a parameter and return to the default setting, enter a comma followed by a single space.
- When entering Pager I.D. numbers, punctuation characters such as dashes and parentheses are *not* included.
- When entering the Callback Number and Alarm Number, punctuation characters, such as dashes and parentheses *may* be included.

## 4.4.2. Scheduled Callback

Callbacks can be scheduled for a different time each day, and specific days can be omitted. Up to seven Scheduled Callbacks can be defined. Scheduled Callbacks will be performed in addition to any Immediate Callbacks, 80% Full Callbacks, No-Data Alarms, or Toll Fraud Alarms generated on a given day. Other types of Callbacks will not effect the Callback Schedule.

### Note:

- In order for a Scheduled Callback to occur, there must be data stored in memory. If no records are stored, the Callback will not be performed.
- In order for this feature to function, Callback Parameters must be defined (Command ^B14).

In the default state, the Callback Schedule is disabled. To enable this feature, enter Command Mode and proceed as follows.

1. Type **^B70 , S [Enter]** to enable the Scheduled Callback.
2. Invoke Command ^B12 using the following format:

**^B12 , d , HH : MM [Enter]**

Where:

**d** is the day of the week, and is indicated as follows:

Sunday	= 1	Thursday	= 5
Monday	= 2	Friday	= 6
Tuesday	= 3	Saturday	= 7
Wednesday	= 4		

**HH** is the hour 00 - 23 (Military Time)  
**MM** is the minute 00 - 59

**Example:** To instruct the MPC-500 to dial the Callback Number on Monday (2) at 10:30 am (10 : 30), Wednesday (4) at 2:15 pm (14 : 15), and Friday (6) at 5:45 pm (17 : 45), enter the following command lines:

**^B12 , 2 , 10 : 30 [Enter]**

**^B12 , 4 , 14 : 15 [Enter]**

**^B12 , 6 , 17 : 45 [Enter]**

3. To display the Callback Schedule, type **^B19 [Enter]**.
4. To clear the Callback Schedule, type **^B12 , \* [Enter]**.

### **4.4.3. 80% Full Callback**

When this option is configured and enabled, the MPC-500 will automatically dial the Callback Number when memory becomes 80% full. In the default state, this feature is disabled. To enable / disable this feature, enter Command Mode and proceed as follows.

**Note:**

In order for this feature to function, Callback Parameters must be correctly defined (Command ^B14).

1. To enable the 80% Full Callback, type ^B70, % [Enter].
2. To disable the 80% Full Callback (as well as all other callback options), type ^B70 [Enter].

### **4.4.4. Immediate Callback**

When this option is selected, the MPC-500 will dial the Callback Number immediately after the user disconnects. This feature is used primarily for diagnostic purposes. The Immediate Callback feature will only work once after it has been enabled. To perform additional Immediate Callbacks, the feature must be enabled prior to each callback.

**Note:**

In order for this feature to function, Callback Parameters must be defined (Command ^B14).

1. Enter Command Mode and type ^B70, I [Enter].

**Note:**

To cancel an Immediate Callback, type ^B70 [Enter] prior to disconnecting from the MPC-500.

2. Type ^B09 [Enter] to exit Command Mode and disconnect.
3. After approximately five seconds, the MPC-500 will dial the Callback Number.

### 4.4.5. No-Data Alarm

The No-Data Alarm enables the MPC-500 to notify the user when the data flow from the PBX is interrupted. To enable the No-Data Alarm, you must first define Callback Parameters, and then configure the No-Data Alarm as described in Section 5.

### 4.4.6. Toll Fraud Alarm

The Toll Fraud Alarm enables the MPC-500 to dial the Alarm Number when specific types of PBX activities are detected. The Toll Fraud Alarm is a function of the Alarm Filter. To enable the Toll Fraud Alarm, you must first define Callback Parameters, and then configure the Alarm Filter as described in Section 7.

## 4.5. Define Header Message/Auto Execute Command/Report Mode Command String

---

The Header Message, Auto Execute Command, and Report Mode Command String are all functions of Command ^B04. Note that only one of these features can be defined and enabled at a given time. All three features cannot be active at the same time.

### 4.5.1. Header Message

If your application involves modem contact with a number of units at different sites, the Header Message can verify the identity and location of each unit. Information such as the installation site, PBX type, and etc. can be listed in the header and displayed when you contact the unit. To define and enable the Header Message, enter Command Mode and proceed as follows:

1. Invoke Command ^B04 using the following format:

**^B04,message [Enter]**

Where **message** is the desired Header Message.

**Example:** To identify an MPC-500 unit installed at ACME, Inc. in Irvine, California, the Header Message could be defined as follows:

**^B04,ACME INC., IRVINE, CA [Enter]**

2. To send the Header Message to the polling device, type **^B03 [Enter]**.

### **4.5.2. The Auto Execute Command**

Command ^B04 can define an automatically executed command string. The Auto Execute Command will be invoked if the unit goes on-line from a callout, and the correct password is not entered within 10 seconds. To define and enable this feature, enter Command Mode and proceed as follows:

1. The Direct Connect Option must be disabled. Make certain Set-Up Switch 6 is set in the DOWN position.
2. Invoke Command ^B04 using the following format:

**^B04,\*command\_string [Enter]**

Note that an asterisk (rather than ^B) is used to denote a command string, and each command in the string is separated by a backslash as shown in the following example.

**^B04,\*00\20\09 [Enter]**

This Auto Execute Command would instruct the MPC-500 to move the memory partition (^B00), Send the current number of stored records (^B20), and then disconnect from the calling modem (^B09).

3. Type **^B03 [Enter]** to view the Auto Execute Command string.
4. Enable the Auto Execute Command. Type **^B69,2 [Enter]**.

**Note:**

- The Auto Execute Command String should always end with Command ^B09 (disconnect). This will discourage unauthorized access and prevent the unit from being inadvertently left in Command Mode.
- The Auto Execute Command will only function when a callout is initiated and the correct password is not entered within 10 seconds.

### 4.5.3. The Report Mode Command String

Command ^B04 can also define a command string that will be automatically executed when Report Mode is active (^B87,4), and a Toll Fraud Alarm is generated. To define and enable this feature, enter Command Mode and proceed as follows.

1. Invoke Command ^B04 using the following format:

**^B04,!command\_string [Enter]**

Note that an exclamation point (rather than an asterisk or ^B) is used to denote a command string, and each command in the string is separated by a backslash as shown in the following example.

**^B04,!00\13\20,A [Enter]**

This command string would instruct the MPC-500 to move the memory partition (^B00), send the Alarm Message with clue name and current count (^B13), and send the current number of stored Alarm Records (^B20,A).

3. Type **^B03 [Enter]** to view the Auto Execute Command string.
4. To select the Report Mode, type **^B87,4 [Enter]**.

## 4.6. The Data Filter

---

The Data Filter conserves memory and cuts transmission time by preventing the MPC-500 from storing unnecessary call records. Items such as inward bound calls, calls from a specific extension, and etc. can be eliminated, saving memory for call records that you *do* need to store. The procedure for defining and enabling the Data Filter is described in Section 6.

## 4.7. The Alarm Filter (Toll Fraud Alarm)

---

The Alarm Filter provides notification when specific types of calls are placed or received. In addition, the Alarm Filter can also sort out certain types of records and store and retrieve them apart from other records. The procedure for defining and enabling the Alarm Filter is described in Section 7.

## 5. The No-Data Alarm

---

The No-Data Alarm allows the MPC-500 to provide notification in the event of PBX failure or disconnection. If the MPC-500 does not receive PBX data for a user-defined period of time, an alarm will be generated, allowing you to investigate the problem as quickly as possible.

### 5.1. Timer Schedules

---

The No-Data Alarm features two separate timer schedules for both weekdays and weekends, and can accept up to 20 user defined holidays. This allows the MPC-500 to differentiate between times when low PBX activity is expected, and instances where a lack of PBX activity could indicate a problem.

During any business day, there are periods of time when you can expect a lower level of PBX activity. For example, the PBX may receive about one call every five minutes for the majority of the day, and then drop to one call every 30 minutes during lunch hour. Likewise, on holidays when customers are away from the office, the number of calls the PBX handles will also decline.

The No-Data Alarm includes two timer schedules to allow you to specify times when you expect a lower level of PBX activity. The first timer schedule is used for the majority of the work day, and the second timer schedule is used for periods of low PBX activity. In addition, there are also two separate schedules for both weekdays and weekends.

**Example:**

If you normally expect to receive at least one call every five minutes from 8:00 am to 5:00 pm, Timer One would be set for five minutes and Schedule One would be defined as 08:00 to 17:00. In order to compensate for a drop in phone activity to one call every 30 minutes during lunch hour, Timer Two would be set for 30 minutes and Schedule Two would be defined as 12:00 to 13:00.

Note that Timer Two has priority over Timer One, and timer schedules are often defined to overlap one another.

To prevent the MPC-500 from generating a No-Data Alarm on holidays, up to 20 user defined holidays can also be programmed. This allows you to suppress the No-Data Alarm on holidays, or on any other day when you expect a low level of PBX activity.

## 5.2. Enabling the No-Data Alarm

---

1. Enter the Command Mode. Invoke Command ^B14 to define Callback Parameters. Command ^B14's "ALARM#?" prompt is used to define the number that is dialed when a No-Data Alarm is generated.
2. Type ^B15 [Enter], the MPC-500 will display a series of prompts as shown in Figure 5.1. Key in the desired response to each prompt and then press [Enter].

```
NO PBX ALARM
-----
ALARM:      Y
TIMER 1:   30 MINUTES
TIMER 2:   90 MINUTES
ALARM SCHEDULE
-----
WEEKDAY 1:  07:30-16:30
WEEKDAY 2:  11:30-13:00
WEEKEND 1:
WEEKEND 2:
HOLIDAYS
-----
01/01      07/04      09/06      11/25      12/24      12/26
COMPLETE
```

Figure 5.1: The No-Data Alarm Parameters Screen

- a) **ALARM?:** Type the **Y** to enable the No-Data Alarm, or the **N** to disable the alarm and press **[Enter]**.
- b) The MPC-500 will display two prompts which are used to define the maximum time the unit will wait before generating an alarm when no PBX data is received.
  - i. **TIMER 1:** Define the maximum length of time between calls during the majority of the day (01 to 99 minutes).
  - ii. **TIMER 2:** Define the maximum length of time between calls during periods of low PBX activity, e.g., lunch hour (01 to 99 minutes).
  - iii. If you make a format error while responding to the timer prompts, the prompt will be re-displayed, allowing the time value to be re-keyed.
- c) The next four prompts define the weekday and weekend schedules for Timer One and Timer Two. Enter each time range in the following format:

HH:MM-HH:MM

Where HH represents the hour (00 through 23), MM represents minutes (00 through 59), and beginning and ending times are separated by a dash.

- i. **WEEKDAY 1:** Define the weekday schedule for Timer One (e.g. normal business hours).
- ii. **WEEKDAY 2:** Define the weekday schedule for Timer Two (e.g. lunch hour).
- iii. **WEEKEND 1:** Define the weekend schedule for Timer One (e.g. normal weekend hours).
- iv. **WEEKEND 2:** Define the weekend schedule for Timer Two (e.g. weekend lunch hour).
- v. If you make a format error while responding to any of the above prompts, the prompt will be re-displayed, allowing you to re-key the time range.

- d) After timer schedules are defined, the MPC-500 will display a series of prompts that are used to define up to 20 holidays.
  - i. When the ? prompt appears, type in the holiday date in MM/DD format, where MM represents the month (01 through 12) and DD represents the day (01 through 31).
  - ii. If you make an error in entry format while defining holidays, a "??" prompt will be displayed, allowing you to re-key the date.
  - iii. You may continue to enter additional holidays as described above, or press **[Esc]** to save parameter settings and return to Command Mode.
3. After Command ^B15 is complete, and the MPC-500 returns to Command Mode, type ^**B17** **[Enter]** to display the No-Data Alarm schedules and parameter settings.
4. To alter any of the parameters for the No-Data Alarm, repeat steps 2 and 3 above. Note that previously defined values for each prompt will be displayed on the line adjacent to the prompt. Key in the new value and press **[Enter]**.
5. Use Command ^B87 to select an Alarm Notification method.

**Note:**

In addition to the menu driven method described above, the No-Data Alarm can also be configured and enabled using a single command line as described in the Command Reference Guide (Section 10).

## 6. The Data Filter

---

The Data Filter allows the user to make the most efficient use of available memory by excluding call records not needed for your application. When the Data Filter is correctly configured, the MPC-500 will monitor each record received from the PBX. If the record matches Data Filter Parameters, the record is stored. If the record *does not* match, the record is omitted.

The configuration procedure consists of three tasks:

- Define the Data Filter Format
- Define the Data Filter Parameters
- Enable the Data Filter

### 6.1. Defining the Data Filter Format

---

The Data Filter Format describes the location of the various "fields" within each call record. Proper definition of the Data Filter Format tells the MPC-500 where to look, in order to determine if a given record should be omitted or stored. Each model of PBX will produce records with a slightly different structure. In order to define the Data Filter Format, you must first examine several records from the PBX. This will allow you to determine the exact call record format.

After the format has been determined, the next step is to assign variables to the fields you intend to monitor. The Data Filter Format allows definition of up to twelve variables (the letters A through L), which indicate specific call record fields. These variables are used later in definition of Data Filter Parameters.

To define the Data Filter Format, proceed as follows.

1. Enter Command Mode. Type **^B16 [Enter]** to display the Status Screen. Make certain the following options are set as described below. Use the command listed in parentheses to reset any option not in the correct state.

Compression: Off (**^B53 , 2**)  
Data Filter: Off (**^B56 , 1**)  
Line ID Tag: Off (**^B59 , 1**)  
Output Mode: Record (**^B62 , 1**)  
Time Stamp: Off (**^B66 , 1**)  
Duplex: Full (**^B68 , 2**)

**Note:**

- Options ^B53, ^B59, ^B62, ^B66, and ^B68 are set in a manner intended to simplify definition of the Data Filter. Return these options to the desired state after the Filter is defined.
  - Both the Time Stamp (^B66) and Line I.D. (^B59) will alter the field location. When records are released, both features will append an extra field to each record. The altered record structure may cause errors in the Data Filter Format. Disable both features prior to storing records for use in definition of the Data Filter Format.
2. Type **^B00 [Enter]** to move the memory partition. The memory partition will be repositioned each time the unit is accessed. Records received while Command Mode is active, are stored on the other side of the partition. Command ^B00 allows access to these records.
  3. Type **^B01,3 [Enter]**. The MPC-500 will display the first three call records stored in memory. Although the exact format will differ for each PBX, call records will look something like the example shown in Figure 6.1.

**Note:**

If Command ^B54,2 (Release Data with ^B02) is active when Command ^B01,n is invoked, a ^B02 must be issued to release the first group of call records.

4. Examine the call records to determine the location(s) of the field(s) you intend to monitor (e.g., number dialed).
5. Define the Data Filter Format. Type **^B40 [Enter]**. The system will emit a beep and a cursor will appear.
  - a) Press the space bar or dash key to indicate a position you *do not* need to monitor. Each time the space bar is pressed, a dash will appear in the format definition.

08:15 OUT 040 01:15 8531212	DDD 00.10
08:17 OUT 007 00:30 411	DDD 00.10
08:21 IN  005 00:43	

Figure 6.1: Sample Call Records

```

|08:15|OUT|040|01:15|8531212          |DDD|00.10|
|08:17|OUT|007|00:30|411            |DDD|00.10|
|08:21|IN |005|00:43|                |  |  |
-----A-----

```

Figure 6.2: Sample Data Filter Format

- b) When you reach a field you want to monitor, assign variable(s) (any letter from A to L) to that position (see Figure 6.2). The same variable is repeated for each position in the field (e.g. **AAAAAAA**).
  - c) When you reach the end of the call record, or the last position you need to monitor, press **[Enter]**. The Data Filter Format will be saved.
  - d) In Figure 6.2, the variable "A" represents the field for the number dialed. The first three lines are sample call records and the last line is the filter format.
6. Type **^B30 [Enter]** to return to Command Mode.
  7. Type **^B41 [Enter]** to display the Data Filter Format.

### 6.1.1. Single Command Line Method

The Data Filter Format can also be defined with a single command line. In order to use the single command line method, you must know the exact location and width of each field. For the single command line method, Command **^B40** is invoked as follows:

**^B40, format [Enter]**

Where **format** is the Data Filter Format.

**Example:** Assume that you know the location of the field that stores the time the call was received or placed. If this field spans from the second character through the sixth character of the record, and you wish to assign the variable "A" to this position, Command **^B40** would be invoked as follows:

**^B40, -AAAAA----(etc.) [Enter]**

Where each dash character (-) represents a position that you do *not* need to monitor, and an "A" has been entered to define each position in the "time" field you need to monitor.

## 6.2. Defining Data Filter Parameters

---

Data Filter Parameters describe specific criteria that the MPC-500 uses to determine whether call records will be stored or omitted. Note that Command ^B42 has a cumulative effect. Each time ^B42 is invoked, its argument (parameters) will be added to the currently defined Data Filter Parameters. The argument of Command ^B42 will usually include the following components:

- A variable (any letter from A through L) from the Data Filter Format, which designates the field(s) to be monitored.
- A logical or relational operator (see Section 6.4).
- A description of the call characteristics used as the criteria for storage or rejection.

To define Data Filter Parameters, proceed as follows.

1. Enter Command Mode and invoke Command ^B42 using the following format:

**^B42,parameters [Enter]**

Where **parameters** is a description of the characteristics of the type of call you want to store.

**Example:** If the Data Filter Format assigns the variable "C" to represent the field for call time, and you want to store only records for calls placed before 6:30 pm (18:30), then Data Filter Parameters would be defined as follows:

**^B42,C<18:30 [Enter]**

2. To display the Data Filter Parameters, type **^B43 [Enter]**.
3. To define complex Data Filter Parameters that use multiple variables or AND/OR conditions, please refer to the examples in Section 6.6.
4. To clear all Data Filter Parameters, type **^B42 [Enter]**.

**Caution:**

**Data Filter Parameters that have been cleared cannot be recovered. Parameters must be redefined manually, unless the configuration has been saved as described in Section 8.**

## 6.3. Enabling the Data Filter

After Parameters are defined, the Data Filter must be enabled. Enter Command Mode and type `^B56,2 [Enter]`.

## 6.4. Logical and Relational Operators

The following logical and relational operators may be used in the definition of Data Filter Parameters.

Operator	Definition
>	Greater Than or Equal To
<	Less Than or Equal To
~	Not Equal To
=	Wild Card
,	AND
[Enter]	OR

### 6.4.1. "Equal To" Conditions

In addition to the operators listed above, an "equal to" condition can also be created by entering the variable along with the desired field contents as shown below.

**Example:** Assume variable "B" represents the field that indicates whether the call is inward or outward bound (Figure 6.3).

Given the Data Filter Format shown in Figure 6.3, to define the Data Filter Parameters to only store records for outward bound calls, type the following:

`^B42,BOUT [Enter]`

Where `^B42` is the "Define Data Filter Parameters" Command, and `BOUT` tells the MPC-500 to monitor the position assigned to variable "B", and save records with the text "OUT" in this field.

08:15	OUT	040	01:15	8531212		DDD	00.10
08:17	OUT	007	00:30	411		DDD	00.10
08:21	IN	005	00:43				
-----	BBB	-----	AAAAAAA	-----			

Figure 6.3: Example of "Equal To" Condition

## 6.5. Logical AND/OR Conditions

Logical AND/OR conditions allow the MPC-500 to monitor a specific call record field for a range of acceptable values, or monitor several fields simultaneously.

### 6.5.1. AND Conditions

An AND condition creates a situation where two or more expressions must *all* be true in order for the record to be stored. AND conditions are created by invoking Command ^B42 in a manner where two or more parameters are included in a single line as shown below.

```
^B42,parameter_1,parameter_2,... etc.
```

Where each parameter is separated by a comma, and includes a variable and the criteria the MPC-500 will use to determine whether the call record will be stored or omitted.

**Example :** Assume variable "A" represents the call time as shown in Figure 6.4.

08:15 OUT 040 01:15 8531212	DDD 00.10
08:17 OUT 007 00:30 411	DDD 00.10
08:21 IN  005 00:43	
-AAAAA-----	

Figure 6.4: AND Condition Example

Given the Data Filter Format shown in Figure 6.4, if you need to store only records for calls received or placed between 8:00 am (08:00) AND 5:00 pm (17:00), type the following:

```
^B42,A>08:00,A<17:00 [Enter]
```

Note the following:

- Each parameter is separated by a comma.
- The format for time values must *exactly* match the format found in PBX call records. If the record shows the time as "08:00", the parameter definition must also specify the time as "08:00". If the time is specified as "8:00" or "0800", the Data Filter will not function properly.

## 6.5.2. OR Conditions

An OR condition creates a situation where, if *any* of two or more expressions are true, the record will be stored. An OR condition is created by invoking Command ^B42 with each parameter entered on a separate command line as shown below.

```
^B42,parameter_1 [Enter]
^B42,parameter_2 [Enter]
... etc.
```

Each parameter includes a variable and criteria that is used to determine whether the call record will be stored or omitted.

**Example :** Assume variable "A" represents the field for call time, and variable "B" represents the extension number. The Data Filter Format definition for this example is shown in Figure 6.5.

08:15 OUT 040 01:15 8531212	DDD 00.10
08:17 OUT 007 00:30 411	DDD 00.10
08:21 OUT 099 00:43 5555555	
-AAAAA-----BBB-----	-----

Figure 6.5: OR Condition Example

If the Data Filter Format is defined as shown in Figure 6.5, and you want to store records for calls received or placed before 6:30 pm (18:30), OR calls received or placed at extension 099, define the Data Filter Parameters as follows:

```
^B42,A<18:30 [Enter]
^B42,B099 [Enter]
```

Note the following:

- Each parameter is entered on a separate ^B42 command line.
- The format for any alphanumeric value must *exactly* match the format found in the PBX call record.
- Command ^B42 has a cumulative effect. Each time ^B42 is invoked, its associated parameter is added to the existing Data Filter Parameter definition.
- If Command ^B42 is entered without a parameter, all previously defined Data Filter Parameters will be erased.

## 6.6. Data Filter Parameter Definition Examples

---

The following examples are based on fictional PBX call record formats. When designing your Data Filter, be aware that the record format will differ from those shown in the examples. When defining the Data Filter Format and Data Filter Parameters the following factors must be considered.

- **Exact Match:** Alphanumeric values in parameter definitions must exactly *match* those found in the PBX call record. If the record shows the time as "09:00", then the parameter definition must also list the time as "09:00", and not "0900" or "9:00".
- **Number of Characters:** For any given variable, the number of characters specified in the Data Filter Format must *exactly* match the number of characters indicated in the Data Filter Parameter definition. For example, if the format defines the variable "B" as the first seven characters of the number dialed, then the Parameter definition must account for all seven characters.
- **Cumulative Effect:** Each time Command ^B42 is invoked, the MPC-500 will add the new parameter to the existing definition. Make certain newly defined parameters do not cancel out existing parameters.
- **Slashes and Backslashes:** The slash character (/) cannot be used in the parameter definition. The slash character is reserved for use as a command separator, when several commands are entered on the same line. If your call record format uses a slash to separate values in the time or date field, the Data Filter Parameter definition must use a backslash character (\) in place of the slash.

## Example 1: Multiple AND Conditions

This example shows a Data Filter that uses multiple AND conditions to simultaneously monitor several different call characteristics. Assume the Data Filter Format is defined as shown in Figure 6.6.

08:16   075   B.JOHNSON	IN	00:55   00.00
08:18   067   R.JONES	OUT   19495839514	05:36   00.75
08:20   092   J.SMITH	OUT   18008547226	11:15   00.00
-AAAA-	-----	-----BBBB-

Figure 6.6: Example 1, Data Filter Format

Where:

- A** represents the field that lists the time the call was received or placed.
- B** indicates the field that lists call duration.

Define a Data Filter that will store only records for calls received or placed between 8:00 am (08:00) and 5:00 pm (17:00), and lasting longer than five (5) minutes. This Data Filter would be defined as follows:

```
^B42 ,A>08:00 ,A<17:00 ,B>05:00 [Enter]
```

Where:

- A>08:00** Tells the MPC-500 to store records for calls received or placed after 08:00.
- ,  
AND
- A<17:00** Tells the MPC-500 to store records for calls received or placed before 17:00.
- ,  
AND
- B>05:00** Tells the MPC-500 to store records for calls that last longer than five minutes.

## Example 2: Multiple OR Conditions

This example shows a Data Filter that uses multiple OR conditions to store call records which conform to one of several listed conditions. Assume the Data Filter Format is defined as shown in Figure 6.7 below.

08:16   075   B. JOHNSON	IN	00:55   00.00
08:18   067   R. JONES	OUT   19495839514	05:36   00.75
08:20   013   J. SMITH	OUT   18008547226	01:07   00.00
-----AAA-----		

Figure 6.7: Example 2, Data Filter Format

Where **A** indicates the field that lists the extension number.

Define a Data Filter that will only store records for calls received or placed by extensions 013, 086, 099, *or* 101. This Data Filter would be defined as follows:

```

^B42 ,A013 [Enter]
^B42 ,A086 [Enter]
^B42 ,A099 [Enter]
^B42 ,A101 [Enter]

```

Where:

- A013** Tells the MPC-500 to store records for calls received or placed at extension 013.
- [Enter]** OR
- A086** Tells the MPC-500 to store records for calls received or placed at extension 086.
- [Enter]** OR
- A099** Tells the MPC-500 to store records for calls received or placed at extension 099.
- [Enter]** OR
- A101** Tells the MPC-500 to store records for calls received or placed at extension 101.

### Example 3: Combining Logical AND Conditions and Logical OR Conditions

This example combines a logical AND condition and a logical OR Condition. Assume the Data Filter Format is defined as shown in Figure 6.8.

08:16   075   B.JOHNSON	IN	00:55   00.00
08:18   067   R.JONES	OUT   19495839514	05:36   00.75
08:20   013   J.SMITH	OUT   18008547226	01:07   00.00
-AAAAA-BBB-----		

Figure 6.8: Example 3, Data Filter Format

Where:

- A** Represents the field that lists the time the call was received or placed.
- B** Represents the field that lists the extension number.

Assume that you need to define a Data Filter which will store records for calls received or placed between 7:00 am (07:00) and 6:30 pm (18:30). In addition, the Data Filter must also store records for calls received or placed by extension number 013. This Data Filter would be defined as follows:

```
^B42,A>07:00,A<18:30 [Enter]
^B42,B013 [Enter]
```

Where:

- A>07:00** Tells the MPC-500 to store records for calls received or placed after 07:00.
- ,** AND
- A<18:30** Tells the MPC-500 to store records for calls received or placed before 18:30.
- [Enter]** OR
- B013** Tells the MPC-500 to store all records for calls received or placed at extension 013.

## Example 4: The "Wild Card" Operator

This example shows a Data Filter that uses the "Wild Card" operator. Assume the Data Filter Format is defined as shown in Figure 6.9. below

08:16   075   B. JOHNSON	IN	00:55   00.00
08:18   067   R. JONES	OUT   19495839514	05:36   00.75
08:20   013   J. SMITH	OUT   18008547226	01:07   00.00
-----A-----		

Figure 6.9: Example 4, Data Filter Format

Where **A** represents the first seven characters of the field that lists the number dialed.

Assume you need to only store records for long distance calls. Since long distance phone numbers always begin with the number 1, this Data Filter could be defined as follows:

**^B42 ,A1===== [Enter]**

Where:

**A1=====** Tells the MPC-500 to store records for calls dialed to any number that begins with a "1", regardless of the content of the remaining six positions.

### Note:

The wild card operator (=) is used to fill out the remaining six positions in the "A" field. Since this Data Filter uses only the first position of the "A" field, the remaining six positions (specified by the Data Filter Format) must be accounted for.

## **7. The Alarm Filter (Toll Fraud Detection)**

---

The Alarm Filter allows the MPC-500 to monitor call records, and check for characteristics that may indicate Toll Fraud or other forms of phone abuse. When suspect calls are detected, the MPC-500 can provide notification by contacting your local PC, or calling your modem or pager.

Up to three Pager I.D. numbers can be defined, allowing the user to link a specific alphanumeric pager to a specific type of suspect call. When a Toll Fraud Alarm is generated, the MPC-500 can call any or all of the pager I.D. numbers, depending on the nature of the suspect call.

The Alarm Filter has priority over the Data Filter. Even if a record is rejected by the Data Filter, it will still be flagged and stored if it matches any of the user-defined Alarm Clues. The Alarm Filter can also be used as a second Data Filter, allowing separate storage and retrieval of data regarding specific area codes, phone numbers and etc..

### **7.1. The Alarm Filter Format**

---

Each record consists of a line of text with specific data items in assigned locations or "fields". To enable the MPC-500 to check the appropriate field(s), you must first determine the structure of the record format produced by the PBX. Once the record format is established, you must then describe the format to the MPC-500 and assign variables to fields you wish to monitor.

When defining the Alarm Filter Format, particular attention must be paid to recognize the exact format used by the PBX. For example, if the call record shows the time as "09:00", then the Alarm Filter Format must account for all five digits, including the colon that separates hours and minutes.

### 7.1.1. Common Types of Suspect Phone Activity

The first step in the detection of Toll Fraud, is to define the types of calls you wish to monitor. The following types of calls may provide an indication of potential Toll Fraud.

- Repeated unsuccessful attempts to access voice mail
- After-hours long distance calls
- After-hours calls to your 800 number
- Lengthy international calls

In addition, you may wish to program the MPC-500 to monitor other types of calls that can indicate internal phone abuse. Examples of these types of calls are as follows:

- Calls made to your competitor's phone number
- Extensions with exceptionally high call activity
- Calls to "900" numbers

All of these call types will have certain characteristics, or a "fingerprint", that can be easily recognized when the MPC-500 examines call records.

### 7.1.2. Defining the Alarm Filter Format

Proper definition of the Alarm Filter Format tells the MPC-500 where to look, in order to determine if a record should be counted as an Alarm Record. To define the Alarm Filter Format, proceed as follows.

1. Enter Command Mode. Type **^B16 [Enter]** to display the Status Screen. Make certain the following options are set as described below. Use the commands listed in parentheses to reset any option not in the correct state.
  - Compression: Off (**^B53 , 2**)
  - Line I.D.: Off (**^B59 , 1**)
  - Output Mode: Record (**^B62 , 1**)
  - Alarm Filter: Off (**^B65 , 1**)
  - Time Stamp: Off (**^B66 , 1**)
  - Duplex: Full (**^B68 , 2**)

08:15 OUT 040 01:15 8531212	DDD 00.10
08:17 OUT 007 00:30 411	DDD 00.10
08:21 IN 005 00:43	

Figure 7.1: Sample Call Records

**Note:**

- Options ^B53, ^B59, ^B62, ^B66, and ^B68 are set in a manner intended to simplify definition of the Alarm Filter. Return these options to the desired state after the Alarm Filter is defined.
  - Both the Time Stamp (^B66) and the Line I.D. (^B59) will alter field location. When records are released, both features will append an extra field to each record. The altered record structure may cause errors in the definition of the Alarm Filter Format. Disable both features prior to storing records for use in definition of the Alarm Filter Format.
2. Allow the MPC-500 to receive and store a substantial number of records from the PBX. Type **^B00 [Enter]** to move the memory partition. This allows access to records received after the Command Mode was activated.
  3. Type **^B01, 3 [Enter]**. The MPC-500 will display three records. Although the format will differ for each PBX, records will look something like the example in Figure 7.1.

**Note:**

If Command ^B54,2 (Release Data with ^B02) is active when Command ^B01,n is invoked, a ^B02 must be issued to release the first group of records.

4. Examine the records to determine the location(s) of the field(s) you intend to monitor (e.g., number dialed). To examine additional records, type **^B02 [Enter]**.
5. To define the Alarm Filter Format, type **^B44 [Enter]**. The system will emit a beep and a cursor will appear.
  - a) Press the space bar or dash key to indicate a position you do *not* need to monitor. Each time the space bar is pressed, a dash will appear in the format definition.

```

|08:15|OUT|040|01:15|8531212          |DDD|00.10|
|08:17|OUT|007|00:30|411            |DDD|00.10|
|08:21|IN |005|00:43|                |  |  |
-----BBBB-----

```

Figure 7.2: Sample Alarm Filter Format

- b) When you reach a field you want to monitor, type any letter from A through Z to assign a variable to that position (see Figure 7.2). For example, to assign "B" to represent the first four digits of the number dialed, type "BBBB" when you reach the field for the number dialed.
  - c) When you reach the end of the record, or the last position to be monitored, press **[Enter]**. The Alarm Filter Format will be saved.
  - d) In the example in Figure 7.2, the variable "B" represents the field that contains the first four digits of the number dialed. The first three lines are sample records, and the last line is the Alarm Filter Format.
6. Type **^B30 [Enter]** to return to Command Mode.
  7. Type **^B45 [Enter]** to display the Alarm Filter Format.

### 7.1.3. Single Command Line Method

If you know the location and width of each field, the Alarm Filter Format can be defined using a single command line. Invoke Command **^B44** as follows:

```
^B44 ,format [Enter]
```

Where **format** is the Alarm Filter Format.

**Example:** Assume you know the location of the field that stores the time the call was received or placed. If this field spans from the second character through the sixth, and you wish to assign the variable "A" to this position, invoke Command **^B44** as follows:

```
^B44 ,-AAAAA----(etc.) [Enter]
```

Where each dash character (-) represents a position you do *not* need to monitor, and an "A" has been entered to define each position you *do* need to monitor.

## 7.2. Alarm Clues

---

The MPC-500 will accept approximately 20 Alarm Clues, depending upon the length and complexity of clue definitions. The unit will accept more than 20 clues if definitions are relatively short and simple, or less than 20 clues when definitions more complex. Clue definitions can be up to 232 characters in length.

Prior to defining an Alarm Clue, the following factors must be considered:

- **Clue Name:** The Clue Name should describe the type of call the clue will monitor (up to 16 characters). Note the following restrictions:
  - ✓ **Numerical Values:** Clue Names cannot be a number (e.g. "97" or "714area").
  - ✓ **Forbidden Characters:** Clue Names cannot include the "at sign" (@), commas (,), or backslashes (\).
  - ✓ **^B01 Command Options:** Clue Names cannot be "A" or "D". These characters are reserved for use as ^B01 Command Options.
- **Pager I.D. Number Specifier:** The Pager I.D. number(s) that are dialed when the counter exceeds the critical level. The specifier can indicate one, two, or three Pager I.D. numbers. If no specifier is included, the MPC-500 will dial Pager I.D. Number 1. This item is only used when the unit is set up to provide notification via alphanumeric pager.
- **Critical Count Level:** The number of times this type of call must occur in order to generate an alarm.
- **Call Characteristics:** The qualities that allow the MPC-500 to identify a suspect call. For example, long distance calls always begin with the number one. Characteristics are expressed in the form of an equation, and will always include the following elements:
  - ✓ One or more of the variables from the Alarm Filter Format or one or more Real-Time variables (Section 7.2.4).
  - ✓ One or more of the operators discussed in Section 7.2.3.
  - ✓ One or more alphanumeric values, which describe the characteristics the clue will monitor.

## 7.2.1. Alarm Clue Definition

1. Enter Command Mode and invoke Command `^B81` using the following format:

```
^B81,clue[specifier]\count\parameters [Enter]
```

Where:

**clue** Clue Name (Up to 16 characters).

**[specifier]** (Optional) indicates the Pager I.D. number(s) dialed when the clue is triggered, and alphanumeric pager notification is selected. The specifier can be [1], [2], [3], or any combination (e.g. [123]).

**count** is the Critical Count Level, or number of times the call must occur in order to trigger an alarm (**0001** to **9999**).

**parameters** are Call Characteristics, or a description of the qualities of the type of call to be monitored.

Note the following:

- A comma (,) separates `^B81` from **clue**.
- A backslash (\) separates **clue** or **[specifier]** from **count**, and **count** from **parameters**. A backslash (\) is *not* inserted between **clue** and **[specifier]**.
- When the **[specifier]** is included, it is always enclosed in a pair of square brackets.
- If **count** is defined as **0000**, the MPC-500 will count calls that match the clue, but will never generate an alarm for that clue.
- Alarm Clue parameters will always include at least one variable, at least one operator, and at least one alphanumeric value which describes the characteristics the clue will monitor.
- The format of numerical values in the Alarm Clue definition must exactly match the format in the call record. For example, if the record shows the time as "09:00", the parameter definition must also list the time as "09:00", and not "0900" or "9:00".

**Example:** Given the Alarm Filter Format in Figure 7.3, monitor all long distance calls. Generate an alarm when the clue counts 200 long distance calls. Assume you have selected alarm notification by alphanumeric pager, and you want the MPC-500 to dial Pager I.D. numbers 1 and 2.

08:15 IN 040 01:15	DDD 00.10
08:17 OUT 007 00:30 5551234	DDD 00.10
08:21 OUT 005 00:43 19495869950	DDD 00.15
----- <b>AAAA</b> -----	

Figure 7.3: Example Alarm Filter Format

Where "A" represents the first four digits of the number.

This clue would be defined as follows:

```
^B81, LONG_DIST [12] \200\A=1--- [Enter]
```

Where:

- LONG\_DIST** is the Clue Name.
- [12]** is the Pager I.D. Number Specifier. Instructs the MPC-500 to dial PAGER ID#1 and PAGER ID#2 when alarm is generated.
- 200** is the Critical Count Level.
- A=1---** is the parameter definition. Instructs the MPC-500 to flag and count all records that begin with the number "1". The remaining three positions are wild card characters (dashes).

**Note:**

The clue definition must account for each position in the field being monitored. The number of characters indicated in the clue definition must match the number of characters assigned in the format definition.

2. Verify that the clue was accepted by the unit. Type **^B83 [Enter]**. The MPC-500 will display a list of all Alarm Clues, their characteristics, and current counter status. If the Alarm Clue you have just defined does not appear in the listing, carefully repeat Step 1.

3. To define complex Alarm Filter Parameters that use multiple variables, or AND/OR conditions, please refer to the examples in Appendix A.
4. To delete any or all Alarm Clues, proceed as follows:
  - a) To delete a specific Alarm Clue type `^B82, clue` [Enter]. Where `clue` is the desired Clue Name.
  - b) To delete all defined Alarm Clues, type `^B82, *` [Enter].

**Caution:**

**Alarm Filter Parameters that have been deleted cannot be recovered, unless configuration has been saved as described in Section 8.**

### 7.2.2. Enabling the Alarm Filter

After Parameters are defined, the Alarm Filter must be enabled. Enter the Command Mode and type `^B65, 2` [Enter].

### 7.2.3. Logical and Relational Operators

Variables and operators are combined to form parameters. Variables are the uppercase letters A through Z defined in the Alarm Filter Format. Relational and logical operators are described in the table below.

Operator	Definition
>	Greater Than
<	Less Than
>=	Greater Than or Equal To
<=	Less Than or Equal To
~	Not. Can also precede any other comparison operator (e.g. ~<, Not Less Than).
=	Equal To
\$	Contains String. Searches for specified string anywhere in field.
-	(Dash) Wild Card
()	(Parentheses) Used to Combine Operations
+	Logical OR
*	Logical AND

### 7.2.3.1. Logical AND/OR Conditions

Logical AND/OR conditions can be created in the Alarm Clue definition by including the AND operator "\*" (asterisk), or the OR operator "+" (plus sign).

#### Logical AND Conditions

The AND operator (\*) links parameters in a manner where two or more conditions must *all* be true, in order for the call to be counted as an Alarm Record.

**Example:** Assume the variable "A" represents the field for the number dialed, and "B" represents the field for extension number. To define an Alarm Clue named "ALL" that generates an alarm if 99 calls are placed to 555-1111 from extension 013, type:

```
^B81,ALL\99\A=5551111*B=013 [Enter]
```

The Alarm Clue "ALL" would *only* count calls that are placed to 555-1111 AND placed from extension 013. Calls to 555-1111 from extension 086 would *not* be counted, and calls to 555-2222 from extension 013 would also *not* be counted.

#### Logical OR Conditions

The OR operator (+) links parameters in a manner where *any* of two or more conditions must be true in order for the call to be counted as an Alarm Record.

**Example:** Assume the variable "A" represents the field for number dialed, and "B" represents the field for extension number. To define an Alarm Clue named "ANY" that generates an alarm if 99 calls are placed to 555-1111 OR placed from extension 013, type:

```
^B81,ANY\99\A=5551111+B=013 [Enter]
```

The Alarm Clue "ANY" would count all calls that are placed to 555-1111 OR placed from extension 013. Calls to 555-1111 from extension 086 *would* be counted, and calls to 555-2222 from extension 013 *would also* be counted.

## 7.2.4. Real-Time Variables

In addition to logical and relational operators, Alarm Clues can also include Real-Time variables that monitor the MPC-500's internal clock and calendar.

Real-Time variables do not use the Alarm Filter Format, or monitor the contents of the call record. When Real-Time variables are included in the Alarm Clue definition, the MPC-500 will check its internal clock and calendar as each record is received. If the time and/or date matches the Alarm Clue definition, the call is flagged and counted as an Alarm Record. The MPC-500's internal clock, rather than the contents of the call record, determines whether or not the record is counted.

The following Real-Time variables can be used to monitor the internal clock and calendar. Real-Time variables are always entered as lower-case letters.

- t Time:** Tells the MPC-500 to determine the time each record is received. The time is entered in "HH:MM" format, where HH is the hour (00 - 23) and MM is the minute (00 - 59).
- w Day of the Week:** Tells the MPC-500 to determine the day of the week the record is received. The Day of the Week is entered as a single digit, where 1 = Sunday, 2 = Monday, 3 = Tuesday, 4 = Wednesday, 5 = Thursday, 6 = Friday, and 7 = Saturday.
- d Date:** Tells the MPC-500 to determine the date the record is received. The Date is entered in "MM\DD" format, where MM is the month (01 - 12) and DD is the date (01 - 31).

### Note:

A backslash character (\) separates the month and date. This is because the forward slash character (/), is reserved for use as a command delimiter.

**Example 1:** To create an Alarm Clue named SUNDAY, that will generate an alarm when 100 calls are received or placed on Sunday, type the following:

```
^B81,SUNDAY\100\w=1 [Enter]
```

Where:

**SUNDAY** is the Clue Name.  
**100** is the Critical Count Level.  
**w=1** instructs the MPC-500 to flag and count records for calls received or placed on Sunday (1 = Sunday).

**Example 2:** To create an Alarm Clue named AFTER\_6, that will generate an alarm when 100 calls are received or placed after 6:00 pm (18:00) or before 7:00 am (07:00), type the following:

```
^B81,AFTER_6\100\t>18:00+t<07:00 [Enter]
```

Where:

**AFTER\_6** is the Clue Name.  
**100** is the Critical Count Level.  
**t>18:00** instructs MPC-500 to count records for calls received or placed after 18:00 (6:00 pm).  
**+** is the logical OR operator.  
**t<07:00** instructs MPC-500 to count records for calls received or placed before 07:00 (7:00 pm).

**Note:**

- Real-Time variables are *not* defined in the Alarm Filter Format.
- The Alarm Clue definition can include *both* Real-Time variables and regular variables, as well as logical and relational operators.
- Values from the internal clock/calendar are not included in the Alarm record, unless the Time/Date Stamp feature (^B66,2) is enabled.
- Real-Time variables function independently from the Time/Date Stamp. The Time/Date Stamp does not need to be enabled in order for Real-Time variables to function.

## 7.2.5. Testing Alarm Clues

It is often helpful to verify that Alarm Clues are properly defined.

1. Use a telephone connected to the PBX to place a test call that matches the characteristics of one of the Alarm Clues. This call should be detected by the MPC-500.
2. From Command Mode, type **^B00 [Enter]** to move the memory partition.
3. Type **^B83 [Enter]**. The system will display a listing that shows the status of all Alarm Clue counters. The counter for the clue being tested should be incremented by one.
4. If the counter does not include the test call, check the following:
  - a) The clue definition must include at least one variable, at least one operator, and appropriate alphanumeric value(s) to describe call characteristics.
  - b) The Alarm Filter Format must be properly defined to indicate the appropriate field of the call record.
  - c) When Alarm Clue Parameters are defined, the format for any alphanumeric value must match the call records exactly. If the record shows the extension number as "099", then the parameter definition must also specify the extension as "099", and not "99".
  - d) Check the Status Screen (**^B16**) to make certain the Alarm Filter is enabled. If necessary, type **^B65, 2** to enable the Alarm Filter.

## 7.2.6. The Daily Reset Timer for the Alarm Clue Counters

The Daily Reset Timer will automatically reset all Alarm Clue Counters to zero at a specific time each day. The Daily Reset Timer will not function on Saturdays, Sundays, or on any user-defined holiday specified by Command ^B15.

The MPC-500 offers two methods for enabling and configuring the Counter Reset Timer; Menu Driven and Single Command Line.

### ^B85 Menu Driven Method:

1. Type **^B85 [Enter]**. The MPC-500 will display a prompt which reads "RESET TIMER (Y/N)?".
  - a) To enable the Counter Reset Schedule, type **Y [Enter]**.
  - b) To disable the Counter Reset Schedule, type **N [Enter]**.
2. If **Y** is selected, the system will display the current reset time and a prompt which reads "TIME (HH:MM)?".
  - a) To select a new reset time, key in the desired time using 24 hour format and press **[Enter]**.
  - b) To keep the previously selected time and return to Command Mode, press **[Enter]** without keying in a new value.

### ^B85 Single Command Line Method:

1. To configure and enable the Daily Counter Reset Schedule, type the following:

**^B85 , Y , HH : MM [Enter]**

Where **HH : MM** is the desired reset time in 24 hour format.

2. To disable the Daily Counter Reset Schedule, type the following:

**^B85 , N [Enter]**

## 7.3. Selecting an Alarm Notification Method

---

When a Toll Fraud or No-Data Alarm is generated, the MPC-500 offers several options for notification. In addition to the ALM Indicator, the MPC-500 can also provide notification via your PC, modem, or pager.

Although the notification method can be changed as needed, only one alarm mode may be selected at any given time. Command ^B87 is used to select one of the following notification methods:

- **Alarm Off:** No alarm notification provided. The ALM LED is disabled.
- **Local:** Alarm notification sent via cable to a Local PC. The ALM LED is enabled.
- **Remote:** Alarm notification sent via modem to a Remote PC. The ALM LED is enabled.
- **Pager (Alpha):** Alarm notification sent via modem to an alphanumeric Pager. The ALM LED is enabled.
- **Report:** The MPC-500 will dial the ALARM# (Command ^B14) and execute a command string (Command ^B04). In most cases, the Command String downloads data to a remote PC via modem. The ALM LED is enabled.
- **Pager (Numeric):** Alarm notification sent via modem to a standard numeric Pager. The ALM LED is enabled.

### 7.3.1. Alarm Off (^B87,0)

When selected, the system will *not* notify you if a Toll Fraud or No-Data Alarm is generated, and the ALM LED is also disabled. In the Alarm Off mode, the only way to determine if an alarm has been generated, is to access the Command Mode and use ^B83 to check counter status.

To select the Alarm Off mode, enter Command Mode and type ^B87,0 [Enter].

### **7.3.2. Local Alarm (^B87,1)**

When selected, the Alarm Message is sent from the MPC-500 to a local PC. Providing your communications program is active, the Alarm Message, clue name, and count will be sent to the PC connected to the Computer Port. In the Local Alarm mode, the ALM LED is enabled.

To use the this alarm mode, the system must include the following:

- A local PC, cable connected to the MPC-500 Computer Port.
- A communications program (e.g. Procomm) running on the local PC.

To select the Local Alarm mode, proceed as follows.

1. Enter Command Mode and type **^B87,1 [Enter]**.
2. If you have not already done so, use Command **^B14** to define the Alarm Message.

### **7.3.3. Remote Alarm (^B87,2)**

The Alarm Message will be sent via modem to a remote PC. Providing your communications program is active, the Alarm Message, clue name, and count will be sent. The ALM LED is enabled.

When a Toll Fraud or No-Data Alarm is generated, the MPC-500 will notify the user by dialing the number entered at ^B14's "ALARM#?" prompt. The unit will then send the Alarm Message defined at ^B14's "MSG?" prompt along with the clue name and counter status.

To use this Alarm mode, your system must include the following:

- An outside phone line connected directly to the MPC-500's Modem Port.
- A remote PC connected to a modem.
- A communications program (e.g. Procomm) running on the remote PC.

To select the Remote Alarm mode, proceed as follows.

1. Check the Set-Up Switches. Make certain Switch 6 is set in the DOWN position to disable the Direct Connect mode.
2. Enter Command Mode and type **^B87,2 [Enter]** to select Remote Alarm mode.
3. If you have not already done so, use Command **^B14** to enter the phone number for the remote modem (ALARM#) and define the Alarm Message (MSG).
4. When an alarm is generated, the MPC-500 will send an alarm message using the format described in Section 7.3.8. When the Remote Alarm method is used, the MPC-500 will append a **"/w"** to the beginning of the message.

### **7.3.4. Pager (Alpha) (^B87,3)**

When Pager (Alpha) is selected, the Alarm Message will be sent via modem to an alphanumeric pager. In this mode, the ALM LED is enabled.

To use this mode, your system must include the following:

- An outside phone line connected directly to the MPC-500's Modem Port.
- An alphanumeric pager.
- A pager service that supports TAP (Telocator Alphanumeric Protocol).

When a Toll Fraud or No-Data Alarm is generated, the MPC-500 will notify you by dialing the number entered at **^B14's "ALARM#?"** prompt. The unit will then use one or more of the three Pager I.D. numbers defined under Command **^B14**, as indicated by the Pager I.D. Number Specifier in the Alarm Clue Definition. The Alarm Message will be sent to the pager, along with the clue name and counter status.

If Pager I.D. Number(s) have not been specified, **PAGER ID#1** will be used. To select the Pager Alarm mode, proceed as follows.

1. Check the Set-Up Switches. Make certain Switch 6 is in the DOWN position to disable Direct Connect mode.

2. Enter Command Mode and type **^B87,3 [Enter]** to select the Pager Alarm mode.
3. If you have not already done so, use Command **^B14** to enter the phone number for the pager (ALARM#), the pager I.D. number(s) (PAGER ID#1, PAGER ID#2, and PAGER ID#3) and the Alarm Message (MSG).

### 7.3.5. Report (^B87,4)

When the Report Mode is selected and a Toll Fraud Alarm is generated, the MPC-500 will call a remote PC via modem. If a Report Command String has been defined (Command **^B04**), the command string will be automatically executed, without the need to enter a password. If the Report Command String has *not* been defined, the unit will display the "MPC-500" prompt and wait for a password. In Report mode, the ALM LED is enabled.

To use this mode, your system must include the following:

- An outside phone line connected to the MPC-500 Modem Port.
- A remote PC connected to a modem.
- A communications program (e.g. Procomm) running on the remote PC.

When a Toll Fraud or No-Data Alarm is generated, the MPC-500 will notify you by dialing the number entered at **^B14**'s "ALARM#?" prompt. The unit will then invoke the Report Command String (Command **^B14**). An Alarm Message is *not* sent, unless the Report Command String includes Command **^B13**.

#### **Note:**

- When selected (**^B87,4**), the Report mode will function regardless of whether the "Auto Execute" option (**^B69**) is enabled or not.
- When the Report mode is selected, alarm callouts will not cause the Auto Execute command string to be executed.
- A Report callout does *not* automatically clear the alarm condition. The Report Mode Command string should always include the **^B84** (Clear Alarm Condition) command. This prevents the MPC-500 from calling several times for one alarm.

To select the Report mode, proceed as follows:

1. Check the Set-Up Switches. Make certain Switch 6 is set in the DOWN position to disable Direct Connect mode.
2. Enter Command Mode and type **^B87,4 [Enter]** to select the Report mode.
3. If you have not already done so, use Command **^B14** to enter the phone number for the remote modem. If the Report Command String will include command **^B13** (Send Alarm Message), define the Alarm Message under command **^B14**'s "MSG" prompt.
4. To define a Report Command String, proceed per Section 4.5.3.

### **7.3.6. Pager (Numeric) (^B87,5)**

The Pager (Numeric) Mode allows the MPC-500 to send the Alarm Message to a standard numeric pager rather than an alphanumeric pager. The ALM LED is enabled.

To use this mode, your system must include the following:

- An outside phone line connected directly to the MPC-500 Modem Port.
- A Standard Numeric Pager.

When this mode is selected, the unit will call the number defined under **^B14**'s "ALARM#?" prompt. Since a standard numeric pager will not answer back, the unit will not be able to tell if the page was successful. Any Redials (Command **^B14**) will be performed, whether the initial page was successful or not. Therefore, it is recommended to keep the number of Redials to a minimum, when the Pager (Numeric) Mode is selected.

When ^B14's "ALARM#?" prompt is used to define a callout number for Pager (Numeric) mode, the following format is used:

ALARM#? **Pager\_Number** , , , , , , **Message\_Number**

Where:

<b>Pager_Number</b>	is the number for the numeric pager.
, , , , , ,	is a series of commas (dialing delays) This allows the pager service time to answer before the message number is sent. Each comma provides a two second dialing delay.
<b>Message_Number</b>	is the numerical equivalent of an Alarm Message. Since a numeric pager cannot receive alphabetic characters, a numeric code is entered to indicate an alarm.

**Example:** To instruct the MPC-500 to dial a numeric pager at 555-7777, and wait 10 seconds before sending the Message Number "911", the following would be entered at ^B14's "ALARM#?" prompt:

ALARM#? **5557777** , , , , , **911**

**Note:**

Each comma provides about two seconds of delay time. Depending on your pager service, you may wish to extend or reduce the dialing delay.

To select Pager (Numeric) mode, proceed as follows.

1. Check the Set-Up Switches. Make certain Switch 6 is set in the DOWN position.
2. Enter Command Mode and type ^B87,5 [Enter] to select Pager (Numeric) mode.
3. If you have not already done so, use Command ^B14's "ALARM#?" prompt to enter the phone number for the pager, a series of commas, and the Message Number.

### 7.3.7. Switching Alarm Methods

Providing your system includes all of the required components and you have installed the appropriate cables, you can easily switch from one notification method to another as needed. Note that only one alarm method may be selected at a given time.

### 7.3.8. The Alarm Message

For most of the available notification methods, the alarm message will be automatically sent when a Toll Fraud or No-Data Alarm is generated. The Alarm Message will include the following components:

- The name of the clue or condition that generated the alarm.
- The counter status for the clue that generated the alarm.
- The text entered at Command ^B14's "MSG?" prompt.

These components will be displayed in the following format:

**Clue [<Critical Count>/<Actual Count>]: <MSG>**

**Note:**

- When a No-Data Alarm is generated, the text "NO\_DATA" will appear in place of the clue name, and both the Critical and Actual Count will be listed as "00000".
- When a Pager Test is initiated (^B89), the text "PAGE\_TEST" will appear in place of the clue name, and both the Critical and Actual Count will be listed as "00000".
- If Command ^B13 is invoked to send or display the alarm message when an alarm is *not* pending, the text "NO\_ALARM" will appear in place of the clue name.

When the Pager (Numeric) alarm notification mode is selected, the format described above will not be used. Since a numeric pager cannot receive alphabetic characters, a Message Number is used. The Message Number consists of series of numbers defined under Command ^B14's "ALARM#?" prompt (see Section 7.3.6).

## 7.4. Responding to a Toll Fraud Alarm

When you are notified that an alarm has occurred, you should then access the MPC-500 to respond. At this point, there are several options:

- Determine reason for Alarm Call using Command ^B18.
- Review Alarm counter status using Command ^B83.
- Turn off the ALM LED using Command ^B88,1.
- Display data that caused the alarm using Command ^B01.
- Clear the Alarm Condition using Command ^B84.
- Reset Alarm Counters using Command ^B86.
- Enter Pass-Through Mode and alter PBX configuration (Optional).

Often the course of action you choose will actually combine several of these options.

### 7.4.1. Determine Reason for Alarm Call (^B18)

When an Alarm call or callback is received, it is not always apparent *why* the alarm was generated. Command ^B18 can determine the exact reason for the Alarm call. Enter Command Mode and type **^B18 [Enter]**. The MPC-500 will respond with one of the five reasons listed in the table below.

Response Mode		Meaning
Terse	Verbose	
0	IMMEDIATE	The MPC-500 has dialed the "CALLBACK" number in response to Command ^B70,1 (Immediate Callback).
1	80% FULL	The MPC-500 has dialed the "CALLBACK" number to indicate that memory is at least 80% full.
2	SCHEDULED	The MPC-500 has dialed the "CALLBACK" number according to the callback schedule defined by Command ^B12.
3	ALARM RECORD RECEIVED	The MPC-500 has dialed ^B14's "ALARM" number to notify the user that a Toll Fraud Alarm has been generated.
4	NO PBX DATA	The MPC-500 has dialed the "ALARM" number to notify the user that a No-Data Alarm has been generated.

## 7.4.2. Reviewing Alarm Clue Counter Status (^B83)

When you receive a message indicating that an Alarm Clue has generated a Toll Fraud Alarm, you may wish to examine the current status of all clues in order to determine if counters for other clues are near the critical point.

1. From Command Mode, type **^B83 [Enter]**. The system will display a listing of all Alarm Clues, along with their maximum (critical) counter value and current counter status.
2. An asterisk (\*) will appear next to any Alarm Clue whose counter has reached the critical level.

## 7.4.3. Reset ALM LED (^B88)

After receiving the alarm and reviewing counter status, you will probably want to turn off the ALM LED. This allows notification if additional alarms are generated. If Alarm Clue Counters are not reset, each additional call which matches a clue already in the alarm state, will re-trigger the Alarm notification routine.

To reset the ALM LED, access the Command Mode and type **^B88 , 1 [Enter]**. This will toggle the ALM LED to the "Off" condition.

## 7.4.4. Displaying Alarm Data (^B01)

Data displayed by Command ^B01 provides an "audit trail", which can give a clearer picture of the precise nature of the cause of the alarm.

Command ^B01 features a variety of optional arguments that determine the data release format. Data can be displayed for all Alarm Clues, for a specific Alarm Clue, in groups of a set number, or in several other formats. Please refer to Section 9 for a complete description of Command ^B01.

### 7.4.5. Clear Alarm Condition (^B84)

Command ^B84 will cancel any pending redials without resetting Alarm Clue Counters or turning off the ALM LED. In addition, the Alarm Message sent by Command ^B13, will still include the clue name that generated the alarm. When Command ^B84 is invoked, the MPC-500 will start a delay timer, which prevents the unit from sending another alarm for five minutes.

To clear an alarm condition, enter Command Mode and type **^B84 [Enter]**. The alarm condition will be cleared.

### 7.4.6. Resetting Alarm Clue Counters (^B86)

Command ^B86 differs from Command ^B84 (Clear Alarm Condition) in that, ^B86 will *completely* clear the alarm condition. After Command ^B86 is invoked, the Alarm Message will include the "NO\_ALARM" message, rather than the name of the clue that generated the alarm. In addition, the delay timer will not be used, permitting another alarm to be generated immediately.

Command ^B86 offers the following options:

1. **^B86 [Enter]** : Clears alarm condition without clearing Alarm Clue Counters.
2. **^B86, clue [Enter]** : Clears alarm condition and counters for **clue** only. Where **clue** is any defined Clue Name.
3. **^B86, \* [Enter]** : Clears alarm condition and all Alarm Clue Counters.

**Note:**

Command ^B86,\* will reset all Alarm Counters to zero, making it difficult to monitor other clues. It is advisable to note the condition of all counters before Command ^B86 is invoked.

### 7.4.7. Pass-Through Mode and Monitor Mode (Optional)

Both the Pass-Through Mode and Monitor Mode permit direct communication with the PBX. This allows you to change access codes or configuration in order to re-secure the PBX. The difference between the two modes is as follows:

- **Pass-Through Mode:** When Pass-Through Mode is active, the MPC-500 will *not* store additional data from the PBX, and will *not* check for records that match Alarm Clues.
- **Monitor Mode:** When Monitor Mode is active, the MPC-500 *will* store additional data from the PBX, and *will* check for records that match Alarm Clues.

**Caution:**

**Refer to the PBX operating manual for further instructions. Do not attempt to alter PBX configuration or access codes unless you are authorized to do so.**

**Pass-Through Mode:**

1. From Command Mode, type **^B29 [Enter]**. The system will display the "PBX READY" message.
2. To exit Pass-Through Mode and return to Command Mode, type **^B30 [Enter]**.

**Note:**

While the Pass-Through Mode is active, the MPC-500 will not store or monitor incoming data.

**Monitor Mode:**

1. From Command Mode, type **^B94 [Enter]**. The system will display the "PBX READY" message.
2. To exit Monitor Mode and return to Command Mode, type **^B30 [Enter]**.

## 8. Saving MPC-500 Parameters

After the MPC-500 is configured, parameters can be saved to an ASCII text file using the File Mode in ProComm, or another communications program. If the unit's configuration is altered or deleted, saved parameters can be uploaded to automatically re-configure the MPC-500 without the need to define each parameter manually.

The ASCII file with the saved parameters can also be uploaded to other MPC-500 units. This allows rapid set-up when a number of units will be configured identically. Command ^B99 will save the parameters listed in Table 8.1 below.

^B04	Banner Message, Auto-Execute, or Report Mode Command String	^B66	Enable/Disable Time/Date Stamp
^B05	Define End-of-Record Character	^B67	Enable/Disable Auto-Delete Option
^B12	Callback Schedule	^B68	Select Duplex Mode
^B14	Callback Parameters	^B69	Enable/Disable Auto-Execute Option
^B15	No-Data Alarm Parameters	^B70	Select Callback Options
^B40	Data Filter Format	^B71	Enable/Disable DLE Stuffing Option
^B42	Data Filter Parameters	^B75	Enable/Disable "SURE (Y,N)?" Prompt
^B44	Alarm Filter Format	^B77	Define Modem AT Command String
^B52	Hold "END DATA" Message	^B79	Re-define Password
^B53	Select Compression Mode	^B80	Define ASCII Block Size
^B54	Release Data with ^B02 Command	^B81	Define Alarm Clues
^B55	Strip Non-printable Codes	^B85	Enable/Define Daily Reset Schedule for Alarm Clue Counters
^B56	Enable/Disable Data Filter	^B87	Select Alarm Notification Method
^B57	Enable/Disable XON/XOFF Function	^B90	Define Modem Port Communication Parameters
^B58	Define Response Message Type	^B91	Define Computer Port Communication Parameters
^B59	Enable/Disable Line I.D. Option	^B92	Define PBX Port Communication Parameters
^B62	Select Data Release Mode		
^B63	Enable/Disable CRC Option		
^B64	Enable/Disable Wrap Around Mode		
^B65	Enable/Disable Alarm Filter		

Table 8.1: Parameters Saved by Command ^B99

## 8.1. ^B99 Command Options

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Command ^B99 can be invoked with a variety of options. ^B99 Command Options allow the user to save all parameters, or save only those parameters needed.

### Note:

- When parameters are saved, an "^A" character is substituted for the "^B" character. When the file is uploaded to the MPC-500, the ^A character allows commands to be executed without echoing back to the polling device.
- With the exception of options ^B99,\* and ^B99 (plain), each set of parameters will be listed in a single, continuous line, terminated by <CR><LF>.
- Alarm Filter Parameters (defined via Command ^B81) will only be saved when options ^B99,\* and ^B99 (plain) are invoked. Options ^B99,1 through ^B99,9 do not include Alarm Filter Parameters.

Command ^B99 offers the following options:

- ^B99 All Parameters, Line by Line:** Downloads all parameters specified in Table 8.1. Each parameter is listed on a separate line, terminated by <CR><LF>.
- ^B99,\* All Parameters, Condensed:** Downloads all parameters specified in Table 8.1. Several parameters are included in each line, terminated by <CR><LF>.
- ^B99,0 "00" Series Parameters:** Downloads parameters for Commands ^B04 (Banner Message / Auto Execute / Report Command) and ^B05 (EOR Character).
- ^B99,1 ^B12 Callback Schedule Parameters:** Downloads parameters for Command ^B12 (Callback Schedule).
- ^B99,2 ^B14 Callback Parameters:** Downloads parameters defined under Command ^B14 (Callback Parameters).
- ^B99,3 ^B15 No-Data Alarm Parameters:** Downloads parameters for the No-Data Alarm (Command ^B15).
- ^B99,4 "40" Series Parameters:** Downloads parameters for Commands ^B40 (Data Filter Format), ^B42 (Data Filter Parameters), and ^B44 (Alarm Filter Format).

- ^B99,5 "50" Series Parameters:** Downloads parameters for Commands ^B52 (Hold "End Data"), ^B53 (Compression), ^B54 (Release Data with ^B02), ^B55 (Non-Printable Codes), ^B56 (Enable Data Filter), ^B57 (XON/XOFF), ^B58 (Response Message Type), and ^B59 (Line I.D.).
- ^B99,6 "60" Series Parameters:** Downloads parameters for Commands ^B62 (Output Format), ^B63 (CRC Option), ^B64 (Wrap Around Mode), ^B65 (Enable Alarm Filter), ^B66 (Time/Date Stamp), ^B67 (Auto Delete Option), ^B68 (Duplex Mode), and ^B69 (Enable Auto Execute Option).
- ^B99,7 "70" Series Parameters:** Downloads parameters for Commands ^B70 (Callback Options), ^B71 (DLE Stuffing), ^B75 (SURE? Prompt), ^B77 (Modem Reset Message), and ^B79 (Define Password).
- ^B99,8 "80" Series Parameters:** Downloads parameters for Commands ^B80 (Block Size), ^B85 (Counter Reset Schedule), and ^B87 (Alarm Notification).
- ^B99,9 "90" Series Parameters:** Downloads parameters for Commands ^B90 (Modem Port), ^B91 (Computer Port), and ^B92 (PBX Port).

## **8.2. Saving Parameters to an ASCII File**

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1. Set-up your Communications Program (e.g. ProComm) to receive an ASCII text file.
  - a) When using ProComm, press [**Page Down**] to activate the "Receive Parameters" mode. Select "A - ASCII". Type in a filename for the saved parameters and press [**Enter**].
3. Enter the MPC-500 Command Mode.
4. Send the MPC-500's parameter settings to an ASCII file.
  - a) When the "99" command is invoked, the command should begin with an "^A" character rather than the "^B" character (e.g. ^A99). This prevents the "99" command from being echoed back to the polling device and included in the file with the saved parameters.
  - b) When the "99" command is invoked using the "^A" character, all options discussed in the previous section may still be used. For example, type ^**A99,0** [**Enter**] to save all "00" series parameters.
  - c) The MPC-500 will send parameters to the polling device, where they will be saved to the ASCII file selected in Step 1.
  - d) If you are using ProComm, press [**Esc**] to exit Receive Parameters Mode.

## **8.3. Configuring the MPC-500 with Saved Parameters**

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Once parameters have been saved, the ASCII file with the saved parameters can be uploaded to re-configure the unit without defining each parameter manually.

1. Enter the MPC-500's Command Mode.
2. Configure your Communications Program to define <Line Feed> as the "Pace Character". This will cause the program to wait for a line feed before sending each line of data. Save the Setup Options for the Communications Program.
  - a) As each line of the ASCII file is sent, the MPC-500 will respond with "COMPLETE<CR><LF>". Your computer will wait for the <LF> at the end of this response before sending the next line.
  - b) If you are using ProComm, press **[Alt][S]** to open the Setup Utility.
    - i. Highlight "Protocol Options" and press **[Enter]**, the Protocol Options menu will appear.
    - ii. Highlight "ASCII Protocol Options" and press **[Enter]**, the ASCII Protocol Options menu will appear.
    - iii. Type **F** and then type **10** and press **[Enter]**.
    - iv. Press **[Esc]** twice. Select "Save Setup Options".
4. Use the Communications Program to send the file with the saved MPC-500 parameters.
  - a) Set-up the Communications Program to send an ASCII text file and enter the file name for the saved MPC-500 parameters.
  - b) If you are using ProComm, press **[Page Up]** to activate the Send Parameters mode, a dialogue box will appear. Select "A - ASCII", ProComm will prompt you to enter a filename. Type in the name of the file and press **[Enter]**.
5. As each line of the file is sent, the MPC-500 will respond with "COMPLETE".

The MPC-500 will now be configured with the saved parameters.

**Note:**

- If the file with the saved parameters is being sent to the MPC-500 via the Computer Port (from a local PC), changes will take effect immediately.
- If the saved parameter file is sent to the MPC-500 via the Modem Port (from a remote PC), Modem Port Communication Parameters will not take effect until you have exited from Command Mode. If Command ^B16 is invoked, the status screen will not show the correct status for the Modem Port until you have exited and re-entered Command Mode.
- Some parameters, such as ^B90 (Modem Port Communication Parameters) may require five to seven seconds to generate a response.

# 9. Polling Accumulated Data

---

Procedures described in this section are used to download collected data for use by your call accounting software.

## 9.1. Data Release Mode

---

Command ^B01 is used to release data to the polling device. This is referred to as "Data Release Mode".

**Caution:**

**If the Auto Delete Option (^B67,2) is selected in Binary Block Mode, data will be deleted from internal memory as soon as it has been released.**

The following commands may also be used in Data Release Mode:

- Type ^B02 [Enter] to display the next group of "N" records or blocks (when Command ^B01,N is used to release data in groups of "N" records or blocks).
- Type ^B06 [Enter] to re-send the previous group of "N" records or blocks (when Command ^B01,N is used to release data in groups of "N" records or blocks).
- Type ^B30 [Enter] to leave Data Release Mode and return to Command Mode.

**Note:**

- If Command ^B54,2 (Release Data with ^B02) is active, and Command ^B01,n is invoked to release data in groups of "n" records or blocks, a ^B02 will be required in order to release the first group.
- If Command ^B52,2 (Hold "END DATA" Message) is active, and Command ^B01,n is invoked to release data in groups of "n" records or blocks, a ^B02 will be required in order to release the "END DATA" message.

### 9.1.1. Data Release Command Options

Command ^B01 offers an assortment of options, which can be used to release specific types of data, or manage and control data release. When Command ^B01 includes options, the following format is used:

**^B01 [ , type ] [ @n ] [ , n ] [Enter]**

Where:

- , type** (Optional) Offers the following options:
  - ,A** Release Alarm Records only.
  - ,D** Release Data Records only.
  - ,clue** Release Alarm Records for **clue** only.
- @n** (Optional - Offset) Releases data starting with the "nth" record. For example, if **^B01@234** is entered, the MPC-500 will start with the 234th record.
- , n** (Optional - Count) Releases data in groups of "n". For example, if **^B01, 555** is entered, the MPC-500 will release groups of 555 records.

**Note:**

- When command options are entered, square brackets are *not* included. Square brackets are shown here to indicate an optional entry.
- Each command option is preceded by a comma, with the exception of the Offset command (**@n**). The Offset command is preceded by the "@" character. Do not enter a comma before the "@" character.
- The **,clue** option is not available in Binary Block Mode.
- When ASCII Block Mode or Binary Block Mode are selected, data will be released in blocks.
- Once all specified records or blocks are released, the MPC-500 will send the "END DATA" message.

The ^B01 Command line can also combine several options.

**Examples:**

- **^B01, clue, n** would release Alarm Records for the Alarm Clue named "**clue**" in groups of **n** records.
- **^B01, clue@n, n** would release Alarm Records for the Alarm Clue named "**clue**" starting with the **nth** record. In addition, records would be released in groups of **n**.

### 9.1.2. Other Polling Options

1. **Banner Message:** To send the Banner Message (Command ^B04), type ^B03 [Enter].
2. **I.D./Alarm Message:** To send the I.D./Alarm Message (Command ^B14), type ^B13 [Enter].
3. **Remaining Memory Space:** To send a message that lists remaining memory, type ^B21 [Enter].
4. **Set-Up Switches:** To send a message that shows the status of the Set-Up Switches, type ^B24 [Enter].
5. **Number of Stored Records:** To send a message that lists the number of records in the current memory partition, invoke Command ^B20. Command ^B20 offers the following options:
  - a) ^B20 [Enter] : Display total count of both Data *and* Alarm Records or blocks.
  - b) ^B20 ,D [Enter] : Display count for Data Records or blocks only.
  - b) ^B20 ,A [Enter] : Display count for Alarm Records or blocks only.
6. **Binary Information Block:** (Binary Block Mode only) To send a binary format information block, which lists the ID/MSG, time/date, reason for callback, blocks used and bytes free, type ^B73 [Enter].

Responses to all of the above commands (except the Binary Information Block) end with <Carriage Return>, <Line Feed>.

---

## 9.2. Polling

The three principle methods for polling are as follows:

- Polling Device Calls MPC-500 Via Modem.
- MPC-500 Calls Polling Device Via Modem.
- Polling Device Connects Directly to MPC-500 Via Computer Port.

## 9.2.1. Example 1: Polling Device Calls MPC-500

### Note:

In order for the MPC-500 to be contacted via modem, Set-Up Switch 6 must be set in the DOWN position.

1. **Enter Command Mode:** Call the MPC-500. When the "MPC-500" prompt appears, enter the password (default = SMDR). The MPC-500 will respond with "READY".
2. Use these commands to verify the unit's location or identity.
  - ^B13 Send ID/MSG
  - ^B03 Send Header Message
  - ^B73 Send Binary Information Block (Binary Block Mode Only)
3. If necessary, use the following commands to determine storage and memory conditions.
  - ^B20 Display Number of Stored Records or Blocks
  - ^B21 Display Remaining Memory Space
4. Invoke Command ^B01 to retrieve desired data. When all requested data is released, the MPC-500 will send the "END DATA" message and return to Command Mode.
5. Issue Command ^B25 to clear all records in to the memory partition. Command ^B25 offers the option to clear all records or blocks (^B25), clear Data Records / Blocks only (^B25 ,D), or clear Alarm Records / Blocks only (^B25 ,A).
  - a) If the "SURE?" prompt is disabled (^B75,1), stored data will be erased immediately.
  - b) If the "SURE?" option is enabled (^B75,2), a prompt will appear. Type **Y** [**Enter**] to erase released records, or type **N** [**Enter**] to abort.
  - c) If Binary Block output mode is active (^B62,3), and Auto Delete is enabled (^B67,2), data will be deleted as soon as it is acknowledged as received by the polling device. The "SURE?" prompt will *not* be displayed.

### Caution:

**Make certain all desired data has been retrieved before issuing Command ^B25.**

6. When finished polling the unit, type ^B09 and press [**Enter**] to exit Command Mode and discontinue modem connection.

## **9.2.2. Example 2: MPC-500 Calls Polling Device Via Modem**

This method is used when one of the automated Callback features is triggered. The MPC-500 will call the polling device when an 80% Full Callback, Scheduled Callback, or Immediate Callback is generated. The unit may also call the polling device to provide notification of a No-Data or Toll Fraud Alarm.

### **Note:**

In order for the MPC-500 to call out, Set-Up Switch 6 must be set in the DOWN position.

1. The "MPC-500" prompt will appear. Key in the password (default = SMDR) and press **[Enter]** to access Command Mode. The password must be entered in uppercase letters.
  - a) If the correct password is not entered within 10 seconds, the unit will disconnect.
  - b) If the password is not entered in 10 seconds and the Auto Execute function is configured and enabled, the Auto Execute Command String will be performed.
  - c) Call records received during the Polling process will be stored behind the memory partition.
2. Issue Command **^B18** to determine the reason for the Callback. Type **^B18 [Enter]**. Refer to Section 7.4.1 for an explanation of the response to Command **^B18**.
3. Use these commands to verify the unit's location or identity.
  - **^B13** Send ID/MSG
  - **^B03** Send Header Message
  - **^B73** Send Binary Information Block (Binary Block Mode Only)
4. If necessary, use the following commands to determine storage and memory conditions.
  - **^B20** Display Number of Stored Records or Blocks
  - **^B21** Display Remaining Memory Space
5. Invoke Command **^B01** with the appropriate data release options. When all requested data has been released, the MPC-500 will send "END DATA", exit Data Release Mode, and return to Command Mode.

6. Issue Command ^B25 to clear all records in the memory partition. Command ^B25 offers the option to clear all records or blocks (^B25), clear only Data Records or blocks (^B25 ,D), or clear only Alarm Records / blocks (^B25 ,A).
  - a) If the "SURE?" prompt is disabled (^B75,1), data will be erased immediately.
  - b) If the "SURE?" option is enabled (^B75,2), a prompt will appear. Type **Y** [Enter] to erase records, or type **N** [Enter] to abort the command.
  - c) If the Binary Block output mode is active (^B62,3), and the Auto Delete Option is enabled (^B67,2), data will be deleted as soon as it is received by the polling device. The "SURE?" prompt will *not* be displayed.

**Caution:**

**Make certain all desired data has been retrieved before issuing Command ^B25.**

7. When you have finished polling the unit, type ^B09 and press [Enter] to exit Command Mode and discontinue modem connection.

### **9.2.3. Example 3: Polling Device Connects Directly to MPC-500 via Computer Port**

**Note:**

When the MPC-500 is controlled via the Computer Port, the unit will constantly monitor the DTR line. If DTR is lost, any command in progress will be aborted, and the port will disconnect. The DTR line performs a function comparable to the Modem Port's DCD line.

1. Enter Command Mode: Type ^E [Enter]. If SetUp Switch 6 is UP (enable Direct Connect Mode), the Command Mode will always be active, and ^E is not required.
2. If necessary, use the following commands to determine storage and memory conditions.
  - ^B20 Send Number of Records/Blocks
  - ^B21 Send Remaining Memory Space
  - ^B73 Send Binary Information Block (Binary Block Mode Only)

3. Invoke Command ^B01 with the appropriate Data Release Options. When all requested data has been released, the MPC-500 will send "END DATA", exit Data Release Mode, and return to Command Mode.
4. Issue Command ^B25 to clear all records in the memory partition. Command ^B25 offers the option to clear all records or blocks (^B25), clear Data Records / blocks only (^B25 ,D), or clear Alarm Records / blocks only (^B25 ,A).
  - a) If the "SURE?" prompt is disabled (^B75,1), the MPC-500's stored data will be erased immediately.
  - b) If the "SURE?" option is enabled (^B75,2), the "SURE" prompt will appear. Type **Y** and press **[Enter]** to erase records, or type **N** **[Enter]** to abort.
  - c) If Binary Block output mode is active (^B62,3), and Auto Delete is enabled (^B67,2), data will be deleted as soon as it is acknowledged as received by the polling device. The "SURE?" prompt will *not* be displayed.

**Caution:**

**Make certain all desired data has been retrieved before issuing Command ^B25.**

5. When you have finished polling the unit, type ^B09 and press **[Enter]** to exit Command Mode and discontinue connection with the MPC-500.
  - a) If Set-Up Switch 6 is set in the UP position (enable Direct Connect), the MPC-500 will display the COMPLETE message in response to Command ^B09, but will not actually exit Command Mode.
  - b) When the MPC-500 is managed by a local PC connected to the Computer Port, and Direct Connect Mode is enabled (Sw6 = UP), Command Mode is always active.

**Note**

If Switch 7 is set in the UP position (enable Command Mode Password), the Direct Connect Mode will be overridden, and a password will be required in order to access Command Mode.

### 9.2.4. Example 4: XMODEM Polling

This example illustrates the procedure for polling the MPC-500 using ProComm Plus, version 2.01, running under MSDOS.

Although this example shows the procedure for polling the unit from a local PC, the same procedure would also be used when polling the unit from a remote PC via modem.

1. Enter the MPC-500's Command Mode.
2. Set Computer Port communications parameters to 8 bits, no parity. Type **^B91 , , N , 8 , 1 [Enter]**.
3. Verify that ProComm is configured for 8 data bits, no parity.
4. Select the MPC-500's XMODEM output mode. Type **^B62 , 4 [Enter]**. The MPC-500 is now set for XMODEM polling.
5. Enter Data Release Mode. Type **^B01 [Enter]**.
6. Set-up ProComm to receive an XMODEM file:
  - a) Select Download File; press **[PgDn]**.
  - b) Select XMODEM; type: **x**.
  - c) Type a filename and press **[Enter]**.
7. ProComm will now receive records using XMODEM - checksum transfer protocol.

# 10. Command Reference Guide

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## 10.1. Access to Command Mode

---

The Command Mode can either be accessed by a local PC connected directly to the Computer Port, or by a remote PC that communicates via modem.

1. **Remote Access:** If your polling device communicates with the MPC-500 via modem, start your communications program and dial the MPC-500. The unit will respond with the "MPC-500" prompt about 10 seconds after Carrier Detect is established. Key in the password (default = SMDR) and press **[Enter]**. The MPC-500 will respond with the READY message and the RDY indicator will light.
2. **Local Access:** If your polling device connects directly to the MPC-500 Computer Port, start your communications program.
  - a) If Set-Up Switch 6 is set in the UP position (enable Direct Connect), the Command Mode is already active.
  - b) If Set-Up Switch 6 is set in the DOWN position (disable Direct Connect), type **^E [Enter]**. The MPC-500 will respond with the READY message and the RDY indicator will light.
  - c) If Set-Up Switch 7 is UP (enable Computer Port Password), type **^E [Enter]**, the unit will respond with the "MPC-500" prompt. Key in the password (default = SMDR) and press **[Enter]**. The password is entered in all uppercase letters. The MPC-500 will respond with the READY message and the RDY indicator will light.

**Note:**

The MPC-500 will allow 10 attempts to enter the correct password. If the correct password is not entered in 10 attempts, the unit will disconnect.

## 10.2. Command Syntax

---

Most commands conform to the following conventions:

- All commands normally begin with the ASCII "Control B" character (written as **^B** throughout this manual).
- The ASCII "Control A" character (**^A**) can be used in place of the **^B** character. Commands will function the same, except the command will *not* be echoed back to the polling device, regardless of the status of Command **^B68** (Duplex Mode).
- Each command (or string of commands) is invoked by pressing the **[Enter]** key.
- A comma (,) is used to separate a command from its options or parameters (e.g. **^B01,10**).
- Multiple commands can be sent on a single line, providing each command is separated by a slash (/) (e.g. **^B00/20/01**). Note that **^B** is not repeated for each command. Command lines can be up to 256 characters long.
- When a command parameter involves a time value, hours are separated from minutes using the colon character (:).
- When parameters or options are selected using a command line, the following conventions are used. These conventions are not used when responding to prompts from menu driven commands.
  - ✓ When entering a comma (,) as part of a parameter or text string (other than the comma between the command and option), use a semicolon (;) in place of the comma.
  - ✓ When entering a date, use a backslash (\), rather than a forward slash (/), to separate the month, day and year.

## 10.3. Command Summary

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### **^B00 Move Memory Partition**

---

Each time the Command Mode is entered, the MPC-500 places a memory partition at the end of the records received up to that point. To examine or release call records received after entering Command Mode, type **^B00 [Enter]**.

## **^B01 Data Release Mode**

---

Releases Data Records and Alarm Records collected from the PBX. This command will accept a number of optional arguments as described below.

### **Note:**

- When data is released in groups of "n" records or blocks (e.g. **^B01,30**), **^B02** is issued to display the next group.
- To exit from Data Release Mode and return to Command Mode, type **^B30 [Enter]**.
- While in Data Release Mode, the MPC-500 responds to XON/XOFF (start/stop) codes for flow control.
- If Command **^B54,2** (Release Data with **^B02**) is active, and Command **^B01,n** is invoked to release data in groups of "n" records or blocks, Command **^B02** is required in order to release the first group.
- If Command **^B52,2** (Hold "END DATA" Message) is active, and Command **^B01,n** is invoked to release data in groups of "n" records or blocks, a **^B02** is required in order to release the "END DATA" message.

### **Command Options:**

When Command **^B01** is invoked with options, the following format is used:

**^B01 [ , type ] [ @n ] [ , n ] [Enter]**

Where:

- |               |   |
|---------------|---|
| <b>, type</b> | (Optional) offers the following options:<br><b>,A</b> Release Alarm Records only.<br><b>,D</b> Release Data Records only.<br><b>,clue</b> Release Alarm Records for <b>clue</b> only. |
| <b>@n</b>     | (Optional - Offset) Releases data starting with the "nth" record. For example, if <b>^B01@234</b> is entered, the MPC-500 will start with the 234th record.                           |
| <b>, n</b>    | (Optional - Count) Releases data in groups of "n". For example, if <b>^B01,555</b> is entered, the MPC-500 will release groups of 555 records.  |

## **^B01 Data Release Mode (Continued)**

### **Note:**

- When command options are entered, the square brackets are *not* included. Square brackets are shown here to indicate an optional entry.
- Each command option is preceded by a comma, with the exception of the Offset command (@n). The Offset command is preceded by the "@" character. Do not enter a comma before the "@" character.
- The ,**clue** option is not available in Binary Block Mode.
- When ASCII Block Mode or Binary Block Mode are selected, command options will release blocks.
- Once all specified records or blocks have been released, the "END DATA" message will be sent.

Options can also be combined. For example, **^B01,clue,n** will release records for the Alarm Clue "**clue**" in groups of "**n**".

## **^B02 Send Next Group of Records**

---

Command **^B02** is used in Data Release Mode to send the next group of records. When Command **^B01,n** is invoked, the MPC-500 will release a group of "**n**" records or blocks, then pause. To display the next group, type **^B02 [Enter]**. Command **^B02** is only active in Data Release Mode and cannot be used in a string.

### **Note:**

- If Command **^B54,2** (Release Data with **^B02**) is active, and Command **^B01,n** is invoked to release data in groups of "**n**" records or blocks, a **^B02** will be required in order to release the first group.
- If Command **^B52,2** (Hold "END DATA") is active, and Command **^B01,n** is invoked to release groups of "**n**" records or blocks, a **^B02** will be required in order to release the "END DATA" message.

## **^B03 Send Banner Message/Command String**

---

Displays the Banner Message, Auto Execute Command String, or Report Mode Command String that has been defined by Command **^B04**. Type **^B03 [Enter]**.

## **^B04 Define Banner Message / Command String**

---

Defines a Banner Message, Auto Execute Command String, or Report Mode Command String. Note that Command ^B04 *cannot* be used to simultaneously define all three items.

**Banner Message:** Often used to list the company name and site location. The following format is used:

```
^B04 ,message [Enter]
```

Where **message** is the Banner Message text (up to 64 characters).

**Auto Execute Command String:** Invoked when the MPC-500 calls the polling device, and the correct password is not entered within 10 seconds. The command string will not be executed when the polling device calls the MPC-500. In order to function, Auto Execute (^B69,2) must be enabled. The following format is used:

```
^B04 ,*command_string [Enter]
```

An asterisk (\*), rather than the ^B character, is used to indicate an Auto Execute Command String. Each command in the string is separated by a backslash as shown below:

```
^B04 ,*00\20\09 [Enter]
```

The Auto Execute Command string should always end with Command ^B09 (Disconnect). This will prevent the MPC-500 from being left in Command Mode.

**Report Mode Command String:** This string will be executed when Report Mode is active (^B87,4), and a Toll Fraud Alarm is generated. The following format is used:

```
^B04 ,!command_string [Enter]
```

An exclamation point (rather than an asterisk or ^B) is used to denote a Report Mode Command String. Each command is separated by a backslash as shown in the example below.

```
^B04 ,!13\20 ,A\84\09 [Enter]
```

This Report Mode Command String would send the Alarm Message with clue name and count (^B13), send the number of stored Alarm Records (^B20,A), clear the alarm condition (^B84), and then disconnect (^B09).

The Report Mode Command string should always end with Command ^B09 (Disconnect). This prevents the MPC-500 from being left in Command Mode.

## **^B05 Define End-of-Record Character**

---

Redefines the End-of-Record (EOR) character that the MPC-500 expects to see at the end of each call record. The default EOR character is ^J (Line Feed). The command format of is as follows.

**^B05,character [Enter]**

### **Note:**

- The End-of-Record character must be entered as an uppercase letter (e.g. **^M** instead of **^m**).
- The "^" symbol in the EOR character definition is created by pressing **[Shift][6]**. For example, the "**^M**" character is created by pressing **[Shift][6]** and then typing an uppercase M. Do not press **[Ctrl]** to create this symbol in the character definition.

## **^B06 Re-send Last Group of Records**

---

This command is often useful in the event of a transmission error due to line noise during the previous read. Command ^B06 will only function when ^B01,n is invoked. To re-send a record or block, type **^B06 [Enter]**.

## **^B09 Exit Command Mode (Disconnect/HangUp)**

---

Exits Command Mode, discontinues connection, and resets the internal modem. To exit Command Mode and disconnect, type **^B09 [Enter]**.

### **Note**

- Always exit Command Mode after polling or management tasks are complete. While Command Mode is active, the MPC-500 is not able to perform tasks such as dialing a modem or pager.
- If Set-Up Switch 6 is UP (Enable Direct Connect mode), The MPC-500 will return the COMPLETE message, but will not actually exit Command Mode.
- If Set-Up Switch 7 is UP (enable Computer Port Password), the Direct Connect Mode will be overridden. When the Computer Port Password is enabled, ^B09 will cause the unit to disconnect and the password will still be required, regardless of the position of Switch 6.

## **^B11 Set Real Time Clock / Calendar**

Sets the MPC-500's Real Time clock and calendar. Command ^B11 uses the following format.

**^B11 , hh : mm , d , MM\DD\YY [Enter]**

Where:

- hh:mm** is the hour (00 - 23) and minute (00 - 59)
- d** Day of the week (1 = Sun., 2 = Mon., 3 = Tue., 4 = Wed., 5 = Thur., 6 = Fri., 7 = Sat.)
- MM\DD\YY** Month (01 - 12), Date (01 - 31), and Year (00 - 99)

## **^B12 Define Callback Schedule**

Instructs the MPC-500 to contact the polling device at a specific time in order to release accumulated data.

### **Note**

- You may schedule up to seven callbacks per week, one for each day of the week.
- Daily callbacks specified by Command ^B12 will be performed in addition to any Immediate Callbacks or 80% Full Callbacks required.
- The MPC-500 must have data stored in memory in order for a scheduled callback to occur.
- To completely clear the schedule, type **^B12 , \* [Enter]**.
- To clear the schedule for a given day, type **^B12 , d [Enter]**. Where "d" indicates the desired day.

Command ^B12 uses the format described below.

**^B12 , d , HH:MM [Enter]**

Where:

- d** is the Day of the week (1 = Sun., 2 = Mon., 3 = Tue., 4 = Wed., 5 = Thur., 6 = Fri., 7 = Sat.)
- HH:MM** is the Hour (00 - 23) and Minute (00 - 59)

## **^B13 Send ID / Alarm Message**

Sends the Identification Message or Alarm Message defined at Command ^B14's "MSG?" prompt, along with the name of any clue in the alarm state, and the status of the counter for that clue. To send the ID or Alarm Message, type **^B13 [Enter]**.

## **^B14 Define Callback Parameters**

---

Defines the parameters that are used when a callback is initiated. These parameters include the Callback Number, Alarm Number, and other options. Callback Parameters can either be defined by a menu driven routine, or entered in a single ^B14 command line.

### **^B14 Menu Driven Parameter Entry:**

Type **^B14 [Enter]**, the following prompts will be displayed:

**CALLBACK#?** (Up to 64 characters) The number dialed for an 80% Full Callback, Scheduled Callback, or Immediate Callback.

**ALARM#?** (Up to 64 characters) The number dialed for a No-Data Alarm, Toll Fraud Alarm, or Pager Test.

**PAGER ID#1?** (Up to 15 characters) The first Pager I.D. number used when a Toll Fraud Alarm or No-Data Alarm is generated and Pager Notification is enabled. In order to use either pager notification mode, PAGER ID#1 must be defined.

**PAGER ID#2?** (Up to 15 characters) The second (optional) Pager I.D. number used when a Toll Fraud Alarm or No-Data Alarm is generated and Pager Notification is enabled. If alarm messages will only be sent to one pager (PAGER ID#1), this item does not need to be defined.

**PAGER ID#3?** (Up to 15 characters) The third (optional) Pager I.D. number used when a Toll Fraud Alarm or No-Data Alarm is generated and Pager Notification is enabled. If alarm messages will only be sent to one pager (PAGER ID#1), this item does not need to be defined.

**MSG?** (Up to 64 characters) The identification or alarm message sent when a Callback is initiated.

**REDIALS?** (Zero to 255, default = 4) The number of times the unit will redial the Callback or Alarm Number when there is no answer, or the line is busy. Approximately 10 seconds will elapse between redials.

**RESTARTS?** (Zero to 255, default = 3) (Binary Block Mode and Pager Alarm Only) The number of times the unit will re-start the Callback routine if the defined number of Redials is performed and there is no answer, or if Data Release Mode is interrupted by loss of carrier.

**REXMITS?** (Zero to 255, Default = 5) (Binary Block Mode only) The number of times the MPC-500 will attempt to re-send a data block if there is a transmission error.

**TIMEOUT?** (One to 255 seconds, Default = 3 seconds) (Binary Block Mode only) The maximum length of time the MPC-500 will wait if no response to a binary block is received before a REXMIT.

**^B14 Menu Driven Parameter Entry (Continued)****Note**

- To skip a prompt without changing its definition, press **[Enter]** without entering new parameters.
- To clear a parameter and return to the default setting, press **[Space]** and then **[Enter]**.
- To exit the ^B14 prompt routine, press **[Esc]**.

**^B14 Single Line Parameter Entry:**

To define all Callback Parameters with a single ^B14 command line, use the following format.

```
^B14 , CALLBACK# , ALARM# , PAGER_ID#1 ,  
PAGER_ID#2 , PAGER_ID#3 , MSG , REDIALS ,  
RESTARTS , REXMITS , TIMEOUT [Enter]
```

**Example:**

To define the following Callback Parameters:

```
CALLBACK# = 555-1111  
ALARM# = 555-2222  
PAGER_ID#1 = 5553333  
PAGER_ID#2 = 5554444  
MSG = Test  
RESTARTS = 10
```

The ^B14 Command would be invoked as follows:

```
^B14 , 5551111 , 5552222 , 5553333 , 5554444 , , Test , , 10 [Enter]
```

**Note:**

- To skip a parameter, enter a comma without data as shown in the example above.
- To clear a parameter and return to the default setting, enter a comma followed by a single space.
- When entering Pager I.D. Numbers, punctuation characters such as dashes and parentheses are *not* included.
- When entering the Callback and Alarm Numbers, punctuation characters such as dashes and parentheses may be included.

## **^B15 Define No-Data Alarm Parameters**

---

Enables and configures the No-Data Alarm. When enabled, the MPC-500 will generate an alarm if no data is received for a user defined period of time. In the default state, the No-Data Alarm is disabled. No-Data Alarm Parameters can either be defined by a menu driven routine, or entered in a single ^B15 command line.

### **^B15 Menu Driven Parameter Entry:**

Type **^B15 [Enter]**. The system will display a series of prompts:

**ALARM:** Type **Y [Enter]** to enable and configure, or **N [Esc]** to disable.

**TIMER 1:** Amount of time required to generate a No-Data Alarm while Timer One is active (01 to 99 minutes).

**TIMER 2:** Amount of time required to generate a No-Data Alarm while Timer Two is active (01 to 99 minutes).

**WEEKDAY 1:** Timer 1 Weekday Schedule (HH:MM - HH:MM).

**WEEKDAY 2:** Timer 2 Weekday Schedule (HH:MM - HH:MM).

**WEEKEND 1:** Timer 1 Weekend Schedule (HH:MM - HH:MM).

**WEEKEND 2:** Timer 2 Weekend Schedule (HH:MM - HH:MM).

**?:** Enter user defined holiday. Will accept up to 20 holidays (mm/dd).

Where:

HH Represents Hours (00 through 23)

MM Represents Minutes (00 through 59)

mm Represents Month (01 through 12)

dd Represents Date (01 through 31)

### **Note:**

- To skip a prompt without changing its definition, press **[Enter]** without entering a new parameter.
- To clear a parameter press **[Space]** and then **[Enter]**.
- To exit the ^B15 prompt routine and save current settings, press **[Esc]**.

**^B15 Single Line Parameter Entry**

To define all No-Data Alarm Parameters with a single command line, use the following format.

```
^B15,ENABLE,TMR1,TMR2,WKDAY1,WKDAY2,
WKEND1,WKEND2,HDAY1,...,HDAY20 [Enter]
```

**Example:** To define the following No-Data Alarm Parameters, without changing other previously defined parameters:

```
ENABLE = Y (Yes)
TMR1 = 15
WKDAY1 = 09:00-17:00
HDAY1 = 12/25
```

The ^B15 Command would be invoked as follows:

```
^B15,Y,15,,09:00-17:00,,,,,12/25 [Enter]
```

**Note:**

To skip a parameter that does not need to be changed, enter a comma without data.

**^B16 Display System Status Screen**

Displays a screen which lists the status of most MPC-500 options and parameters. Type **^B16 [Enter]**.

MPC-500	VERSION 1.0	1:10 3 06/21/98	
#05 END CHAR:	^J	#65 FRAUD ALARM:	OFF
#14 CALLBACK #:	555-9999		
#14 ALARM #:	555-8888		
#14 PAGER ID #S:	#1-5551111 #2-5552222 #3-5553333		
#14 MESSAGE:	ACME Inc., Irvine, CA		
#14 REDIALS:	004	#66 TIME STAMP:	OFF
#14 RESTARTS:	003	#67 Auto DELETE:	OFF
#14 REXMITS:	005	#68 DUPLEX:	HALF
#14 TIMEOUT:	003	#69 Auto EXECUTE:	OFF
#15 NO PBX CLBK:	OFF	#70 80% CLBK:	OFF
#52 HOLD END DATA:	OFF	#70 IMM CLBK:	OFF
#53 COMPRESSION:	OFF	#70 SCHDL CLBK:	OFF
#54 DATA ON #01:	ON	#71 DLE STUFFING:	OFF
#55 STRIP NULLS:	ON	#75 "SURE" OPTION:	OFF
#56 DATA FILTER:	OFF	#80 BLOCK SIZE:	0512
#57 PBX XON/XOFF:	OFF	#85 RESET TIME:	OFF
#58 RESPONSE MSG:	VERBOSE	#87 ALARM ACTION:	NONE
#59 LINE ID TAG:	OFF	#90 MODEM PORT:	57600,N,8,1
#62 OUTPUT MODE:	RECORD	#91 COMPUTER PORT:	9600,N,8,1
#63 TRANSMIT CRC:	OFF	#92 PBX PORT:	9600,E,7,1
#64 WRAP AROUND:	OFF		

Figure 10.1: System Status Screen

## **^B17 Display No-Data Alarm Parameters**

---

Displays the No-Data Alarm Parameters defined by Command ^B15. Type **^B17 [Enter]**.

## **^B18 Display Reason For Callback**

---

After the MPC-500 has called your modem or pager, Command ^B18 can be used to determine the reason for the call. Type **^B18 [Enter]**, the system will display one of the reasons listed below.

<b>Verbose Response</b>	<b>Terse Response</b>
IMMEDIATE	0
80% FULL	1
SCHEDULED	2
ALARM RECORD RECEIVED	3
NO PBX DATA	4

## **^B19 Display Callback Schedule**

---

Displays the Callback Schedule (defined by command ^B12). Type **^B19 [Enter]**.

## **^B20 Display Number of Stored Data Records or Blocks**

---

Displays the number of records (ASCII Record Mode) or blocks (Binary Block Mode) stored in the current memory partition.

### **Command Options:**

- ^B20** Display the total count of both Data and Alarm Records or blocks in the current memory partition.
- ^B20, D** Display the count of Data Records or blocks in the current memory partition.
- ^B20, A** Display the count of Alarm Records or blocks in the current memory partition.

## **^B21 Display Remaining Memory Space**

---

Lists the amount of available memory space in characters/bytes. Type **^B21 [Enter]**.

---

## **^B22 Display Memory Size / PBX Port Baud Rate**

---

Lists total memory capacity and PBX Port baud rate settings.  
Type **^B22 [Enter]**.

## **^B23 Display Battery Status**

---

Shows the status of MPC-500's internal lithium battery as listed in the response table below. Type **^B23 [Enter]**.

<b>Verbose Response</b>	<b>Terse Response</b>
BATTERY GOOD	ACK
BATTERY LOW	NAK

## **^B24 Display Set-Up Switch Status**

---

Displays the status of the Set-Up Switches. Type **^B24 [Enter]**.

## **^B25 Clear Memory to Partition**

---

Clears all records in the current memory partition. Records received while Command ^B25 is in progress are stored on the other side of the partition, and will not be effected.

**Caution:**

**Command ^B25 will erase all records in the current memory partition, regardless of whether the records have been read. Make certain you have retrieved all desired data before issuing this command.**

If the ^B25 command is invoked, and the "SURE? (Y,N)" option is enabled (^B75,2), a prompt will be displayed. Type **Y [Enter]** to erase data, or type **N [Enter]** to abort.

### **Command Options:**

- ^B25** Clear both Data and Alarm Records or blocks in the current memory partition.
- ^B25 ,D** Clear Data Records or blocks only (Does not release memory space).
- ^B25 ,A** Clear Alarm Records or blocks only (Does not release memory space).

## **^B27 Send Continuous Test Message**

---

Tests the modem transmitter. When Command ^B27 is invoked, the unit will send a continuous test message, which reads "This is a test of the MPC-500 1234567890". To initiate the test, type ^B27 [Enter]. To terminate, type ^B30 [Enter].

## **^B28 Enter Echo Test Mode**

---

Tests the modem receiver. When Command ^B28 is invoked, the MPC-500 will echo back a test character. If characters are not echoed back, this can indicate that the modem is not receiving properly. To initiate the test, type ^B28 [Enter]. To terminate, type ^B30 [Enter].

## **^B29 Enter Pass-Through Mode**

---

Allows direct communication with the PBX. In Pass-Through Mode, data can be received directly from the PBX in order to check for correct reception. Commands can also be sent directly to the PBX. While Pass-Through Mode is active, additional records will *not* be stored in internal memory.

The Pass-Through Mode features 4 Kbyte buffering in both directions to prevent overflow problems. To access Pass-Through Mode, type ^B29 [Enter]. To exit, type ^B30 [Enter].

### **Caution:**

**Please refer to the PBX User's Manual for further instructions. Do not attempt to alter PBX configuration or access codes unless you are authorized to do so.**

## **^B30 Exit to Command Mode**

---

Exits from Data Release Mode, Send Continuous Test Message Mode, Echo Test Mode, Pass-Through Mode, or Monitor Mode and returns to Command Mode. Type ^B30 [Enter].

## **^B37 Load and Test Memory**

---

Tests internal memory. When Command ^B37 is invoked, the MPC-500 will clear all internal RAM memory, and load a test pattern, which is used to verify memory condition.

### **Caution:**

**When Command ^B37 is invoked, all data stored in the MPC-500's internal memory will be lost.**

The test will require seven seconds for every 256K of memory. If no problems are detected, the "COMPLETE" message will be sent. If a memory error is detected, the MPC-500 will send a message similar to the example below:

```
ERROR: --> SOCKET: 1MB, CHIP: M1
```

If the test indicates a memory error, please contact WTI Customer Service as shown in Appendix F. To begin the memory test, type ^B37 [Enter].

## **^B38 Re-Read Memory Test Pattern**

---

Re-reads the test pattern that was loaded and read with command ^B37. While the test pattern is being read, additional data will *not* be stored. Note that Command ^B37 must be invoked to load the test pattern *before* Command ^B38 can be used to re-read the test pattern. Type ^B38 [Enter].

### **Note:**

Although Command ^B37 will both write and test memory, Command ^B38 can be used to read a previously loaded memory pattern without writing to memory first. This is useful for testing long term memory retention or testing battery backed memory after an interruption in power.

## **^B39 Clear All Records / Blocks**

---

Erases all stored data, including any records stored behind the memory partition. Command ^B39 includes an option that allows the user to clear all data *and* reset all Alarm Clue Counters to zero.

**Caution:**  
**Erased records cannot be restored.**

If XON/XOFF (^B57,1) is enabled, an XOFF will be sent out the PBX Port at the start of the process and an XON will be sent at the end. Any data generated during this time will not be stored.

If the "SURE?" option is enabled (^B75,2), a prompt will appear. Type **Y** to proceed, or **N** to abort, and then press **[Enter]**.

### **Command Options:**

- ^B39** Clear all records, leave Alarm Clue Counters intact.
- ^B39,2** Clear all records *and* reset clue counters to zero.

## **^B40 Define Data Filter Format**

---

This command is used to define the Data Filter Format as described in Section 6.

**Caution:**  
**When the ^B40 command is invoked, any previously defined Data Filter Format will be erased.**

## **^B41 Display Data Filter Format**

---

Displays the currently defined Data Filter Format, with dashes replacing spaces for clarity. Type **^B41 [Enter]**.

## **^B42 Define Data Filter Parameters**

---

This command is used to define the Data Filter Parameters as described in Section 6.

### **Note:**

- If Data Filter Parameters have already been defined, additional applications of Command ^B42 may change the existing definition.
- If Command ^B42 is invoked without specifying parameters (e.g. **^B42 [Enter]**), previously defined parameters will be erased.

## **^B43 Display Data Filter Parameters**

Displays the Data Filter Parameters. Type **^B43 [Enter]**.

## **^B44 Define Alarm Filter Format**

Defines the Alarm Filter Format as described in Section 7.

**Caution:**

**When Command ^B44 is invoked, the previously defined Alarm Filter Format will be erased.**

## **^B45 Display Alarm Filter Format**

Displays the Alarm Filter Format, with dashes replacing spaces for clarity. Type **^B45 [Enter]**.

## **^B50 Reset Options to Default Settings**

Resets options and parameters to default settings. When this command is invoked, the PBX Port is reset to the baud rate specified by the Set-Up Switches, and the modem is reset to the highest available baud rate, 8 bits, no parity, one stop bit.

**Caution:**

**Options, parameters, and filters that have been erased cannot be restored and must be manually re-defined (unless the configuration has been saved as described in Section 8).**

If the "SURE?" option is enabled (^B75,2), a prompt will appear. Type **Y** to proceed, or **N** to abort, and press **[Enter]**.

**Command Options:**

- ^B50**      Reset options and parameters to default state.
- ^B50 , 2**    Reset options and parameters to default state.  
Erase Data Filter Format (^B40), Data Filter Parameters (^B42), Alarm Filter Format (^B44), Alarm Clues (^B81), and reset Alarm Clue Counters to zero.

## **^B52 Hold "End Data" Message**

---

Instructs the MPC-500 to hold the "END DATA" message normally sent at the end of Data Release Mode. When this option is enabled, and Command ^B01,n is invoked (release data in groups of "n"), the "END DATA" message will be held until a ^B02 command is received from the polling device.

### **Command Options:**

- ^B52,1** Release END DATA Message (**Default**)
- ^B52,2** Hold END DATA Message until command ^B02 is received.

## **^B53 Select Compression Mode**

---

This command determines whether data will be released in space compressed format, or decompressed (normal) format.

The data compression feature cuts the size of records or blocks by replacing blank spaces with lower case letters which represent the number of spaces that will occur when text is decompressed. In other words, a lower case "a" would represent one blank space, a lower case "b" would represent two spaces, lower case "c" would represent three spaces, and so forth.

### **Example:**

Assume the "█" character represents one blank space. A call record that consists of the text:

"123 █ █ █ ABC █ █ █ █ █ 2002 █ █ XYZ █ 7"

would be compressed to read:

"123cABCe2002bXYZa7"

Later, when text is decompressed, each lower case letter would be replaced with the appropriate number of blank spaces.

### **Command Options:**

- ^B53,1** Release Data in Compressed Format
- ^B53,2** Release Data in Decompressed Format (**Default**)

## **^B54 Release Data With ^B02 Command**

---

Determines how the MPC-500 will react when Command ^B01,n is invoked to release data in groups of "N" records or blocks.

When Command ^B01,n is invoked in the default state (^B54,1), the first group of records or blocks will be released *without* the need to issue a ^B02 command. After the first group is released, the MPC-500 will require a ^B02 command to release any subsequent groups.

If Command ^B54,2 (Wait for ^B02) is active, and Command ^B01,n is invoked to release data in groups of "n" records or blocks, a ^B02 command will be required in order to release the first group. In addition, a ^B02 command will also be required to release any subsequent groups.

### **Command Options:**

- ^B54,1** Release First Group without ^B02 (**Default**)
- ^B54,2** Wait for ^B02 Command

## **^B55 Strip Non-Printable Codes**

---

Allows the user to conserve memory and cut polling time by removing non-printable characters such as NULLS, DELS, and etc.. When the ^B55,2 option is selected, the MPC-500 will remove most non-printable characters except <Carriage Return>, <Line Feed>, and the selected End-of-Record character.

### **Command Options:**

- ^B55,1** Store Non-Printable Characters
- ^B55,2** Strip Non-Printable Characters (**Default**)

## **^B56 Enable / Disable Data Filter**

---

The Data Filter allows the user to conserve memory and cut polling time by selecting certain types of records that will *not* be stored. For more information, please refer to Section 6.

### **Command Options:**

- ^B56,1** Disable Data Filter (**Default**)
- ^B56,2** Enable Data Filter

## **^B57 Enable / Disable XON/XOFF Function**

For PBX switches that require data flow control, the MPC-500 can send an XOFF when memory is 98% full and an XON when more data can be accepted.

### **Caution:**

**Some PBX switches may lock up when XON/XOFF is used. Other types of PBX switches will not respond to XON/XOFF commands. Consult the PBX User's Guide before attempting to employ this feature.**

### **Command Options:**

- ^B57,1** Enable XON/XOFF
- ^B57,2** Disable XON/XOFF (Default)

## **^B58 Select Response Message Type**

Selects either verbose or terse response messages. Both verbose and terse messages end with <Carriage Return> <Line Feed>.

### **Command Options:**

- ^B58,1** Verbose Mode (English Text) (Default)
- ^B58,2** Terse Mode (Abbreviation)

## **^B59 Enable / Disable Line I.D. Option**

Instructs the MPC-500 to insert a six digit Line I.D. number at the beginning of each record. Line I.D. numbers are not stored in the MPC-500's memory, but are added to each record when data is released. Therefore, each time data is polled, the first line number will always be 000001.

### **Command Options:**

- ^B59,1** Disable Line I.D. Number (Default)
- ^B59,2** Enable Line I.D. Number

---

## **^B60 Define Computer Port and Modem Port Parity and Data Bits**

---

### **Note:**

- This command is included to maintain compatibility with PollCat II. If PollCat II compatibility is not an issue, use ^B90 to set Modem Port Parameters, and ^B91 to set Computer Port Parameters.
- ^B60 can set parity and data bits for the Computer Port and Modem Port. ^B90 and ^B91 set baud rate, parity, data bits, and stop bits. SetUp Switches 1 through 3 can also set the Computer Port baud rate.

**SetUp Switch 8 (Power Up Default):** If SetUp Switch 8 is UP, and power is lost, the Computer Port and Modem Port will be set at 8 bits, no parity, one stop bit after power is restored. The Computer Port will be set at the baud rate selected by Switches 1 through 3, and the Modem Port will be set at the highest rate supported.

### **Command Options:**

- ^B60,1** 7 bits, even
- ^B60,2** 7 bits, odd
- ^B60,3** 8 bits, none

---

## **^B61 Define PBX Port Parity and Data Bits**

---

### **Note:**

- This command is included to maintain compatibility with PollCat II. If PollCat II compatibility is not an issue, use ^B92 to set PBX Port parameters.
- Command ^B61 can only set parity and data bits for the PBX Port. ^B92 is used to set baud rate, parity, data bits, and stop bits. Set-Up Switches 4 and 5 are also used to set the PBX Port baud rate.

**SetUp Switch 8 (Power Up Default):** If SetUp Switch 8 is UP, and power is lost, the PBX Port will be set at 7 bits, even parity, one stop bit after power is restored. The PBX Port will be set to the baud rate selected by Set-Up Switches 4 and 5, rather than command selected parameters.

### **Command Options:**

- ^B61,1** 7 bits, even
- ^B61,2** 7 bits, odd
- ^B61,3** 8 bits, none

## **^B62 Select Output Format**

---

Selects one of the four output formats described below.

### **ASCII Record Mode (^B62,1)**

The MPC-500 will release one record, all records or a user specified number of records, depending upon Command ^B01. Each record consists of a line of ASCII text, terminated by the End-of-Record character. Records can include a Line I.D. Number (^B59), and can be sent compressed or decompressed (^B53). Records can also include CRC characters (^B63).

### **ASCII Block Mode (^B62,2)**

Data is released in ASCII blocks. The size of each block is determined by Command ^B80 (default = 512 bytes). Each block can include a Line I.D. Number (^B59), and can be sent compressed or decompressed (^B53). Data blocks can also include CRC characters (^B63).

### **Binary Block Mode (^B62,3)**

Data is released in compressed binary blocks. Each 512 byte block contains a character count, a block header, and data followed by a two byte CRC check sum. Please refer to the PollCat Advanced Programming Supplement (WTI Part No. 11998) for further information.

### **XMODEM Mode (^B62,4)**

Allows data to be sent using XMODEM protocol. The Modem Port must be set to 8 bits, no parity. For more information on XMODEM mode, please refer to the example in Section 9.2.4.

### **Command Options:**

- ^B62,1** ASCII Record Mode (**Default**)
- ^B62,2** ASCII Block Mode
- ^B62,3** Binary Block Mode
- ^B62,4** XMODEM Mode

## **^B63 Enable / Disable CRC Option**

---

Appends a two-byte CRC (Cyclic Redundancy Check) to the end of each data transfer. The CRC is used to make certain data has been correctly transmitted and received. This function is optional in either of the ASCII output formats, but is always enabled in Binary Block Format. The CRC code will be appended to record transmissions only. Responses to commands will not be followed by CRC codes.

### **Note:**

When CRC checking is used in either of the ASCII output formats, the modem port must be set to eight bits, no parity in order to receive all bits of the CRC.

### **Command Options:**

- ^B63,1** Disable CRC Option (**Default**)
- ^B63,2** Enable CRC Option

## **^B64 Enable/Disable Wrap Around Mode**

---

When internal memory is full, the wrap around mode allows new data to be written over older data. This provides the MPC-500 with the ability to continually recycle its memory.

While Command Mode is active, new data will not overwrite older data in the current memory partition. Any new data will be stored on the other side of the partition. If memory is full, no additional data will be stored while Command Mode is active.

If the XON/XOFF option is enabled (^B57,2), an XOFF will be sent to halt the flow of data when memory is completely full and Command Mode is active. When you exit Command Mode, an XON will be sent, the data flow will resume, and if necessary, new data will continue to overwrite older data.

### **Command Options:**

- ^B64,1** Disable Wrap Around Mode (**Default**)
- ^B64,2** Enable Wrap Around Mode

## **^B65 Enable/Disable Alarm Filter**

---

The Alarm Filter provides notification when certain types of records are received, and can also sort out specific types of call records for separate storage and retrieval. For more information, please refer to Section 7.

### **Command Options:**

- ^B65,1**    Disable Alarm Filter (**Default**)
- ^B65,2**    Enable Alarm Filter

## **^B66 Enable/Disable Time/Date Stamp**

---

Inserts a time/date stamp at the beginning of each record prior to storing the record. Records received and stored prior to enabling this option will not include the Time/Date stamp. Time and date will be listed as follows:

**MM/DD hh:mm    ... Call Record ...**

Where: MM = Month, DD = Date, hh = Hour, mm = Minute

### **Command Options:**

- ^B66,1**    Disable Time/Date Stamp (**Default**)
- ^B66,2**    Enable Time/Date Stamp

## **^B67 Enable/Disable Auto Delete Option**

---

(Binary Block Mode Only) When data is released to the polling device, the Auto Delete option will automatically delete each block after it has been acknowledged as received.

### **Command Options:**

- ^B67,1**    Disable Auto Delete Option (**Default**)
- ^B67,2**    Enable Auto Delete Option

## **^B68 Select Duplex Mode (Command Echo)**

Selects either Half Duplex (no echo) or Full Duplex (echo). Full Duplex will echo each command to your display monitor. A half duplex (no echo) situation can also be created by invoking any command with the "^A" character substituted for the "^B" character. When "^A" is used, the MPC-500 will *not* echo back to the polling device, regardless of the status of Command ^B68.

### **Command Options:**

- ^B68,1** Half Duplex, no echo (**Default**)
- ^B68,2** Full Duplex, echo

## **^B69 Enable/Disable Auto Execute Option**

The Auto Execute command string will be invoked when the MPC-500 calls the polling device, and the correct password is not entered within 10 seconds. If this feature is enabled, and the Auto Execute command string has *not* been defined, the MPC-500 will execute the default command string (^B01/09). This will cause the unit to send all records stored in the current memory partition, and then disconnect.

In order for this feature to function, Auto Execute must be enabled (^B69,2), Direct Connect must be disabled (Select Switch 6 = DOWN), and an Auto Execute command string must be defined using command ^B04.

### **Note:**

The Auto Execute command string will *not* be executed when the polling device calls the MPC-500. The Auto Execute command will only be performed when the MPC-500 calls the polling device and the correct password is not entered within 10 seconds.

### **Command Options:**

- ^B69,1** Disable Auto Execute Option (**Default**)
- ^B69,2** Enable Auto Execute Option

## **^B70 Select Callback Options**

---

Selects one of three available Callback options discussed below. To clear any Callback option, type **^B70 [Enter]**.

### **Immediate Callback (^B70,I)**

The unit will dial the Callback Number (defined at the ^B14 "CALLBACK#?" prompt), approximately five seconds after a disconnect or loss of carrier. If the number cannot be reached, the MPC-500 will perform the specified Redials and Restarts, defined by Command ^B14. After the unit has successfully contacted the Callback Number, the Immediate Callback will be cleared.

### **Scheduled Callback (^B70,S)**

The unit will dial the Callback Number (defined at the ^B14 "CALLBACK#?" prompt) according to a Callback Schedule specified by Command ^B12. If the number cannot be reached within the defined number of redials and restarts, the command will be aborted. If no records are stored, the Scheduled Callback will not be performed.

### **80% Full Callback (^B70,%)**

The MPC-500 will dial the Callback number (defined at the ^B14 "CALLBACK#?" prompt) when memory is 80% full. If the Callback number cannot be reached, the unit will re-dial the number every five minutes until it is reached. After the unit has contacted the Callback number, the 80% Full Callback parameter will *not* be cleared.

### **Command Options:**

- ^B70 , I** Immediate Callback
- ^B70 , S** Scheduled Callback
- ^B70 , %** 80% Full Callback
- ^B70** Clear All Callback Options (**Default**)

## **^B71 Enable/Disable DLE Stuffing Option**

---

(Binary Block Mode only) DLE stuffing allows literal 8 bit characters to be inserted into a string of binary data. After data is released to the polling device, the 8 bit characters can be retrieved and read.

### **Command Options:**

- ^B71 , 1** Disable DLE Stuffing (**Default**)
- ^B71 , 2** Enable DLE Stuffing

## **^B72 Display Clock / Calendar Settings**

Displays clock and calendar settings (defined by Command ^B11).  
Type **^B72 [Enter]**.

## **^B73 Send Binary Information Block**

(Binary Block Mode Only) Sends a binary format information block to a polling device configured to receive Binary Block data. The information block will contain the following:

- ID/MSG
- Time/Date
- Reason for Callback
- Blocks Used
- Bytes Free

## **^B75 Enable/Disable "SURE? (Y,N)" Prompt**

The "SURE?" prompt will be displayed when certain commands are invoked, allowing the user to verify that the command should be executed. When enabled, the prompt will be displayed for Commands ^B25 (Clear Memory to Partition), ^B39 (Clear All Records / Blocks), and ^B50 (Reset Options to Default Settings).

### **Command Options:**

- ^B75,1** Disable "SURE?" Prompt (Default)
- ^B75,2** Enable "SURE?" Prompt

## **^B77 Define Modem Reset Message**

The Modem Reset Message (AT Command String) is sent to the modem after each disconnect, and once every five minutes when the MPC-500 is not online. This message can be re-defined in order to adapt to various types of modems. Command ^B77 uses the following format:

**^B77,reset\_message [Enter]**

Where **reset\_message** is the desired modem reset message (e.g. **ATSO=1**). Default message is "ATE0M0Q1&C1&D2S0=1".

## **^B78 Display Modem Reset Message**

---

Displays the Modem Reset Message. Type **^B78 [Enter]**.

## **^B79 Define/Display Command Mode Password**

---

Defines and/or displays the Command Mode password. The default password is "SMDR". To re-define the password, use the following format:

**^B79,password [Enter]**

Where **password** is the desired password (up to 12 characters). The password feature is case-sensitive. To display the Command Mode password, type **^B79 [Enter]**.

### **Caution**

**Remember your password. Make certain to write the password down, and keep it secure.**

### **Set-Up Switch 8 (Power Up Default):**

Set-Up Switch 8 determines how the MPC-500 will react when recovering from an interruption in power. If Switch 8 is UP, and power is lost, the password will be set to the default "SMDR".

### **Command Options:**

<b>^B79,password</b>	Defines <b>password</b> as the Command Mode password.
<b>^B79</b>	Displays the currently defined Command Mode password.

## **^B80 Define Block Size**

---

(ASCII Block Mode Only) Determines the size of the ASCII block. Can range from 1 to 9999 characters (default = 512 characters). The format of is shown below.

**^B80,block\_size [Enter]**

Where **block\_size** is a number from 1 to 9999.

### **Note:**

- If the last block transmitted contains less than the set amount of characters, nulls will fill the remainder of the block.
- If the CRC Option (**^B63,2**) is enabled, two extra bytes will be added to the block.

---

## ^B81 Define Alarm Clue

---

Defines Alarm Clues that are used to detect Toll Fraud. Refer to Section 7 for more information. Command ^B81 uses the following format:

**^B81, clue[specifier]\count\parameters [Enter]**

Where:

- clue** is the Alarm Clue Name (up to 8 characters).
- [specifier]** (Optional) selects the Pager I.D. number(s) used for this clue when Pager (Alpha) (^B87,3) is selected. Can be [1], [2], [3], or any combination (e.g. [123]). The specifier is always enclosed in square brackets.
- count** is the number of times this type of call must occur in order to generate an Alarm (1 to 9999).
- parameters** is a description of call characteristics. Will always include at least one variable, at least one operator, and alphanumeric text that defines call characteristics.

**Note:**

The clue definition can be up to 232 characters long

---

## ^B82 Delete Alarm Clue(s)

---

Allows the user to delete Alarm Clues. Command ^B82 uses the following format:

**^B82, clue [Enter]**

Where **clue** is the name of clue you wish to delete.

To delete all Alarm Clues, type **^B82, \* [Enter]**.

**Caution:**

**When Command ^B82 is invoked, the unit will delete the specified Alarm Clue(s) without asking for verification. Deleted clues cannot be restored electronically, unless parameters have been saved using Command ^B99.**

### Command Options:

- ^B82, clue** Delete **clue**
- ^B82, \*** Delete all defined Alarm Clues

## **^B83 Display Alarm Clue Summary**

---

Displays a table which shows parameter definition, maximum counter value, and current counter value for each Alarm Clue. An asterisk (\*) will appear beside any clue whose counter has exceeded the defined maximum. Type **^B83 [Enter]**.

## **^B84 Clear Alarm Condition**

---

Clears the Alarm Condition and cancels pending redials, without resetting Alarm Clue Counters or turning off the ALM LED. After Command ^B84 clears the Alarm Condition, the Alarm Message will still include the clue name that generated the alarm.

When this command is invoked, a delay timer will start. This prevents the unit from sending another alarm for five minutes. To clear an alarm condition, type **^B84 [Enter]**.

## **^B85 Enable/Define Daily Reset Schedule for Alarm Clue Counters**

---

Enables/disables and defines the Daily Reset Schedule for Alarm Clue Counters.

### **Note**

- The Daily Reset Schedule will not function if Command Mode is active at the time of the scheduled reset.
- Counters are not reset on Saturdays, Sundays or holidays. Holidays are defined using ^B15.
- To disable the Daily Reset Schedule, type **^B85, N [Enter]**.

The Reset Schedule can be defined and enabled by a menu driven routine, or entered as a single ^B85 command line.

### **^B85 Menu Driven:**

Type **^B85 [Enter]**. The following prompts will appear:

RESET TIMER (Y,N)? Type **Y [Enter]** to enable, or **N [Enter]** to disable. If **Y** is entered the following prompt will appear.

TIME (HH:MM)? Key in the daily reset time and press **[Enter]**, or simply press **[Enter]** or **[Esc]** to retain current settings.

**^B85 Single Command Line:**

To enable and define the Daily Reset Schedule with a single command line, use the following format:

**^B85, Y, HH:MM [Enter]**

Where **HH** is the hour (01 - 24), and **MM** is the minute (00 - 59).

---

**^B86 Reset Alarm Clue Counters**

---

Resets counters for Alarm Clues as described below. Command ^B86 will completely clear the alarm condition, Alarm Message, and 5 minute delay timer, allowing additional alarms to be generated immediately.

**Command Options:**

- ^B86** Clear Alarm Condition, Leave Counters Intact.
- ^B86, clue** Clear Alarm Condition, Re-Set Counter for *clue* only.
- ^B86, \*** Clear Alarm Condition, Reset all Counters.

---

**^B87 Select Alarm Notification Method**

---

Selects the Alarm Notification Method.

**Command Options:**

- ^B87, 0** Alarm Off (**Default**)
- ^B87, 1** Local PC, ALM LED
- ^B87, 2** Remote PC, ALM LED
- ^B87, 3** Pager (Alpha), ALM LED
- ^B87, 4** Report, ALM LED
- ^B87, 5** Pager (Numeric), ALM LED

---

**^B88 Test/Toggle ALM LED**

---

This command is used to toggle the ALM LED.

**Command Options:**

- ^B88, 1** ALM LED Off (**Default**)
- ^B88, 2** ALM LED On (Test)

---

**^B89 Test Pager**

---

To test an alphanumeric pager, type **^B89, 1 [Enter]**, then issue Command ^B09 to exit Command Mode. After approximately two minutes, the pager should display the Alarm Message. In order to use this command, the Alarm Message, Alarm Number, and Pager I.D. number(s) must be defined under Command ^B14.

## **^B90 Define Modem Port Communication Parameters**

---

Defines the baud rate, parity, data bits, and stop bits for the Modem Port. Command ^B90 uses the following format:

**^B90,baud\_rate,parity,data\_bits,stop\_bits [Enter]**

Where:

<b>baud_rate</b>	Can be 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, or 57600. Only the first two characters must be specified. If an asterisk (*) is typed in this field, the port will be set at the highest rate the modem will support.
<b>parity</b>	Can be None (N), Odd (O), Even (E), Mark (M), or Space (S).
<b>data_bits</b>	Can be 7 or 8.
<b>stop_bits</b>	Can be 1 or 2.

**Example:** To set the Modem Port to 19200 baud, 8 bits, no parity, and 2 stop bits, type the following:

**^B90,19,N,8,2 [Enter]**

### **Set-Up Switch 8 (Power Up Default):**

If Set-Up Switch 8 is set in the UP position, and power is lost, the Modem Port will default to 8 bits, no parity, one stop bit. The baud rate will be set to the highest rate the modem will support.

#### **Note:**

- If Command ^B90 specifies a baud rate above the modem's capability, an error message will be sent.
- If the MPC-500 is controlled via the Modem Port, changes will not take effect until after you exit Command Mode. This prevents the user from being locked out of the port.
- If the MPC-500 is controlled via the Computer Port, changes will take effect immediately.
- If Command ^B50 is invoked to return the unit to default settings, the MPC-500 will reset the Modem Port to the highest baud rate the modem will support.
- When Command ^B90 is invoked, up to 10 seconds may elapse before the "COMPLETE" message is sent. This delay is due to the time required to reset the modem.

---

## **^B91 Define Computer Port Communication Parameters**

---

Defines the baud rate, parity, data bits, and stop bits for the Computer Port. Command ^B91 uses the following format:

```
^B91,baud_rate,parity,data_bits,stop_bits [Enter]
```

Where:

<b>baud_rate</b>	Can be 300, 600, 1200, 2400, 4800, 9600, 19200, or 38400. Only the first two characters must be specified. If an asterisk (*) is typed in this field, the rate specified by Set-Up Switches 1 through 3 is used.
<b>parity</b>	Can be None (N), Odd (O), Even (E), Mark (M), or Space (S).
<b>data_bits</b>	Can be 7 or 8.
<b>stop_bits</b>	Can be 1 or 2.

**Example:** To set the Computer Port to 38400 baud, 8 bits, no parity, and 2 stop bits, type the following:

```
^B91,38,N,8,2 [Enter]
```

### **Set-Up Switch 8 (Power Up Default):**

If Set-Up Switch 8 is set in the UP position, and power is lost, the Computer Port will default to 8 bits, no parity, one stop bit. The baud rate will be set according to the Set-Up Switches, rather than the command selected rate.

#### **Note:**

When Command ^B91 is invoked, changes in communications parameters will take effect immediately after the "COMPLETE" message is sent.

## **^B92 Define PBX Port Communication Parameters**

---

Defines the baud rate, parity, data bits, and stop bits for the PBX Port. Command ^B92 uses the following format:

**^B92,baud\_rate,parity,data\_bits,stop\_bits [Enter]**

Where:

- |                  |  |
|------------------|--|
| <b>baud_rate</b> | Can be 300, 600, 1200, 2400, 4800, 9600, 19200, or 38400. Only the first two characters must be specified. If an asterisk (*) is typed in this field, the rate specified by Set-Up Switches 4 and 5 is used. |
| <b>parity</b>    | Can be None (N), Odd (O), Even (E), Mark (M), or Space (S).  |
| <b>data_bits</b> | Can be 7 or 8.   |
| <b>stop_bits</b> | Can be 1 or 2.   |

**Example:** To set the PBX Port to 9600 baud, 8 bits, no parity, 2 stop bits, type the following:

**^B92,96,N,8,2 [Enter]**

**Set-Up Switch 8 (Power Up Default):** If Set-Up Switch 8 is UP, and power is lost, the PBX Port will default to 7 bits, even parity, one stop bit. The baud rate will be set according to the Set-Up Switches, rather than the command selected rate.

## **^B94 Enter Monitor Mode**

---

Allows direct communication with the PBX. In Monitor Mode, data can be received directly from the PBX in order to check reception. Commands can also be sent directly to the PBX. Monitor Mode is similar to Pass-Through Mode (^B29), except that while Monitor Mode is active, the MPC-500 will still store data, and check for records that match Alarm Clues.

The Monitor Mode features 4 Kbyte buffering in both directions to prevent overflow problems. To enter Monitor Mode, type **^B94 [Enter]**. To exit Monitor Mode, type **^B30 [Enter]**.

### **Caution:**

**Please refer to your PBX User's Manual for further instructions. Do not attempt to alter PBX configuration or access codes unless you are authorized to do so.**

## **^B95 Display EPROM Version**

---

Displays the version number of the currently installed MPC-500 EPROM. Type **^B95 [Enter]**. The MPC-500 will respond with a message similar to the example below.

MPC-500, Version 1.0

## **^B99 Save Current Parameter Settings**

---

Sends parameter settings to an ASCII text file. In the event of corruption or erasure of parameter settings, the ASCII text file can be downloaded to the unit to restore the previous configuration.

Command ^B99 can be invoked with a variety of different options. These options streamline the upload/download process by sending only specific parameters, and/or arranging data in a manner where several parameters are combined in a single, line.

### **Note:**

- When parameters are saved, the "^A" character is substituted for the "^B" character. If the ASCII file is uploaded to the MPC-500, the ^A character allows commands to be executed without echoing back to the polling device.
- With the exception of options ^B99,\* and ^B99 (plain), each set of parameters will be listed in a single, continuous line, terminated by <CR><LF>.
- Alarm Filter Parameters (defined using command ^B81) will only be saved when options ^B99,\* and ^B99 (plain) are invoked. Options ^B99,1 through ^B99,9 will not include Alarm Filter Parameters.

Command ^B99 offers the following options:

- ^B99 All Parameters, Line by Line:** Downloads all parameters specified in Table 8.1. Each parameter is listed on a separate line, terminated by <CR><LF>.
- ^B99,\* All Parameters, Condensed:** Downloads all parameters specified in Table 8.1. Several parameters are included on each line, and each line is terminated by <CR><LF>.

- ^B99,0 "00" Series Parameters:** ^B04 (Banner Message / Auto Execute / Report Command) and ^B05 (EOR Character).
- ^B99,1 ^B12 Callback Schedule Parameters:** ^B12 (Callback Schedule).
- ^B99,2 ^B14 Callback Parameters:** ^B14 (Callback Parameters).
- ^B99,3 ^B15 No-Data Alarm Parameters:** ^B15 (No-Data Alarm).
- ^B99,4 "40" Series Command Parameters:** ^B40 (Data Filter Format), ^B42 (Data Filter Parameters), and ^B44 (Alarm Filter Format).
- ^B99,5 "50" Series Command Parameters:** ^B52 (Hold "End Data"), ^B53 (Compression), ^B54 (Release Data with ^B02), ^B55 (Non-Printable Codes), ^B56 (Enable Data Filter), ^B57 (XON/XOFF), ^B58 (Response Message Type), and ^B59 (Line I.D.).
- ^B99,6 "60" Series Command Parameters:** ^B62 (Output Format), ^B63 (CRC Option), ^B64 (Wrap Around Mode), ^B65 (Enable Alarm Filter), ^B66 (Time/Date Stamp), ^B67 (Auto Delete Option), ^B68 (Duplex Mode), and ^B69 (Enable Auto Execute Option).
- ^B99,7 "70" Series Command Parameters:** ^B70 (Callback Options), ^B71 (DLE Stuffing), ^B75 (SURE? Prompt), ^B77 (Modem Reset Message), and ^B79 (Define Password).
- ^B99,8 "80" Series Command Parameters:** ^B80 (Block Size), ^B85 (Counter Reset Schedule), and ^B87 (Alarm Notification).
- ^B99,9 "90" Series Command Parameters:** ^B90 (Modem Port), ^B91 (Computer Port), and ^B92 (PBX Port).

# A. Advanced Format and Clue Definition

---

This appendix provides instructions and examples of the process used to define relatively complex Alarm Filter Formats and Alarm Clues.

## A.1. Alarm Filter Format Definition

---

The Alarm Filter Format describes the position of each field in the call record and assigns a variable to that field. This gives the MPC-500 an impressive degree of flexibility, by allowing the unit to adapt to any possible call record format.

### Non-Alphabetic Order

Although Alarm Filter Formats are limited to the variables A through Z, these variables don't necessarily have to be defined in alphabetic order.

**Example:** Assume you have defined an Alarm Filter Format that uses the letters A through C to indicate fields of the call record. After defining a series of Alarm Clues based on this format, you need to add a variable named "D" in order to identify the field which contains the extension number.

Rather than starting from scratch and completely redefining the format and all previously defined clues, you can define a new format that retains previously defined variables. The old format is simply re-defined with the new variable inserted between two of the previous variables.

## A.2. Alarm Clue Definition

---

This section contains examples of relatively complex Alarm Clues that simultaneously monitor several fields of each call record.

In order to detect the precise characteristics of a specific type of phone call, it is often necessary to cross reference several fields of the call record. For example, to count long distance calls over 20 minutes long, placed after 7:00 pm, the clue definition would have to include the number dialed, call duration, and call time.

If the definition is not carefully planned and analyzed, clues can miss records which they were supposed to catch, or count records which were supposed to be ignored.

### A.2.1. Alarm Clue Examples

The following examples are based on a fictional, simplified PBX record format as shown below. The last line in the example below represents the Alarm Filter Format defined for this fictional PBX.

```
|08:15|092|J.SMITH      |OUT|19495869950      |01:15|00.40|
|08:16|089|P.BROWN      |OUT|411               |00:25|00.10|
|08:16|075|B.JOHNSON    |IN |                   |00:55|00.00|
|08:17|001|VMAIL           |IN |                   |00:10|00.00|
|08:18|067|R.JONES       |OUT|19495839514       |05:36|00.75|
|08:20|092|J.SMITH       |OUT|18008547226       |01:07|00.00|
|08:21|002|WATS           |IN |                   |00:57|00.20|
-AAAAA-BBB-CCCC-----DDDDDD-----EEEE-----
```

Where:

- AAAAA** is the field that lists the time the call was placed (5 digits).
- BBB** is the field for extension number used (3 digits).
- CCCC** is the field that lists the first five digits of the user name (5 digits).
- DDDDDD** is the field that lists the first seven digits of the number dialed (7 digits).
- EEEE** is the field for call duration call (5 digits).

### A.2.1.1. Repeated Attempts to Access Voice Mail

This Alarm Clue counts short calls to voice mail. This type of call could indicate that a Toll Fraud hacker is dialing into your voice mail and randomly trying access codes in an attempt to find an outside line.

The clue will be named "VMAIL" and the critical counter value will be set at 50 calls. Assume you have configured the MPC-500 for Pager (Alpha) notification, and you want to use Pager I.D. numbers one and three.

**Format:**

```
| 08:17|001|VMAIL          | IN |                               | 00:08|00.00|
-AAAAA-BBB-CCCC-----DDDDDD-----EEEE-----
```

Where:

- C** is the field that lists user name.
- E** is the field for call duration.

**Clue Definition:**

```
^B81,VMAIL[13]\50\C=VMAIL*E<=00:30
```

Where:

- VMAIL** is the Alarm Clue Name.
- [13]** is the Pager I.D. Number specifier. In this case, the clue will use PAGER ID#1 and PAGER ID#3 for notification.
- 50** is the number of calls required to generate an alarm.
- C=VMAIL** Tells the MPC-500 to count calls with the text "VMAIL" in the user name field (C).
- \*** is the "AND" operator.
- E<=00:30** Tells the MPC-500 to count calls which last 30 seconds or less.

**Note:**

When comparative operators (>, <, >=, and <=) are used, the clue may also count headers, summaries, and other non-data. Refer to Appendix A.3 for instructions on how to avoid counting these items.

### A.2.1.2. After Hours Long Distance Calls.

This clue counts long distance calls placed after 6:00 pm or before 7:00 am. This type of call could indicate that a hacker has obtained an access code for an outside line and is using the line to dial long distance numbers after work hours.

The clue will be named "LD\_NITE" and the critical counter value will be set at 20 calls.

#### Format:

```
|21:18|067|R.JONES      |OUT|1214555555      |19:36|03.75|  
-AAAAA-BBB-CCCC-----DDDDDD-----EEEE-----
```

Where:

- A** is the field that lists the call time.
- D** is the first seven digits of the number dialed.

#### Clue Definition:

```
^B81,LD_NITE\20\ (A>18:00+A<07:00) *D=1-----
```

Where:

- LD\_NITE** is the Alarm Clue Name.
- 15** is the number of calls required to generate an alarm.
- (A>18:00+A<07:00)** Tells the MPC-500 to count calls placed after 18:00 or before 07:00.
- D=1-----** Tells the MPC-500 to count calls where the first digit of the number dialed is the number "1". Note that the remaining 6 digits of the variable are entered as wild card characters (-).

#### Note:

When the comparative operators (>, <, >=, and <=) are used, the clue may also count headers, summaries, and other non-data. Refer to Appendix A.3 for instructions on how to avoid counting these items.

### A.2.1.3. Lengthy International Calls

This type of call could indicate that a hacker has obtained an access code for an outside line.

This clue requires that you are familiar with the average duration for international calls placed in the course of a normal day. For example, if your average international call lasts about 10 minutes, and you are suddenly billed for a two hour call, it could be an indication that a hacker has gained access to the PBX.

The clue will be named "LONG\_INTL" and the critical counter value will be set at 5 calls.

**Format:**

```
|17:28|092|T.WILLIAMS |OUT|011811234567 |51:35|44.50|
-AAAAA-BBB-CCCC-----DDDDDD-----EEEE-----
```

Where:

**E** is the field that lists call duration.

**Clue Definition:**

```
^B81, LONG_INTL\5\D=011----*E>=20:00
```

Where:

**LONG\_INTL** is the Alarm Clue Name.

**5** is the number of calls required to generate an alarm.

**D=011----** Tells the MPC-500 to count calls where the first three digits of the number dialed are "011". The remaining 4 digits of the variable are entered as wild card characters (-).

**E>=20:00** Tells the MPC-500 to count calls that lasted 20 minutes or longer.

**Note:**

When the comparative operators (>, <, >=, and <=) are used, the clue may also count headers, summaries, and other non-data. Refer to Appendix A.3 for instructions on how to avoid counting these items.

### A.2.1.4. The "Contains String" Operator (\$)

This Alarm Clue shows how the "Contains String" operator (\$) can be used to search an entire field for a specific text string, without regard for the position within the field. This type of clue is useful in cases where the call record includes a field with right justified numbers (e.g. the field for number dialed).

The clue will be named 900NOS and the critical counter value will be set at 100 calls.

**Format:**

```
|12:01|077|J.JONES      |OUT|          5553333|00:45|00.35|
|12:03|084|B.SMITH     |OUT|      18005555656|01:25|00.00|
|12:05|092|T.BROWN     |OUT|  1900555444411#2|09:25|20.95|
-----AAAAAAAAAAAAAAAA-----
```

Where **A** represents the field that lists the number dialed.

In this example, the PBX also records digits entered *after* the call has connected. This is often seen in cases where the caller is given the option to enter numbers in order to access a specific department or extension.

**Clue Definition:**

**^B81,900NOS\100\A\$1900**

Where:

- 900NOS** is the Alarm Clue name.
- 100** is the number of calls required to generate an alarm.
- A\$1900** Tells the MPC-500 to count records that have the string "1900" anywhere in the "A" field. When the "\$" operator is used, wild card characters are not used to account for the remaining digits in the field.

**Note:**

When the "Contains String" operator is used, the clue may also count records that do not fit the intended purpose of the clue. For example, this clue would also count calls to any number containing the string "1900" (such as "555-1900").

## A.3. Clue Definition Logic

To effectively detect Toll Fraud, Alarm Clues must be able to produce an exact count of calls that match the characteristics of a suspect phone call. Careful planning will allow you to create clues that count suspect calls, and ignore the calls you don't need.

### A.3.1. Headers, Banners, and Other "Non-Data"

When you examine data produced by the PBX, you will often discover that in addition to call records, the PBX also creates lines of text that do not contain call data. To avoid accidentally counting "non-data", clues must be carefully defined to exclude headers and other items.

In the example below, several call records are shown along with a header. The PBX might generate the header after every 100 calls to identify record fields. This is helpful when defining the format, but can be a nuisance when counting calls.

```
+-----+---+-----+-----+-----+-----+
  TIME  EXT  DUR   NO. DIALED   COST
+-----+---+-----+-----+-----+-----+
| 09:15|074|01:25|19495869950|00.35|
| 09:17|112|00:45|18008547226|00.00|
| 09:18|085|00:20|8531212|00.10|
| 09:20|124|02:25|19495839514|00.55|
| 09:18|091|00:25|411|00.10|
```

### A.3.2. The Comparative Operators

When the comparative operators (>, <, >=, and <=) are used, care must be taken to limit the scope of the comparison.

When the MPC-500 compares information in a call record with values indicated in the clue definition, it performs an "ASCII comparison". All ASCII characters are compared, not just numbers. Each ASCII character, (including letters and symbols) has a numerical value. Letters of the alphabet have a higher value than numbers, and symbols have a lower value than numbers.

Although call records may always have a numerical value in a specific field, "non-data" such as headers and summaries, might have letters or symbols in that field. When creating an Alarm Clue definition that includes the comparative operators, the MPC-500 must be prevented from counting symbols and alphabetic characters as numerical values.

For example, if variable "B" is defined as call duration and you need to check for calls lasting longer than 15 minutes, the Alarm Clue definition would include the phrase "B>15:00". Unfortunately, this clue would also count headers that have alphabetic text in the call duration field.

If your Alarm Clues are also counting non-data, the techniques described in the following sections can be used to obtain a more reliable count.

### A.3.2.1. Limit the Scope of Comparisons

When comparative operators are used, values can be defined as a range between two numbers, rather than a one ended range. In other words, if a "Greater Than" operator is used, it can be matched with a "Less Than" operator in order to limit the scope of the comparison.

**Example:** Define a clue that counts calls placed after 5:00 pm (17:00). Assume the clue is named "AFTER\_5", the maximum count is 30, and the variable "A" represents the time the call was placed. The most direct way to define this clue is as follows:

```
^B81 ,AFTER_5\30\A>17:00
```

However, when the clue is defined this way, headers and summaries with alphabetic characters in the "A" field will also appear in the count. To prevent the clue from counting "non-data", the "A" variable can be defined as a range as shown below:

```
^B81 ,AFTER_5\30\A>17:00*A<99:99
```

This definition would prevent the clue from including "non-data" records that have alphabetic characters in the "A" field, since alphabetic characters would have a value higher than 99:99.

### A.3.2.2. Exclude Non-Data Characteristics

Another way to eliminate non-data from the count is to define the clue in a manner that excludes the characteristics of headers and call accounting summaries.

If you examine data generated by the PBX, there is usually some factor which differentiates non-data from call records. In some cases, call records always begin with a specific character, whereas non-data will omit this character. In other cases, non-data records have a specific text item in a field, where call data records have a numerical value. Once you have determined a factor that differentiates between non-data and call records, it is relatively simple to define clues that exclude the non-data.

**Example:** Define a clue that counts calls lasting three minutes or longer. Assume the clue is named "LONGCALL", the maximum count is 40, and the variable "B" represents the call duration. the most direct way to define this clue is as follows:

```
^B81 , LONGCALL\40\B>=03:00
```

However, when the clue is defined this way, headers and summaries also appear in the clue count.

In order to exclude undesired records, assume you have determined that call records always begin with the character "|" (vertical bar). To use this knowledge in the clue definition, you would first re-define the format to include the variable "L" to represent the first character in the record, then re-define the clue as follows:

```
^B81 , LONGCALL\40\B>=03:00*L=|
```

This definition would exclude headers and summaries by only counting records that begin with the "|" (vertical bar) character.

### **A.3.3. Exact Match with PBX Call Record Format**

Both the Alarm Filter Format and the Alarm Clue definition must exactly match the format used by the PBX.

When your PBX stores data items such as the number dialed or time values, the punctuation and exact characters used will differ from the formats shown in the examples.

Prior to defining the Alarm Filter Format and Alarm Clues, use Command ^B01 to examine a number of the call records. Check each type of data item to determine the exact format used by the PBX. Later, when the Alarm Filter Format and Alarm Clues are defined, your definition must reflect the format used by the PBX.

## **A.4. Programming Support**

---

If you have difficulty defining formats or clues, you can call the service department at Western Telematic, Inc. at (949) 586-9950 or 1 (800) 854-7226, between 8:00 am and 5:00 am, Pacific Time. Any MPC-500 unit configured to allow remote access can be contacted via modem and programmed by WTI service personnel.

Before calling, make certain your MPC-500 unit has been allowed to store a substantial number of call records, representative of the type produced by the PBX. Please be prepared to give the name and make of the unit, its serial number and a description of the clues you need to define.

# B. Description of System Interfaces

---

## B.1. PBX INPUT Port (DB9 Male)

---

Pin	Signal
1	Not Connected
2	Receive Data (In)
3	Transmit Data (Out)
4	Data Terminal Ready (Out)
5	Signal Ground
6	Not Connected
7	Not Connected
8	Clear to Send (In)
9	Not Connected

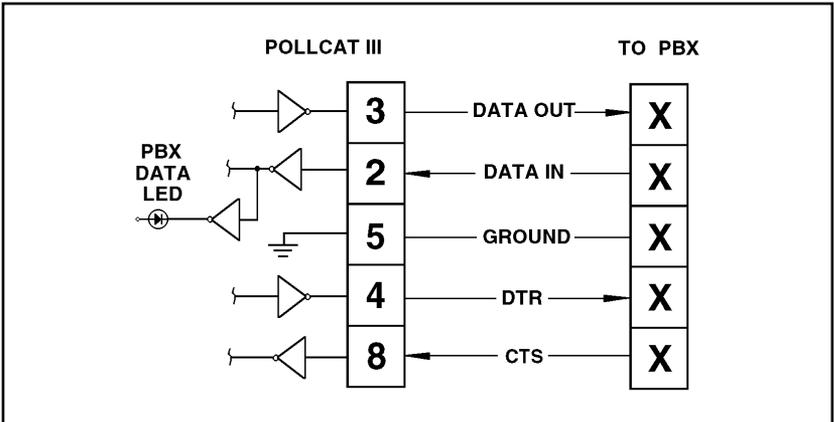


Figure B.1: PBX Input Port

## B.2. Computer Port (DB25 Female DCE)

Pin	Signal
2	Receive Data (In)
3	Transmit Data (Out)
5	Clear to Send (Out)
6	Held + (Out)
7	Signal Ground
20	Data Terminal Ready (In)

### B.2.1. MPC-500 Computer Port to 25-Pin PC

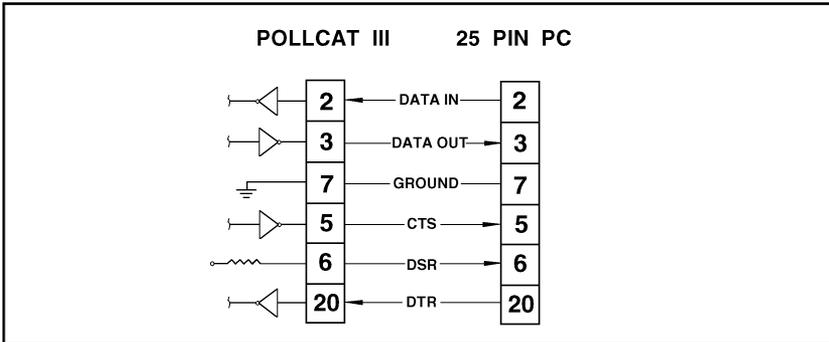


Figure B.2: Computer Port to 25 Pin PC

### B.2.2. MPC-500 Computer Port to 9-Pin PC

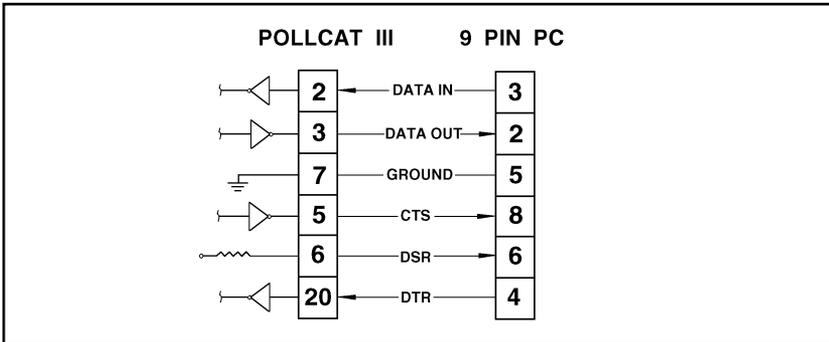


Figure B.3: Computer Port to 9 Pin PC

## C. PollCat II Compatibility

---

This section discusses issues that should be considered when using the MPC-500 with polling and/or call accounting software originally created for use with the PollCat II.

Although most MPC-500 features are identical to those found in the PollCat II, other features have changed. This list summarizes those features.

### **Note:**

This section does not discuss *all* of the features incorporated in the MPC-500. The changes described here represent only the items that may effect compatibility with software designed for PollCat II.

### C.1. Alarm Filter (Toll Fraud Detection)

---

PollCat II's Alarm Filter has been replaced with a more sophisticated Alarm Filter that provides an impressive array of additional capabilities. For a detailed description of the MPC-500 Alarm Filter, please refer to Section 7 in this User's Guide. Note the following compatibility related issues:

1. **Commands ^B46 and ^B47:** Commands ^B46 (Define Alarm Filter Parameters) and ^B47 (Display Alarm Filter Parameters) have been eliminated.
2. **Callback Parameters:** The order of prompts for Command ^B14 (define Callback Parameters) has been changed. Several new prompts have been added to allow definition of an Alarm Number and three different Pager I.D. Numbers.
3. **Default Redials:** The default number of Redials under command ^B14 (Define Callback Parameters) has been reduced from 16 to 4.

## C.2. Port Modifications

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1. **Communication Parameters:** In order to maintain compatibility with PollCat II, Command ^B61 (PBX Port Communication Parameters) is still supported.
2. **Modem and AUX/Computer Ports (Output):** The AUX Port is now called the "Computer Port".
  - a) **Communication Parameters:** In order to maintain compatibility with PollCat II, Command ^B60 (Computer/Modem Port Communication Parameters) is still supported. Command ^B60 will set the same parameters for *both* the Modem Port and Computer Port. To set separate parameters for these Ports, please refer to Commands ^B90 and ^B91 in Section 10, Command Reference Guide.
  - b) **Modem Port Timeout:** The Modem Port will now time out after 10 minutes of inactivity. PollCat II's Modem Port would remain on-line indefinitely.
3. **Power Up Default:** The MPC-500 includes a feature that allows some parameters to be reset to default values upon power up. When enabled (Set-Up Switch 8 = UP), the following defaults will be set after an interruption in power:
  - a) **Computer Port:** The baud rate will be set according to the Set-Up Switches. The Port will be set at 8 bits, no parity, one stop bit.
  - b) **Modem Port:** The baud rate will be set to the highest rate the modem will support. The Port will be set at 8 bits, no parity, one stop bit.
  - c) **PBX Port:** Baud rates for the PBX Port will be set according to the Set-Up Switches. The Port will be set at 7 bits, even parity.
  - d) **Password:** The password will default to "SMDR".

4. **Direct Connect Mode (Sw6):** In the PollCat II, Set-Up Switch 6 enables or disables the PollCat message and password requirement. In the MPC-500, the Direct Connect Mode has been changed as follows:
  - a) Set-Up Switch 6 enables or disables the need for the ^E command when accessing Command Mode via the Computer Port.
  - b) Set-Up Switch 6 enables or disables the internal modem.
  - c) Set-Up Switch 6 no longer enables or disables the password requirement.

---

### **C.3. Status Screens**

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Several status screens have been modified to include additional information concerning status of commands not previously available to the PollCat II.

---

### **C.4. Connection**

---

1. **MPC-500 Prompt:** When the MPC-500 is contacted via modem, the unit will now wait 10 seconds after detecting the modem carrier (DCD) before displaying the MPC-500 prompt.
2. **Password Entry:** The password entry routine has been modified to allow only 10 attempts to enter the correct password. If the correct password is not entered within 10 attempts, the MPC-500 will disconnect.

---

### **C.5. Other Modified or Eliminated Commands**

---

1. **List Options Commands:** The List Options commands (^B51 and ^B74) are no longer supported.
2. **XON/XOFF Function:** Command ^B57 (Enable/Disable XON/XOFF Function) now defaults to "OFF" (^B57,2).
3. **Pass-Through Mode (Command ^B29):** The Pass-Through mode has been modified to use hardware handshaking at the PBX input. This may result in a hardware line drop when the buffer becomes full.

## D. LED Indicators

---

The LED indicators on the front panel of the MPC-500 unit can be used to determine instrument status as indicated in the table below.

<b>Indicator(s)</b>	<b>Status</b>	<b>Meaning</b>
ON	Lit	Power is applied to unit
RDY	Slow Flash	Unit is operational
RDY	Lit	Command Mode is active
RDY	Lit at all times	Unit is configured for Direct Connect (Communication via Computer Port)
RXD	Flash	Commands are being received via Computer Port
MEM	Flash	Memory is 80% full
MEM	Lit	Memory is 100% full
BAT	Lit	Battery needs replacement
ALM	Lit	Toll Fraud Alarm or No-Data Alarm has been triggered
OH	Lit	Modem is Off Hook
DCD	Lit	Modem has Data Carrier Detect
PBX INPUT	Flash	Data is being received by the PBX Port
DCD and OH	Flash	Possible problem with modem
DCD and OH	Flash	Set-Up Switch 6 has been set in the DOWN position and there is no modem present.
MEM and ALM	Flash upon Power Up	No memory SIMMS have been installed.

## E. Specifications

---

**Storage Capacity:** Based on AT&T, 80 character format, using dual compression. Call record capacity may vary with other PBX Formats.

Memory Size	Approximate Call Record Capacity
512K	20,000

**Memory:** CMOS static RAM, Battery Backed.

**Battery:** Lithium cartridge, 90 day power-off life, field replaceable.

**Coding:** 7/8 data bits, even/odd/no parity bit, 1,2 stop bits.

**PBX Baud Rates:** 38400, 19200, 9600, 4800, 2400, 1200, 600, 300.

**Internal Modem Baud Rates:** 57600, 38400, 19200, 9600, 4800, 2400, 1200, 600, 300.

**Connectors:**

**Modem Port:**

**Telco:** RJ11 Jack to Telephone Line.

**Phone:** Not Used.

**Computer Port:** RS-232 DCE, DB25 female (modem style).

Standard rates from 300 to 38.4K bps (Can also be used as external modem port).

**PBX Port:** RS-232 DTE, DB9 male (ATPC Style). Standard rates from 300 to 38.4K bps. XON/XOFF or DTR/CTS flow control. All parameters programmable.

**LED Indicators:** ON, RDY, RXD, MEM, BAT, ALM, OH, DCD, PBX INPUT

**Size:** 2.5" x 10.5" x 6.375" (H x W x D).

**Weight:** 5 lbs. (Shipping Weight)

**Power:** Universal Input. 85 VAC to 270 VAC, 47 Hz to 63 Hz., 12 Watts Max.

**Operating Temperature Range:** 50 F to 104 F (10 C to 40 C).

**Humidity:** 20% to 80% RH.

## **F. Customer Service**

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Customer Service hours are from 8:00 am to 5:00 pm, Pacific Standard Time, Monday through Friday. When calling, please be prepared to give the name, model, and serial number of the unit, as well as a description of the problem. If the unit should need to be returned for factory repair, it must be accompanied by a Return Authorization Number issued by WTI Customer Service.

WTI Customer Service  
5 Sterling  
Irvine, California 92618-2517

Local Phone: (949) 586-9950  
Toll Free Service Line: 1-888-280-7227  
Service Fax: (949) 457-8138

E-Mail: [service@wti.com](mailto:service@wti.com)

## **G. FCC Statement**

---

**WARNING:** This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio and television reception. It has been tested and found to comply with the limits for a Class A computing device in accordance with specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference, in which case the user at his/her own expense will be required to take whatever measures may be required to correct the interference.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that the equipment and receiver are on different branch outlets.
- Ensure that the mounting screws, attachment connector screws and ground wires are tightly secured.
- Ensure that good quality, shielded and grounded cables are used for data transmission.

You may find the following booklet prepared by the Federal Communications Commission helpful:

*How to Identify and Resolve Radio-TV Interference Problems*

This booklet is available from the US Government Printing Office, Washington, DC 20402, Stock No. 044-000-00345-4.

## H. Command and Response Message Summary

<b>Cmd.</b>	<b>Description / Options</b>
^B00	Move Memory Partition
^B01	Enter Data Release Mode ^B01[,type][@n][,n]
	Where:
	[,type]      The [,type] argument offers the following options:
	,A      Release Alarm Records only.
	,D      Release Data Records only.
	,clue   Release Alarm Records for "clue" only.
	@n          (Offset) Release records starting with the "nth" record.
	[,n]          (Count) Release records in groups of "n".
^B02	Send Next Group of Records or Blocks
^B03	Send Banner Message or Command String
^B04	Define Banner Message or Command String
	^B04,text      Define Banner Message
	^B04,*commands    Define Auto Execute Command String
	^B04,!commands    Define Report Mode Command String
^B05	Define End-of-Record Character ^B05,end_character
^B06	Re-send Last Group of Records or Blocks
^B09	Exit Command Mode (Disconnect)
^B11	Set Real Time Clock / Calendar ^B11,hh:mm,d,MM\DD\YY
^B12	Define Callback Schedule ^B12,*      Clear Callback Schedule
^B13	Send ID / Alarm Message
^B14	Define Callback Parameters
^B15	Define No-Data Alarm Parameters
^B16	Display System Status Screen
^B17	Display No-Data Alarm Parameters
^B18	Display Reason for Callback

<b>Cmd.</b>	<b>Description / Options</b>
^B19	Display Callback Schedule
^B20	Display Number of Stored Records or Blocks in Partition
^B20	Display Count of Both Data and Alarm Records
^B20,D	Display Count of Data Records Only
^B20,A	Display Count of Alarm Records Only
^B21	Display Remaining Memory Space
^B22	Display Memory Size / PBX Port Baud Rate
^B23	Display Battery Status
^B24	Display Set-Up Switch Status
^B25	Clear Memory to Partition
^B25	Clear both Data and Alarm Records in Current Memory Partition
^B25,D	Clear Only Data Records in Current Partition
^B25,A	Clear Only Alarm Records in Current Partition
^B27	Send Continuous Test Message
^B28	Enter Echo Test Mode
^B29	Enter Pass-Through Mode
^B30	Exit to Command Mode
^B37	Load and Test Memory
^B38	Re-read Memory Test Pattern
^B39	Clear Records/Blocks
^B39	Clear All Records/Blocks, Leave Alarm Clue Counters Intact
^B39,2	Clear All Records/Blocks, <i>and</i> Reset Alarm Clue Counters to Zero
^B40	Define Data Filter Format
^B40,data_filter_format	
^B41	Display Data Filter Format
^B42	Define Data Filter Parameters
^B42,parameters	
^B43	Display Data Filter Parameters
^B44	Define Alarm Filter Format
^B44,data_filter_format	
^B45	Display Alarm Filter Format
^B50	Reset Options to Default Settings
^B50	Reset Options to Default Settings
^B50,2	Reset Options to Default Settings, <i>and</i> Erase All Formats, Filter Parameters, and Alarm Clues
^B52	Hold END DATA Message
^B52,1	Release END DATA Message ( <b>Default</b> )
^B52,2	Hold END DATA Message until ^B02 is Received

<b>Cmd.</b>	<b>Description / Options</b>
^B53	Select Compression Mode ^B53,1      Compressed ^B53,2      Decompressed <b>(Default)</b>
^B54	Release Data with ^B02 Command ^B54,1      Release 1st Group of Records or Blocks without ^B02 Command <b>(Default)</b> ^B54,2      Wait for ^B02 Command
^B55	Strip Non-Printable Codes ^B55,1      Store Non-Printable Codes ^B55,2      Strip Non-Printable Codes <b>(Default)</b>
^B56	Enable/Disable Data Filter ^B56,1      Disable <b>(Default)</b> ^B56,2      Enable
^B57	Enable/Disable XON/XOFF Function ^B57,1      Enable ^B57,2      Disable <b>(Default)</b>
^B58	Select Response Message Type ^B58,1      Verbose <b>(Default)</b> ^B58,2      Terse
^B59	Enable/Disable Line ID Option ^B59,1      Disable <b>(Default)</b> ^B59,2      Enable
^B60	Define Computer / Modem Port Communication Parameters ^B60,1      7 Bits, Even ^B60,2      7 Bits, Odd ^B60,3      8 Bits, None <b>(Default)</b>
^B61	Define PBX Port Communication Parameters ^B61,1      7 Bits, Even <b>(Default)</b> ^B61,2      7 Bits, Odd ^B61,3      8 Bits, None
^B62	Select Output Format ^B62,1      ASCII Record <b>(Default)</b> ^B62,2      ASCII Block ^B62,3      Binary Block ^B62,4      XMODEM
^B63	Enable/Disable CRC Option ^B63,1      Disable <b>(Default)</b> ^B63,2      Enable
^B64	Enable/Disable Wrap Around Mode ^B64,1      Disable <b>(Default)</b> ^B64,2      Enable
^B65	Enable/Disable Alarm Filter ^B65,1      Disable <b>(Default)</b> ^B65,2      Enable

<b>Cmd.</b>	<b>Description / Options</b>	
^B66	Enable/Disable Time/Date Stamp	
	^B66,1	Disable ( <b>Default</b> )
	^B66,2	Enable
^B67	Enable/Disable Auto Delete Option	
	^B67,1	Disable ( <b>Default</b> )
	^B67,2	Enable
^B68	Select Duplex Mode	
	^B68,1	Half Duplex ( <b>Default</b> )
	^B68,2	Full Duplex
^B69	Enable/Disable Auto Execute Option	
	^B69,1	Disable ( <b>Default</b> )
	^B69,2	Enable
^B70	Select Callback Options	
	^B70,I	Immediate Callback
	^B70,S	Scheduled Callback
	^B70,%	80% Full Callback
	^B70	Clear Callback Options ( <b>Default</b> )
^B71	Enable/Disable DLE Stuffing Option	
	^B71,1	Disable ( <b>Default</b> )
	^B71,2	Enable
^B72	Display Clock / Calendar Settings	
^B73	Send Binary Information Block	
^B75	Enable/Disable "SURE? (Y,N)" Prompt	
	^B75,1	Disable ( <b>Default</b> )
	^B75,2	Enable
^B77	Define Modem Reset Message	
	^B77,reset_message	
^B78	Display Modem Reset Message	
^B79	Define/Display Command Mode Password	
	^B79,password	Define Password
	^B79	Display Password
^B80	Define Block Size	
	^B80,block_size	"block_size" = 1 - 9999 Characters (Default = 512 Characters)
^B81	Define Alarm Clue	
	^B81,clue[specifier]\count\parameters	
^B82	Delete Alarm Clue(s)	
	^B81,clue	Delete "clue"
	^B81,*	Delete all Alarm Clues
^B83	Display Alarm Clue Summary	
^B84	Clear Alarm Condition	
^B85	Enable/Define Daily Reset Schedule for Alarm Clue Counters	

<b>Cmd.</b>	<b>Description / Options</b>
^B86	Reset Alarm Clue Counters
^B86	Clear Alarm Condition, Leave Counters Intact
^B86,clue	Clear Alarm Condition, Reset Counter for "clue" only
^B86,*	Clear Alarm Condition, Reset All Counters
^B87	Select Alarm Notification Method
^B87,0	No Alarm <b>(Default)</b>
^B87,1	Local PC
^B87,2	Remote PC
^B87,3	Pager (Alpha)
^B87,4	Report Mode
^B87,5	Pager (Numeric)
^B88	Test/Toggle ALM LED and Alarm Port
^B88,1	Alarm Off <b>(Default)</b>
^B88,2	Alarm On
^B89	Test Pager
^B90	Define Modem Port Communication Parameters
^B90,baud_rate,parity,data_bits,stop_bits	
^B91	Define Computer Port Communication Parameters
^B91,baud_rate,parity,data_bits,stop_bits	
^B92	Define PBX Port Communication Parameters
^B92,baud_rate,parity,data_bits,stop_bits	
^B94	Enter Monitor Mode
^B95	Display EPROM Version
^B99	Save Current Parameter Settings
^B99	All Parameters, Line by Line
^B99,*	All Parameters, Condensed
^B99,0	"00" Series Parameters
^B99,1	^B12 Callback Schedule
^B99,2	^B14 Callback Parameters
^B99,3	^B15 No-Data Alarm Parameters
^B99,4	"40" Series Command Parameters
^B99,5	"50" Series Command Parameters
^B99,6	"60" Series Command Parameters
^B99,7	"70" Series Command Parameters
^B99,8	"80" Series Command Parameters
^B99,9	"90" Series Command Parameters

## H.1. Response Message Summary

<b>Message</b>	<b>Description</b>
80% FULL	System response to ^B18, Display Reason for Callback. Indicates that system has called back in response to the ^B70,% command and the MPC-500's memory is at least 80 percent full.
ALARM RECORD RECEIVED	System response to ^B18, Display Reason for Callback. Indicates a Toll Fraud Alarm has occurred.
COMPLETE	Command has been successfully processed.
DISCONNECT	User has exited from Command Mode and discontinued modem connection with the MPC-500.
END DATA	The MPC-500 has finished displaying or releasing data and has returned to Command Mode.
ERROR	There has been an error in command syntax or implementation. During Alarm Clue definition, can also indicate that the clue is longer than 255 characters, or that all memory available for clue definition has been used.
IMMEDIATE	System response to ^B18, Display Reason for Callback. Indicates that system has called back in response to the ^B70,I command (Immediate Callback).
INVALID	Command contains an invalid character or command has been applied in a manner that does not fit its definition.
INVALID: DUPLICATE NAME	User has attempted to define an Alarm Clue with a name that has already been used.
NO PBX DATA	System response to ^B18, Display Reason for Callback. Indicates a No-Data Alarm has occurred.
PBX READY	User has entered the Pass-Through Mode or Monitor Mode
READY	User has successfully entered Command Mode.
SCHEDULED	System response to ^B18, Display Reason for Callback. Indicates that system has initiated a scheduled callback in response to the ^B70,S command.



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